Water Supply Reserve Account – Grant and Loan Program
Water Activity Summary Sheet
May 21-22, 2014
Agenda Item 23 (d)

Applicant: San Luis Valley Irrigation Well Users Association

Water Activity Name: Ground Water Recharge for Augmentation and Aquifer Sustainability in the three study areas in Conejos County

Water Activity Purpose: Feasibility Study

County: Conejos

Drainage Basin: Rio Grande

Water Source: Conejos River

Amount Requested: $150,000 ($142,000 Statewide Account, $8,000 Rio Grande Basin Account)

Matching Funds: $8,000 from Rio Grande Basin Account (5.3% of total grant request, 4.4% of total study costs), and $30,000 from SLV Irrigation Well Users Association (20% of total grant request, 16.7% of total study costs)

Staff Recommendation
Staff recommends approval of **up to** $142,000 of Statewide WSRA funds and **up to** $8,000 of Rio Grande Basin WSRA funds to help complete the feasibility study titled: *Ground Water Recharge for Augmentation and Aquifer Sustainability in the three study areas in Conejos County*.

Water Activity Summary: The State Engineer is in the process of promulgating "Rules Governing the Withdrawal of Ground Water in Water Division 3" (Rules and Regulations). In order to continue pumping, wells must be covered by either ground water management sub-district plan of water management or by a court-approved augmentation plan. The Rules and Regulations will require that ground water withdrawals can only occur if 1) injurious stream depletions are replaced or remedied, and 2) a plan for sustainability of the unconfined aquifer and the confined aquifer is addressed and maintained. In response to this need, San Luis Valley Irrigation Well Owners Inc. (SLVIWO) is applying for WSRA funds to conduct a hydrological feasibility study of potential groundwater recharge opportunities for augmentation in three study areas in Conejos County, exploring options for using Taos Valley #3 Ditch water for augmentation credits to offset well pumping depletions. The three study areas are: Conejos Off-Channel Recharge Feasibility, Punche Arroyo Off-Channel Recharge Feasibility, and Rio San Antonio Off-Channel Recharge Facility. The activities for each study area are: install piezometers (monitoring wells), establish water table gradients, aquifer testing, and pilot ground Water Recharge testing.

If approved, this study represents the first in a three phase effort. Upon the successful conclusion of Phase 1, Phase 2 will develop the physical infrastructure to accomplish the plan. This phase will potentially require investing in the development of an augmentation station, recharge basins, perhaps pipelines or ditch linings, or perhaps a change in point of diversion, so that SLVIWO can physically get the Taos Valley No. 3 water to the locations where it needs to be stored or recharged. Phase 3 will involve submitting an application for an augmentation plan to Water Court and working through the subsequent proceedings required to adjudicate the plan.

Threshold Criteria:
The application meets all four Threshold Criteria.

Evaluation Criteria:
Tier 1: The proposed study will address augmentation options that may provide effected irrigators the opportunity to offset pumping depletions, as well as updating an augmentation decree to help Colorado meet its Rio Grande Compact obligations. There are eight or more active shareholders in the SLVIWO, that includes: Conejos Sub-district, Trinchera Sub-district, Carmel/Waverly/Alamosa Sub-district, Closed Basin Sub-district, Saguache Sub-district, San Luis Creek Sub-district, among others. In addition, the Rio Grande Water Conservation District is a key partner, providing technical assistance and advising the project from the perspective of the emerging sub-districts and their augmentation requirements. The projects and processes emerging from this hydrologic feasibility study will significantly inform the Rio Grande Decision Support System as its conclusions will advance the identified basin-wide need to 1) restore the Basin's aquifer to a sustainable level and 2) establish a sustainable balance between surface water and ground water.

Tier 2: Due to the very recent and rapid advance of the State Engineer's new Rules and Regulations, the pressures which the augmentation requirements place upon well owners and sub-districts are quite real. Nobody will be allowed to pump unless they comply with the new Rules and Regulations. Therefore SLVIWO is doing everything possible to adapt to the funding schedule of CWCB's grant and loan programs, and cannot stress enough how critically important it is for this project to be funded. Although there is no loan component at this early phase, SLVIWO understands that future funding phases will likely require pursuing a CWCB grant/loan combination. Without the requested funds from the Water Supply Reserve Account this project would not be possible, nor could future critical phases be accomplished in time for the new Rules and Regulations. Additionally, the applicant has committed $30,000 to the study, which represents 16.7% of the total study costs.

Tier 3: Colorado Senate Bill 222 has two goals – to prevent injury to surface water rights by groundwater pumping and to build back the San Luis Valley's aquifer to a sustainable level. This project provides a high level of benefit to Colorado by addressing and curing some of the problems in both of these cases. The amount of grant money requested constitutes a financially good investment for the Rio Grande Basin and for Colorado. This feasibility study promotes a better understanding of the hydrogeology of the Rio Grande Basin and provides the data needed to inform numerous future decisions. There are hydrogeologically analogous areas in Colorado – where perched or multiple water tables exist in a geologically complex area - that may benefit from this study in terms of the technical approach, testing, and solutions.

Funding Summary/Matching Funds

	Cash
WSRA Rio Grande Basin Account	$30,000
WSRA Statewide Account	$142,000
San Luis Valley Irrigation Well Owners	$30,000
Total Study Costs	**$180,000**

Discussion:
No additional discussion needed

Issues/Additional Needs:
CWCB staff requests that the following issues be addressed prior to contracting:

- The Statement of Work, Budget and Schedule need further clarification and revisions.

Staff Recommendation:
Staff recommends approval of **up to** $142,000 of Statewide WSRA funds and **up to** $8,000 of Rio Grande Basin WSRA funds to help complete the feasibility study titled: *Ground Water Recharge for Augmentation and Aquifer Sustainability in the three study areas in Conejos County.*

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.

Reporting: The applicant shall provide the CWCB a progress report every six months from beginning from the date of the executed contract. The progress report shall describe the completions or partial completions of the task identified in the scope of work including a description of any major issues that have occurred and any corrective action taken to address these issues. At completion of the project, the applicant shall provide the CWCB a final report that summarized the project and documents how the project was completed. This report may contain photographs summaries of meetings and engineering reports/designs.

Engineering: All engineering work as defined in the Engineers Practice Act performed under this grant shall be performed by or under the responsible charge of a professional engineer license by the State of Colorado to practice engineering.

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Rio Grande Inter-Basin Roundtable
c/o San Luis Valley Water Conservancy District
623 Fourth Street
Alamosa, CO 81101
Telephone: (719) 589 – 2230
Email: slvwcdco1@qwestoffice.net

January 23, 2014

Mr. Michael King, Executive Director
Colorado Department of Natural Resources

Mr. Craig Godbout, Program Manager, Water Supply Planning Section
Colorado Water Conservation Board

Reference: Hydrologic Recharge Feasibility Study for Rio Grande Basin Augmentation – Phase 1

Gentlemen:

The Rio Grande Inter-Basin Roundtable (R.G.R.T) has determined that the single, most critical water issue confronting the Rio Grande Basin (Basin) is the current unsustainable management of surface and ground water. The R.G.R.T. has made the decision that water activities that address this issue be favorably considered for funding from the Water Supply Reserve Account, SB 2005 -179 (WSRA Funds), providing the proposed water activities meet the SWSI findings for the Basin and the CWCB & IBCC Criteria and Guidelines for funding.

The San Luis Valley Irrigation Well Owners, Inc.

The Applicant for the WSRA Funding of $142,000 from the Statewide Account and $8,000 from Rio Grande Basin Account is the San Luis Valley Irrigation Well Owners, Inc. This is to fund a feasibility study or Phase 1 of what is anticipated to be a three phase program to develop an augmentation plan to offset a portion of the stream and river depletions caused by pumping in the San Luis Valley of southern Colorado.

San Luis Valley Irrigation Well Owners, Inc. (SLVIWO) was formed December 19, 1973 as a 501 (c)(12) 501 (c)(12) nonprofit Colorado corporation of the Internal Revenue Code. The SLVIWO is the owner of water rights more specifically described in a Decree issued by District Court, Water Division 3, State of Colorado, on June 23, 1976, in Case No. W-3394. This Decree approves the use of the Taos Valley No. 3 water rights for an augmentation plan, which is known by SLVIWO as Augmentation Plan # 1.

The SLVIWO has issued non-assessable units of ownership of the Augmentation Plan # 1 to its owners. Ownership of these non-assessable units is represented by certificates, which have been and may be issued to members of good standing of this corporation. These certificates entitle the holder to share pro rata in the augmentation of waters under Augmentation Plan # 1. A member of this corporation need not own non-assessable units of ownership of the

Augmentation Plan # 1. The SLVIWO is also the owner of other water rights, which are assigned to Augmentation Plan # 2.

Active shares in SLVIWO demonstrate broad representation from the various cities and areas of future ground water management subdistricts, as follows:

City / Subdistrict	Ownership %
Conejos Subdistrict	21.6%
Trinchera Subdistrict	8.4%
Carmel/Waverly/Alamosa Subdistrict	20.9%
Closed Basin Subdistrict	20.6%
Saguache Subdistrict	1.6%
San Luis Creek Subdistrict	0.2%
Outside the San Luis Valley	9.0%
Unknown	17.8%
TOTAL	100%

At the time of the 1976 Decree and the formation of the SLVIWO, the State of Colorado was contemplating promulgating ground water rules that would have required well owners to augment their depletions; however, that never happened, primarily because the Closed Basin Project began producing new water that benefited the Rio Grande and Conejos river systems, and it was agreed that this would offset the depletions resulting from additional well development. Since then, for about 38 years, SLVIWO has allowed their water to run into the San Antonio River in accordance with their augmentation decree. However, the State is now in the process of developing "Rules Governing the Withdrawal of Ground Water in Division 3" which will require that injurious stream depletions resulting from well pumping be replaced.

Farmers in the San Luis Valley did not start drilling well until the 1920s, and by the 50s and 60s all the way until today, ground water pumping has increased and intensified. The result of over-pumping since the mid-70s has severely stressed available water supplies, causing the Rio Grande Basin Roundtable to identify restoring the aquifer to a sustainable level as its top priority.

Until now, well owners have had a legal right to pump, and they still do, but the new Well Rules and Regulations are anticipated to require that if an individual well owner wishes to continue pumping they will have to participate in a Subdistrict's Ground Water Management Plan or have their own augmentation plan which replaces the injurious stream depletions resulting from their ground water withdrawal.

The SLVIWO's overall objective is to help solve the dilemma faced by subdistricts as they urgently seek new augmentation resources which can get augmentation water back into the Rio Grande / Conejos River systems. SLVIWO is initiating the process of considering what steps need to be accomplished in order for the organization to lease augmentation water to Ground Water Management Subdistricts. The proposed feasibility study is the first in a three-phase process, the intention being to provide the SLVIWO with options with which they can make a decision on how to structure leasing of augmentation water or an augmentation plan

under the new the Well Rules and Regulations. Implementation will depend on the outcome of Phase I and will follow in Phase II and Phase III.

The **Phase I** feasibility study will provide the majority of the engineering work needed to support and to implement the subsequent leasing / augmentation plan that uses the Taos Valley No. 3 water rights. The end goal is to have a leasing / augmentation plan whereby Taos Valley No. 3 water can be stored and then subsequently released to augment stream flows in a way that offsets injurious depletions resulting from well pumping. Another possible outcome is that Taos Valley No. 3 water can be recharged into the aquifer system at strategic locations where the resulting ground water that is recharged results in quantifiable time-lagged accretions to stream reaches, thus offsetting injurious depletions from well pumping.

Future phases cannot be known in advance, as they will depend on the decisions formed from the outcome of this initial study; however, SLVIWO envisions the following:

- **Phase 2** will develop the physical infrastructure to accomplish the new leasing / augmentation plan. This phase will potentially require investing in the development of an augmentation station, recharge basins, perhaps pipelines or ditch linings, or perhaps a change in point of diversion, so that SLVIWO can physically get the Taos Valley No. 3 water to the locations where it needs to be stored or recharged.
- **Phase 3** will involve submitting an application for an augmentation plan to Water Court and working through the subsequent proceedings required to adjudicate the plan.

SLVIWO will work with the CDWR Division # 3 Engineer, with the Conejos Water Conservancy District, the Rio Grande Water Conservation District, the San Luis Valley Conservancy District, and with water managers throughout the San Luis Valley to better understand the hydrology of aquifer recharge. At the conclusion of this study, SLVIWO will seek the appropriate Water Court Decree for its future actions regarding using Taos Valley No. 3 water.

The following multiple benefits are anticipated from the overall completion of Phases 1, 2 and 3:

- Updates an augmentation decree to assist Colorado in meeting its Rio Grande Compact obligations by replacing injurious depletions in affected rivers and streams.
- Studies augmentation options under "Rules Governing Withdrawal of Ground Water in Water Division No. 3".
- Promotes optimum use of water consistent with preservation of the priority system of water rights.
- Expands augmentation options for well owners who are seeking a court approved augmentation plan.
- Assists the Rio Grande Basin and Colorado Division of Water Resources to create a plan for sustainability by reducing/replacing injurious stream depletions.
- Seeks an additional augmentation water supply to offset roughly 1/3 of the total estimated basin-wide injurious depletions.
- Assists subdistricts to replace injurious depletions on the San Antonio, Conejos, La Jara, and Alamosa Rivers, and the Rio Grande.
- Supports local agriculture and economies by helping to regulate and balance the use of limited surface and groundwater resources.
- Allows historically ground water irrigated lands in the San Antonio / Conejos watershed to remain in production that otherwise may be fallowed or taken out of production entirely, while concurrently providing augmentation to protect senior water users.

- Provides enhanced technical understanding of the complex nature of the ground water and surface water systems in the region, to the benefit of all users and water managers.
- Promotes conjunctive use, and enhances the use of the available porosity in the subsurface as a storage / recharge vessel, thereby reducing the burden on pre-Compact storage reservoirs and exchanges in the basin. This, in turn, promotes the "whole river strategy".
- Assists in maintaining a sustainable water supply in the Confined and Unconfined Aquifers of the San Luis Valley.

Project Funding and Costs:

The following tables provide details of the sources of project funding and costs:

Total Project Cost	$180,000
Statewide WSRA Account	$142,000
Basin WSRA Account	$ 8,000
Total Grant Request	$150,000
SLVIWO Match	$ 30,000
Total Funds	$ 180,000

Details of the composition of each of the line items in the table below and their associated Notes can be found in the attached Exhibit A, Statement of Work.

SAN LUIS VALLEY IRRIGATION WELL OWNERS
HYDROLOGIC RECHARGE FEASIBILITY STUDY FOR RIO GRANDE BASIN AUGMENTATION --Phase I

TASK	COST	Well Owners Match	WSRA BASIN	WSRA STATEW	WSRA TOTAL
1. Piezometers	$ 47,630				
2. W/Table Gradient	$ 3,150				
3. Test Aquifer	$ 42,080				
4. Pilot Recharge Test	$ 39,580				
5. Documentation & Admin	$ 25,420				
Engineeriing & Technical sub.	$ 20,000				
Equipment Rental	$ 2,140				
TOTAL PROJECT COST	**$ 180,000**				
MATCHING FUNDS		$ 30,000			
BASIN ACCOUNT			$ 8,000		
STATEWIDE ACCOUNT				$ 142,000	
TOTALS	**$ 180,000**	**$ 30,000**	**$ 8,000**	**$ 142,000**	**$ 150,000**

Recommendation:

At the regular R.G.R.T meeting on January 14, 2014, RGRT Members voted unanimously to request funding from SB 2005 - 179 for $142,000 from the Statewide Account and $8,000 from Rio Grande Basin Account, for a total of $150,000, to fund the Hydrologic Recharge Feasibility Study for Rio Grande Basin Augmentation – Phase 1.

The R.G.R.T urges the CWCB to approve this request for funding of a project with multiple benefits to local stakeholders, the region and statewide.

The R.G.R.T. appreciates the support of the Department of Natural Resources, the Colorado Water Conservation Board and the Interbasin Compact Commission in assisting in meeting the needs of all users of Colorado's water and in fostering intrabasin and interbasin communications and discussions. We believe that the above project will assist in this effort.

Sincerely,

Mike Gibson
Chair, Rio Grande Interbasin Roundtable

Attachment (1)

Cc w/att: the San Luis Valley Irrigation Well Owners, Inc.

COLORADO WATER CONSERVATION BOARD

WATER SUPPLY RESERVE ACCOUNT APPLICATION FORM

Tuesday, January 14, 2014

HYDROLOGIC RECHARGE FEASIBILITY STUDY FOR RIO GRANDE BASIN AUGMENTATION – PHASE I

Name of Water Activity/Project

San Luis Valley Irrigation Well Owners, Inc.

Name of Applicant

Rio Grande Basin

Approving Basin Roundtable(s)
(If multiple basins specify amounts in parentheses.)

Amount from Statewide Account: 142,000

Amount from Basin Account(s): 8,000

Total WSRA Funds Requested: $150,000

FEIN 237445923

Application Content

Required Exhibits

A. Statement of Work, Budget, and Schedule
B. Project Map
C. As Needed (i.e. letters of support, photos, maps, etc.)

Appendices – Reference Material

1. Program Information
2. Insurance Requirements
3. WSRA Standard Contract Information (Required for Projects Over $100,000)
4. W-9 Form (Required for All Projects Prior to Contracting)

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 and approval is outlined in materials in Appendix 1.

Once approved by the local Basin Roundtable, the applicant should submit this application **with a detailed statement of work including budget and schedule as Exhibit A** to CWCB staff by the application deadline.

WSRA applications are due with the roundtable letter of support 60 calendar days prior to the bi-monthly Board meeting at which it will be considered. Board meetings are held in January, March, May, July, September, and November. Meeting details, including scheduled dates, agendas, etc. are posted on the CWCB website at: http://cwcb.state.co.us Applications to the WSRA Basin Account are considered at every board meeting, while applications to the WSRA Statewide Account are only considered at the March and September board meetings.

When completing this application, the applicant should refer to the WSRA Criteria and Guidelines available at: http://cwcb.state.co.us/LoansGrants/water-supply-reserve-account-grants/Documents/WSRACriteriaGuidelines.pdf

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:

Craig Godbout - WSRA Application
Colorado Water Conservation Board
1580 Logan Street, Suite 200
Denver, CO 80203
Craig.godbout@state.co.us

If you have questions or need additional assistance, please contact Craig Godbout at: 303-866-3441 x3210 or craig.godbout@state.co.us.

Water Supply Reserve Account – Application Form

Revised October 2013

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

1. Applicant Name(s): **San Luis Valley Irrigation Well Owners, Inc.**

Mailing address: P.O. Box 147
La Jara, **CO 81140**

FEIN #: 237445923

Primary Contact: Virginia Christensen Position/Title: Secretary

Email: forage1@gojade.org

Phone Numbers: Cell: 719-580-2562 Office:

Alternate Contact: Monty Smith Position/Title: Vice President

Email:

Phone Numbers: Cell: 719-379-3807 Office:

2. Eligible entities for WSRA funds 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) – authorities, Title 32/special districts, (conservancy, conservation, and irrigation districts), and water activity enterprises.

[X] 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.

3. Provide a brief description of your organization (next page)

San Luis Valley Irrigation Well Owners, Inc. (SLVIWO) was formed December 19, 1973 as a nonprofit Colorado corporation. It is organized and operates exclusively for charitable, educational, religious, or scientific purposes as an exempt organization under section 501 (c)(12) of the Internal Revenue Code.

This corporation is the owner of water rights more specifically described in a Decree issued by District Court, Water Division 3, State of Colorado, on June 23, 1976, in Case No. W-3394. This Decree approves the use of the water rights in the Decree for an augmentation plan, which this corporation has titled AUGMENTATION PLAN NO. 1.

This corporation has issued non-assessable units of ownership of the AUGMENTATION PLAN NO. 1 to the members of the San Luis Valley Irrigation Well Owners, Inc. Ownership of these non-assessable units is represented by certificates, which have been and may be issued to members of this corporation. These certificates entitle the holder to share pro rata in the event of a liquidation of the assets held in AUGMENTATION PLAN NO. 1 and entitle the holder to share pro rata in the augmentation of waters under AUGMENTATION PLAN NO. 1. In order to own non-assessable units of ownership of the AUGMENTATION PLAN NO. 1 of the San Luis Valley Irrigation Well Owners, Inc. and to hold a certificate indicating such ownership, a person or entity must be a member in good standing of this corporation. A member of this corporation need not own non-assessable units of ownership of the AUGMENTATION PLAN NO. 1; however, an owner of the non-assessable units of ownership of the AUGMENTATION PLAN NO. 1 of this corporation must be a member in good standing of this corporation. This corporation is also the owner of other water rights, which this corporation has titled AUGMENTATION PLAN NO. 2. Further details on water rights ownership are included in the attached Amended Bylaws of the corporation.

At the time of the 1976 Decree and the formation of the SLVIWO, the State of Colorado was contemplating promulgating ground water rules that would have required well owners to augment their depletions; however, that never happened, primarily because the Closed Basin Project began producing new water that benefited the Rio Grande and Conejos river systems, and the surface water users agreed that this would offset the depletions resulting from additional well development, so the law suit was dropped and the State did not promulgate ground water rules at that time . Ever since then, for about 38 years, SLVIWO has allowed their water to run into the San Antonio River in accordance with their augmentation decree. However, the State is now in the process of developing “Rules Governing the Withdrawal of Ground Water in Division 3” which will require that injurious stream depletions resulting from well pumping be replaced.

Farmers in the San Luis Valley did not start drilling until the 1920s, and by the 50s and 60s all the way until today, ground water pumping has increased and intensified. The result of over-appropriation since the mid-70s has severely stressed available water supplies, causing the Rio Grande Basin Roundtable to identify restoring the aquifer to a sustainable level as its top priority.

Until now, well owners have had a legal right to pump, and they still do, but the new Rules and Regulations make it clear that individuals will not be allowed to pump unless they are involved in a plan that replaces the injurious stream depletions resulting from their ground water withdrawal, either through participation in a Ground Water Management Subdistrict’s plan of water management or through an independent augmentation plan. SLVIWO is therefore initiating the process of considering what steps need to be accomplished in order for the organization to lease augmentation water to Ground Water Management Subdistricts. This feasibility study is the first in a three-phase process, the intention being to provide the Board of Directors with options with which they can make a decision on how to structure an augmentation plan. Implementation will depend on the outcome of Phase I and will follow in Phase II and Phase III.

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

(same)

5. 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 link to this standard contract is included in Appendix 3. Please review this contract and check the appropriate box.

[X] 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.

6. 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.

There are no TABOR issues that might affect the applicant.

Water Supply Reserve Account – Application Form

Revised October 2013

Part II. - Description of the Water Activity/Project

1. What is the primary purpose of this grant application? (Please check only one)

	Nonconsumptive (Environmental or Recreational)
	Agricultural
	Municipal/Industrial
	Needs Assessment
	Education
X	Other Explain: Groundwater management

2. If you feel this project addresses multiple purposes please explain.

- Studies augmentation options under "Rules Governing Withdrawal of Ground Water in Water Division No. 3"
- Promotes optimum use of water consistent with preservation of the priority system of water rights
- Expands augmentation options for well owners who are seeking a court approved augmentation plan
- Assists the RG Basin and DWR to create a plan for sustainability by reducing/replacing injurious stream depletions
- Seeks an additional augmentation supply to offset roughly 1/3 of the total estimated basin-wide injurious depletions
- Assists subdistricts to replace injurious depletions on the San Antonio, Conejos, La Jara, Alamosa and Rio Grande.
- Improves Colorado's ability to meet its Rio Grande Compact obligations
- Supports agriculture by helping to regulate and balance the use of limited surface and groundwater resources.
- Helps maintain a sustainable water supply in the Confined and Unconfined Aquifer

3. Is this project primarily a study or implementation of a water activity/project? (Please check only one)

X	Study		Implementation

4. To catalog measurable results achieved with WSRA funds can you provide any of the following numbers?

	New Storage Created (acre-feet)
10,000	New Annual Water Supplies Developed, Consumptive or Nonconsumptive (acre-feet)
	Existing Storage Preserved or Enhanced (acre-feet)
	Length of Stream Restored or Protected (linear feet)
	Length of Pipe/Canal Built or Improved (linear feet)
	Efficiency Savings (acre-feet/year OR dollars/year – **circle one**)
	Area of Restored or Preserved Habitat (acres)
	Other -- Explain:

4. To help us map WSRA projects please include a map (Exhibit B) and provide the general coordinates below:

- Conejos Off-Channel Recharge Feasibility:
  (Note: these are approximate coordinates of the center of each study area)

  Latitude: 37° 07.00′ Longitude: 106° 02.00′

- Punche Arroyo Off-Channel Recharge Feasibility:

  Latitude: 37° 03.00′ Longitude: 106° 57.00′

- Rio San Antonio Off-Channel Recharge Feasibility:

  Latitude: 37° 05.00′ Longitude: 106° 59.00′

5. 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. A full **Statement of Work** with a detailed budget and schedule is required as **Exhibit A** of this application.

(next page please)

The State Engineer is in the process of promulgating "Rules Governing the Withdrawal of Ground Water in Water Division 3" (Rules and Regulations). In order to continue pumping, wells must be covered by either a ground water management subdistrict plan of water management or by a court-approved augmentation plan. The Rules and Regulations will require that ground water withdrawals can only occur if 1) injurious stream depletions are replaced or remedied, and 2) a plan for sustainability of the unconfined aquifer and the confined aquifer is addressed and maintained.

In an over-appropriated basin, there is not sufficient water available for all well owners to meet the augmentation requirements under the new Rules and Regulations. This presents what is universally acknowledged as a frightening concern for water users throughout the agricultural region of the San Luis Valley. In response to this need, San Luis Valley Irrigation Well Owners Inc. (SLVIWO) is applying for WSRA funds to conduct a hydrological feasibility study of potential groundwater recharge opportunities for augmentation in three study areas in Conejos County, exploring options for using Taos Valley #3 Ditch water for augmentation purposes.

Phase I of the overall project will provide the Board of Directors with options with which they can make a decision on how to structure an augmentation plan. This feasibility study will also provide the majority of the engineering work needed to support and to implement the subsequent augmentation plan. Future phases cannot be known in advance, as they will depend on the decisions formed from the outcome of this initial study; however, SLVIWO envisions the following: **Phase 2** will develop the physical infrastructure to accomplish the plan. This phase will potentially require investing in the development of an augmentation station, recharge basins, perhaps pipelines or ditch linings, or perhaps a change in point of diversion, so that SLVIWO can physically get the Taos Valley No. 3 water to the locations where it needs to be stored or recharged. **Phase 3** will involve submitting an application for an augmentation plan to Water Court and working through the subsequent proceedings required to adjudicate the plan.

The end goal is to have a plan whereby Taos Valley No. 3 water can be stored and then subsequently released to augment stream flows in a way that offsets injurious depletions resulting from well pumping. Another outcome is that Taos Valley No. 3 water can be recharged into the aquifer system at strategic locations where the resulting ground water that is recharged results in quantifiable time-lagged accretions to stream reaches, thus offsetting injurious depletions from well pumping.

This feasibility study will select the most appropriate locations for aquifer recharge and will determine the best way to get water into streams at the right time, at the right place, and in time to replace injurious depletions. The objective is to help solve the dilemma faced by subdistricts (which are representative in that they function somewhat like a cooperative or a union of united well users), as they urgently seek new augmentation resources which can get augmentation water back into the Rio Grande / Conejos system.

In this and in subsequent phases of this project, SLVIWO will work with the Division #3 Engineer, with the Conejos Water Conservancy District, the Rio Grande Conservation District, the San Luis Valley Conservancy District, and with water managers throughout the San Luis Valley to better understand the

hydrology of aquifer recharge. At the conclusion of this study, SLVIWO will seek a Water Court Decree which will specify how the augmentation water will be delivered to specific reaches of streams, at which specific times, and in what specific amounts in order to sufficiently offset the replacement requirements for which subdistricts will be held accountable.

Part III. – 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.)

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

This hydrologic feasibility study has no effect whatsoever on Colorado's system of allocating water, nor does it impact the State's existing water rights adjudication system. As holders of water rights, this project of SLVIWO seeks to provide augmentation solutions in an over-appropriated basin, where there simply is not enough water available to completely augment the depletions of groundwater withdrawals from the aquifer. In effect, this project helps and supports holders of water rights in the Rio Grande Basin by determining the most advantageous hydrologic method to potentially remedy an estimated one third of the injurious depletions occurring annually throughout the Basin. This clearly supports holders of a water right "to use or dispose of that water right in any manner permitted under Colorado law."

As Colorado promulgates new rules for the Rio Grande Basin, the SLVIWO is seeking optimum ways to enable water users throughout the San Luis Valley to address todays more detailed and more stringent augmentation criteria. This project does not affect any statute and does not change anything in Colorado's system of administering water rights. It only seeks to determine the best way to recharge water back into the aquifer; to return recharged water back to the Rio Grande / Conejos system; and to provide water users with new opportunities for augmentation returns. If successful, this project is expected to enhance the availability of augmentation water, increase efficiency of already adjudicated water rights, and allow some historically ground water irrigated lands in the San Antonio / Conejos watershed to remain in production that otherwise may be fallowed or taken out of production entirely. This study will establish how fast, where, when, and how much water can be returned, and how best to make that happen.

[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.

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.

This information is provided in the Roundtable Chairman's cover letter which accompanies this proposal.

b) The water activity meets the provisions of Section 37-75-104(2), Colorado Revised Statutes.[2] The Basin Roundtable Chairs shall include in their approval letters for particular WSRA grant applications a description of how the water activity will assist in meeting the water supply needs identified in the basin roundtable's consumptive and/or non-consumptive needs assessments.

This information is provided in the Roundtable Chairman's cover letter which accompanies this proposal.

c) Matching Requirement: For requests from the **Statewide Fund**, the applicants will be required to demonstrate a 25 percent (or greater) match of the total grant request from the other sources, including by not limited to Basin Funds. A minimum match of 5% of the total grant amount shall be from Basin funds. A minimum match of 5% of the total grant amount must come from the applicant or 3rd party sources. 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 **Exhibit A** of this application)

This proposal requests $8,000 from Basin funds and $142,000 from the Statewide fund and satisfies the matching funds eligibility requirement as follows:

Total Project Cost	$180,000
Total Grant Request	$150,000
Basin WSRA Account	$ 8,000
Statewide WSRA Account	$142,000
Applicant Match	$ 30,000

2. For Applications that include a request for funds from the **Statewide Account**, describe how the water

[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.

activity/project meets all applicable **Evaluation Criteria.** (Detailed in Part 3 of the Water Supply Reserve Account Criteria and Guidelines and repeated below.) Projects will be assessed on how well they meet the Evaluation Criteria. **Please attach additional pages as necessary.**

Evaluation Criteria – the following criteria will be utilized to further evaluate the merits of the water activity proposed for funding from the Statewide Account. In evaluation of proposed water activities, preference will be given to projects that meet one or more criteria from each of the three "tiers" or categories. Each "tier" is grouped in level of importance. For instance, projects that meet Tier 1 criteria will outweigh projects that only meet Tier 3 criteria. WSRA grant requests for projects that may qualify for loans through the CWCB loan program will receive preference in the Statewide Evaluation Criteria if the grant request is part of a CWCB loan/WSRA grant package. For these CWCB loan/WSRA grant packages, the applicant must have a CWCB loan/WSRA grant ratio of 1:1 or higher. Preference will be given to those with a higher loan/grant ratio.

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).

- Studies augmentation options under "Rules Governing Withdrawal of Ground Water in Water Division No. 3"
- Promotes optimum use of water consistent with preservation of the priority system of water rights
- Expands augmentation options for well owners who are seeking a court approved augmentation plan
- Assists the RG Basin and DWR to create a plan for sustainability by reducing/replacing injurious stream depletions
- Seeks an additional augmentation supply to offset roughly 1/3 of the total estimated basin-wide injurious depletions
- Assists subdistricts to replace injurious depletions on the San Antonio, Conejos, La Jara, Alamosa and Rio Grande.
- Supports agriculture by helping to regulate and balance the use of limited surface and groundwater resources.
- Allows historically ground water irrigated lands in the San Antonio / Conejos watershed to remain in production that otherwise may be fallowed or taken out of production entirely, while concurrently providing augmentation to protect senior water users.
- Provides enhanced technical understanding of the complex nature of the ground water and surface water systems in the region, to the benefit of all users and water managers.
- Promotes conjunctive use, and enhances the use of the available porosity in the subsurface as a storage / recharge vessel, thereby reducing the burden on pre-Compact storage reservoirs and exchanges in the basin. This, in turn, promotes the "whole river strategy".
- Helps maintain a sustainable water supply in the Confined and Unconfined Aquifer
- Updates an augmentation decree to help Colorado meet its Rio Grande Compact obligations

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.

SLVIWO has established a team, headed by Kirk Thompson, P.E., of **Agro Engineering**, to determine the feasibility of groundwater recharge in three locations in Conejos County. Eric Harmon, P.E., of **HRS Water Consultants** has provided the Scope of Work for this Phase I project. Agro Engineering will conduct (with matching funds from SLVIWO) a preliminary well monitoring program, prior to receiving Notice to Proceed, in order to establish baseline aquifer water levels. HRS will review well logs of existing irrigation wells and determine which wells should be monitored. **Davis Engineering** will survey in the elevation of these wells and

Agro Engineering may subcontract with **Deere & Ault Consultants** to evaluate some of the potential opportunities for surface water storage.

The Rio Grande Decision Support System's Legal/Technical Solutions Subcommittee (RGDSS), headed up by LeRoy Salazar, PE, of Salazar Farms, met on November 22, 2013 and discussed the work that needs to be done before the SLVIWO's Middlemist augmentation water (from the Taos Valley Canal No. 3, priority 141) can be marketed as augmentation water for lease to Ground Water Management Subdistricts. At that meeting Eric Harmon was asked to provide a revised Scope and cost estimate associated with this recharge feasibility study.

Broad participation in this project is evidenced by the composition of the Board of Directors of SLVIWO itself, with Alamosa County represented by Mario Curto, Glen Betenbough, and Ted Heersink; Conejos County by Warren Crowther, Jack Gilleland, and Sam Vance; Costilla County by Byron Kunugi and Monty Smith; Rio Grande County by Virginia Christensen, Michael Mueller, Norman Slade, and Charles Stillings; and Saguache County by John Artaechevarria, Kent Price and Ernest Myers.

Active shares in SLVIWO demonstrate broad representation from the various cities and subdistricts, as follows:

City / Subdistrict	% Ownership
Conejos Subdistrict	21.6%
Trinchera Subdistrict	8.4%
Carmel/Waverly/Alamosa Subdistrict	20.9%
Closed Basin Subdistrict	20.6%
Saguache Subdistrict	1.6%
San Luis Creek Subdistrict	0.2%
Outside the San Luis Valley	9.0%
Unknown	17.8%
TOTAL	100%

Local visibility of the project will result from HRS' proposing to work with local water well drilling and pump contractors and to partner with local engineering firms (Agro and Davis) to run the pumping tests and to collect the discharge and drawdown data. At each site local well owners will be sought out to participate before, during and after the study if their wells meet certain test criteria, such as whether their well is in the confined or unconfined aquifer. Some work may need to be done by a local excavation contractor to remove near-surface soils and to build up berms for the recharge testing.

The Rio Grande Basin Roundtable, being instrumental in encouraging this project and voting to approve these funds, will be the most appropriate venue in which to present the results of the studies by HRS project manager and/or Agro Engineering's senior hydrologist.

The Conejos Water Conservancy District will follow the progress of this study beginning to end, as the District is keen to extend advanced technology solutions to water management in its "Whole River Strategy" for water users on the Conejos.

The Rio Grande Water Conservation District is a key partner, providing technical assistance and advising the project from the perspective of the emerging subdistricts and their augmentation requirements.

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.

The projects and processes emerging from this hydrologic feasibility study will significantly inform the RGDWW, as its conclusions will advance the identified basin-wide need to 1) restore the Basin's aquifer to a sustainable level and 2) establish a sustainable balance between surface water and ground water.

To help meet Colorado's future water needs, the State Engineer is in the process of determining the magnitude of injurious depletions resulting from ground water pumping in seven response zones that have been designated to represent the areas of ground water withdrawals within the Rio Grande Basin. The state's current estimate is that average annual injurious depletions across the entire basin total around 30,000 acre-ft. Currently, the SLVIWO's 10-year rolling average of accrued augmentation credits is 9,908 acre-ft. Consequently, this augmentation supply represents roughly one-third of the total augmentation supply needed to offset basin-wide injurious depletions resulting from basin wide well pumping. As such, the Well Owners' resource is large and important to the State of Colorado and to the Rio Grande Basin, and it should be of great interest to subdistricts that have a need to replace injurious depletions on the San Antonio, Conejos, La Jara, Alamosa, or Rio Grande.

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).

In this situation speed and timing are of critical importance, with financial efficiencies accomplished through organizational efficiencies, collaboration, and by simplifying the deployment and mobilization process. Every effort has been made to keep this first grant funding request to a minimum. Members of the SLVIWO have committed $30,000 of matching funds in order to get Phase I of this 3-phase project started right away. To focus the Agro/HRS study, SLVIWO proposes to conduct a preliminary well monitoring program this winter to establish base-line aquifer water levels. As proposed, HRS will review well logs of existing irrigation wells and determine which wells would be most suitable for monitoring. It is expected that around fifteen wells will be monitored. Agro Engineering will conduct the monitoring of the water head levels; Davis Engineering will survey in the elevation of these wells; and Agro Engineering will provide project oversight. Therefore, in addition to the cost estimates from HRS, this request includes an additional $20,000 to cover the costs of subcontracting with Davis Engineering and Deere & Ault and the work provided by Agro Engineering.

The costs associated with Phase II and Phase III are unknown at this time and will depend on the decisions that are the outcome of Phase I. Careful consideration has been given to the possibility of additional costs in Phase I. At this time, Agro Engineering has advised SLVIWO that the Budget of this proposal and the current scope of work are sufficiently inclusive to provide the stated desired results, with a minimal likelihood of any overages.

Due to the very recent and rapid advance of the State Engineer's new Rules and Regulations, the pressures which the augmentation requirements place upon well owners and subdistricts are quite real. Nobody will be allowed to pump unless they comply with the new Rules and Regulations. Therefore SLVIWO is doing everything possible to adapt to the funding schedule of CWCB's grant and loan programs, and cannot stress enough how critically important it is for this project to be funded. Although there is no loan component at this early phase, SLVIWO understands that future funding phases will likely require pursuing a CWCB grant/loan combination. Without the requested funds from the Water Supply Reserve Account this project would not be possible, nor could future critical phases be accomplished in time for the new Rules and Regulations.

e. The amount of matching funds provided by the applicant via direct contributions, demonstrable in-kind contributions, and/or other sources demonstrates a significant & appropriate commitment to the project.

As described above and in the Exhibit A Budget, this project meets or exceeds all funding criteria of the WSRA grant guidelines. The amount of matching funds has been judiciously determined, reserving approximately $50,000 which will be required as matching funds for Phase II and Phase III implementation.

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

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

These criteria are anticipated to follow as the result of completing all three phases of this project. In the Phase I feasibility study, these goals and objectives are less relevant. This project, by its nature, will not address them.

g. The water activity assists in the administration of compact-entitled waters or addresses problems related to compact entitled waters and compact compliance and the degree to which the activity promotes maximum utilization of state waters.

The benefits of this water activity extend to Well Owners (and well owners) throughout the San Luis Valley; however, the three test areas selected (see attached map) are located in Conejos County. The feasibility study will involve the wells and the water users off the Conejos River, the Conejos Water Conservancy District, and the Conejos River System Water Users Association. This project directly assists in the administration of Rio Grande Compact entitled waters because it increases the knowledge base and broadens the best practice technologies which comprise the District's "Whole River Strategy." A description of the Conejos River system and its relation to the Rio Grande Compact is below, under "Water Rights."

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

This question does not apply to this feasibility study.

i. The water activity provides a high level of benefit to Colorado in relationship to the amount of funds requested.

Colorado Senate Bill 222 has two goals – to prevent injury to surface water rights by groundwater pumping and to build back the San Luis Valley's aquifer to a sustainable level. This project provides a high level of benefit to Colorado by addressing and curing some of the problems in both of these cases. The amount of grant money requested constitutes a financially good investment for the Rio Grande Basin and for Colorado. This feasibility study promotes a better understanding of the hydrogeology of the Rio Grande Basin and provides the data needed to inform numerous future decisions. There are hydrogeologically analogous areas in Colorado – where perched or multiple water tables exist in a geologically complex area - that may benefit from this study in terms of the technical approach, testing, and solutions.

j. The water activity is complementary to or assists in the implementation of other CWCB programs.

The three study areas of this project are in Conejos County and in areas irrigated by the Conejos Water Conservancy District. The District's Whole River Strategy has been to seek new techniques, methods, practices and water management procedures to improve agricultural outcomes and to discourage excessive ground water pumping. Following are some other CWCB-funded programs to which this feasibility study is complementary:

Rio Grande Basin & Statewide Priorities / Conejos River System Projects	Sustainable Water Management	Rio Grande Compact Obligation	Storage & Reservoir Upgrades	Agriculture - M&I Gap & Water Supply	Groundwater Reduce pumping	River Corridor Protection & Stabilization	Support Recreation, fishery	Water Quality Riparian wildlife
Platoro Reservoir upgrades								
San Antonio River – El Codo Diversion								
Conejos River & N. Branch Stabilization								
Manassa L & I Water Conservation & Mgmt								
Romero-Guadalupe Channel Rectification								
Conejos River System Gauging Stations								
Mogote/Romero Flows, Conejos Effects								
TMR - ATMs Increase Supplies Agriculture, Municipal, Environment								
Manassa Pipeline Project								
Ephraim, Sanford, East Bend								

Part IV. – 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 water rights issues, and the name/location of water bodies affected by the water activity.

The water rights for SLVIWO are provided in great detail in Exhibit A, in the Bylaws of the corporation, and related water rights issues for the corporation are also detailed in that document.

This feasibility study is intended to evaluate options for using the Taos Valley Canal No. 3 for the purposes of augmenting injurious stream depletions resulting from well pumping. The Taos Valley Canal No. 3, Priority No. 141 was decreed for 500 cfs on the 10th day of May, 1889 in the Water District No. 22 Conejos River mass adjudication case of 10/03/1890. The water was beneficially used for irrigation and storage in Cove Lake Reservoir. The Taos Valley No. 3 head gate is situated on the south bank of the San Antonio River at a point 1200 feet north and 68 feet east of the south-west corner of the south-east quarter of Section 25, Township 33 North, Range 9 East, New Mexico Prime Meridian, latitude/longitude: 37.068181/-105.937945. In Case 84CW54, 255 cfs from the ditch was abandoned in the mass adjudication case, leaving the ditch with a total of 245 cfs. In Case W-3394, the 230 cfs of Middlemist water was changed from irrigation use to augmentation use. The remaining 15 cfs of Zinn water continues to be used for irrigation. The purpose of this study is to evaluate options for ground water recharge and surface water storage that would result in net accretions to the Conejos River, San Antonio River, Rio Grande, La Jara Creek and/or Alamosa River.

2. Please provide a brief narrative of any related studies or permitting issues.

There are no permitting issues related to this project. A bibliography of similar studies by Agro Engineering and by HRS Water Consultants can be provided on request.

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**. All WSRA funds are disbursed on a reimbursement basis after review invoices and appropriate backup material.

Please provide a detailed statement of work using the template in Exhibit A. Additional sections or modifications may be included as necessary. Please define all acronyms and include page numbers.

(Exhibit A follows after signature page)

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.

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.

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

Signature of Applicant: Acting President

Print Applicant's Name: Monty L. Smith 1-14-2014

Project Title: Hydrologic Recharge Feasibility Study for the Rio Grande Basin Augmentation - Phase I

Return an electronic version (hardcopy may also be submitted) of this application to:

Craig Godbout – WSRA Application
Colorado Water Conservation Board
1580 Logan Street, Suite 200
Denver, CO 80203
craig.godbout@state.co.us

EXHIBIT A

Scope of Work

Feasibility study: Ground Water Recharge for Augmentation and Aquifer Sustainability in three study areas in Conejos County

Prepared for: San Luis Valley Irrigation Well Owners Assn.

Prepared by: HRS Water Consultants, Inc.

April, 2014

This document describes a Scope of Work and estimated costs to study the hydrogeologic technical feasibility of recharging water into the shallow, unconfined aquifer, in order to obtain augmentation credit to offset well pumping depletions.

The three major tasks in this revised Scope of Work consist of hydrogeologic studies needed to assess the feasibility of ground water recharge in each of three study areas. The study areas are as follows (see Figure 1 for general location):

- Conejos Off-Channel Recharge Feasibility: feasibility of ground water recharge into the recharge area of the confined aquifer in the area bounded generally by US 285 on the east, Los Mogotes escarpment on the west, and Conejos County roads J and R on the south and north (see attached map, Figure 1).

- Punche Arroyo Off-Channel Recharge Feasibility: Feasibility of ground water recharge as an augmentation source in the area generally south of Road E.5, as shown on Figure 1.

- Rio San Antonio Off-Channel Recharge Feasibility: feasibility of ground water recharge as an augmentation source in the area generally between the Conejos River (south channel) and the Rio San Antonio, as shown on Figure 1.

The activities for each study area are similar, as discussed below.

1. Install piezometers (monitoring wells)

   It will be necessary to construct 2 to 3 piezometers (monitoring wells) to aid in establishing the slope and direction (i.e. gradient) of the near-surface (aquifer layer 1, "L1") water table in the Punche and San Antonio study areas, and at least one piezometer in the deeper water table (aquifer layer 3, "L3") in the Conejos study area.

The piezometers also would be used to measure water level rise and fall associated with the recharge tests (see Task 4). One of the piezometers at each of the three study areas should be constructed as close as possible to the center of the area chosen for pilot recharge testing within each of the three study areas.

The piezometers will need to be surveyed accurately for elevation. The surveying would not be done by HRS; instead it is our understanding this would be done by Davis Engineering. Due to expected drilling conditions, all piezometers would require a water well drilling rig. We have included an estimate of the direct costs for a licensed water well drilling contractor for the piezometer construction.

A HRS hydrogeologist would be onsite for the installation of the piezometers to provide lithologic descriptions of aquifer materials encountered and to provide documentation of the layers and lithologies. Personnel of Agro Engineering would periodically measure water levels in the piezometers. (Note: we are already coordinating with Agro for water level measurements in existing wells in and near the study areas.)

As part of this task, HRS would provide a drilling technical specification, bid documents, bid sheet, and, if needed, any general contract conditions or supplementary conditions.

2. Establish water table gradients

This task includes review and evaluation of the periodic water level measurements in existing wells that are currently being collected by Agro Engineering. Wellhead elevations are being provided by Davis Engineering. Time and costs for Agro and Davis are not included in this Scope for HRS tasks.

During February, 2014, HRS met onsite with Well Owners' representatives, and with Agro Engineering, and aided in selection of existing L3 wells for measurements. This has resulted in Agro personnel collecting water level data on a periodic basis, which will be provided to HRS for review and evaluation.

The water level data will help establish the direction and rate of movement of ground water in the confined aquifer (L3), which consists of primarily of basalts and interbedded sediments. Accurate, time-concurrent water level measurements, with surveyed elevations, are necessary to ascertain the direction and rate of recharged ground water, and to help determine whether some recharged water at each of the three study areas would accrue to both the unconfined as well as the confined aquifers. Documentation of the water levels and gradients will be performed as part of the study deliverables.

3. Aquifer Testing

In order to provide water for nearby recharge pilot testing in each study area (see Task 4) it will be necessary to pump an adjacent existing well that draws water from a deeper aquifer layer (L3). In so doing, it will be highly beneficial for the overall fund of hydrogeologic information to use this information to define the transmissivity (T) of L3 in all three study areas. Therefore HRS recommends that an existing irrigation well be selected in each area, and that a pumping test be run, concurrently with the recharge testing (Task 4). HRS has been involved with the Well Owners, Agro, and Mr. Salazar in preliminary onsite investigations, and we have identified suitable candidate wells in each of the three study areas. Figure 1, the general study area location map, identifies two suitable wells in each study area that we have observed onsite, and for which we have reviewed the completion records. One of these wells in each study area, or another suitable well located nearby, will be selected for the aquifer testing.

A test period of 48 to 72 hours for each test is recommended (longer is better). The test data would be used to derive an aquifer T value for L3 in each study area. These results, in turn, would be used to aid in understanding the direction and rate of ground water movement in each of the three study areas, and whether the near-surface water table gradients in L1 are the same, or different than, the gradient in L3.

For the aquifer testing, HRS proposes to work with Agro and with irrigation well owners and a local pump contractor to install a temporary flowmeter (if needed) and to run the pumping tests and collect the discharge and drawdown data. HRS proposes to analyze the data and estimate the aquifer transmissivity for each location tested.

4. Pilot Ground Water Recharge Testing

It is proposed that a pilot-scale recharge test be conducted at one site in each of the three study areas. Because of the current drought situation, it is unlikely that surface water will be available for conveyance to suitable recharge test sites during the 2014 field season. Therefore, we propose that water from a nearby high-capacity well be piped using temporary pipe to a pivot corner or other area for the pilot-scale recharge testing. Based on initial site reconnaissance in February, 2014, and follow-up reconnaissance by HRS in April, 2014, we have identified two likely recharge sites in each study area. Each test site is located within approximately ¼ mile of an existing high-capacity well that we believe would be feasible for testing (see the black triangles Figure 1.) If one suitable well cannot be found in each of the three study areas, then the feasibility of ground water recharge could be done at a first-approximation level by performing 3 to 5 in-situ permeameter tests of the near

surface soils present in each of the three study areas. However, if it is possible to do the testing by means of a pilot recharge test, that method would be preferable.

The objective of the pilot testing is to establish feasible recharge rates at each study area. A suitable site would be a non-irrigated center pivot corner or other non-cultivated area such as an unused gravel quarry or an unused reservoir. In addition to the piezometers discussed in Task 1 above, it would be especially useful if there is a nearby well in the shallow alluvium (Layer 1) and also in the confined aquifer (Layer 3) that can be instrumented for measurement of water levels before, during, and after the recharge test, so that any change can be measured. Some work may need to be done by a local excavation contractor to remove near-surface soils and build up berms for the recharge testing.

From our research and discussions with the Well Owners and Agro, it is evident that recharge directly into the confined aquifer (L3) is preferable to unconfined aquifer recharge in the Conejos study area. The final recharge test site in this study area will be selected accordingly.

5. Project Management, Coordination, and Study Documentation

HRS proposes to provide documentation in the form of a draft and a final written report that covers the testing for all three study areas. The report would provide documentation of the tasks performed, and would include narrative discussion of methods of investigation, analyses, and conclusions & recommendations as to the feasibility of ground water recharge. Also included would be the basic data and graphics, as appropriate, for each of the three study areas.

The Well Owners would be provided the draft report in electronic form for review. Once HRS has received timely review comments, we would prepare a final report, with accompanying graphics and appendixes, for transmittal to the Well Owners in printed and electronic form.

The HRS project manager or a HRS senior hydrogeologist would be available to present the results of the studies at one meeting in the San Luis Valley, at a suitable location.

This task also includes time for HRS to manage the project and to coordinate with the SLV Irrigation Well Owners, Agro Engineering, Davis Engineering, and private landowners and well owners. Telephone conferences for project updates will be provided to the Well Owners and Agro on approximately a monthly basis during the course of the project.

Estimated Cost

HRS' 2014 rate schedule, on which the program engineering fees are based, is attached as Table 1. Table 2 is a detailed tabulation of the estimated engineering and direct costs on a task and subtask basis to perform the study as detailed in this Scope of Work. For the convenience of the Well Owners, we have included an estimate of $50.00 per foot for the well drilling contractor's cost. A verbal estimate of $35.00 per foot for piezometers was reported by Mr. Salazar from a local water well contractor, although other contractors' estimates with whom we have spoken have been higher. It is expected that the services of a licensed pump installer will be needed to prepare each production well for testing, and the services of an excavation contractor will be needed to prepare each site for recharge testing. Any of these contractors would be expected to contract directly with the Well Owners for the work needed.

The cost estimate does not include any fees or costs for Agro Engineering, Davis Engineering, or others who may be involved in the study. If the drilling or other contractor's costs are lower or higher than we have estimated, then the overall study cost would be lower or higher by a commensurate amount.

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Lakewood, Colorado 80215
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CONSULTANTS IN
HYDROGEOLOGY AND
WATER RESOURCES

Table 1: RATE SCHEDULE

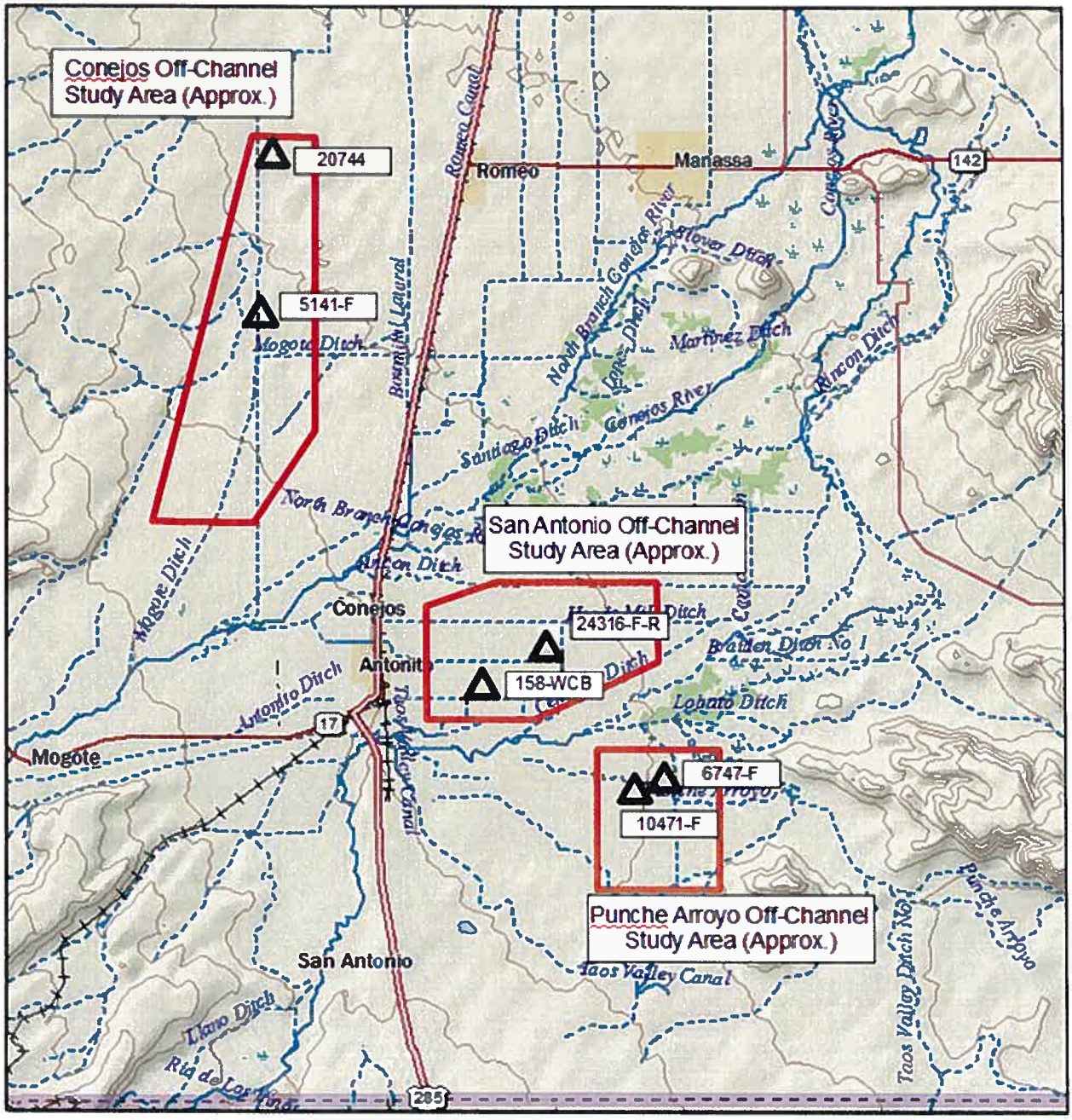
Effective January 1, 2014

Personnel	**Rate per Hour**
Senior Principal Engineer/Hydrogeologist	$ 185.00
Senior Engineer/Hydrogeologist/Geophysicist/Hydrologist	$ 170.00
Engineer/Hydrogeologist/Geophysicist/Hydrologist	$ 160.00
Assistant Engineer/Hydrogeologist/Geophysicist/Hydrologist	$ 140.00
Technician	$ 70.00
Administrative	$ 60.00

In-house copying charge is $ .18 per page

Vehicle: Two-wheel drive - $ .62 per mile
Four-wheel drive - $ .64 per mile

Terms of Payment: All accounts will be billed on a monthly basis. Payment is due thirty (30) days after date of billing unless otherwise agreed to in writing by HRS. A finance charge of 1 ½% per month may be charged to overdue accounts not paid within 30 days of the invoice date.



Approximate Study Areas
Recharge Feasibility Study
April, 2014

Figure 1

SAN LUIS VALLEY IRRIGATION WELL OWNERS
HYDROLOGIC RECHARGE FEASIBILITY STUDY FOR RIO GRANDE BASIN AUGMENTATION - PHASE 1

TASK	TOTAL COST	SLV Well Owners	WSRA Basin	WSRA State	WSRA Total
A. Ground Water Monitoring	$12,000.00	$12,000.00	$0.00	$0.00	$0.00
1. Install Piezometers	$51,980.00	$5,000.00	$4,000.00	$42,980.00	$46,980.00
2. Establish Water Table Gradients	$5,110.00	$0.00	$0.00	$5,110.00	$5,110.00
3. Aquifer Testing	$34,960.00	$5,000.00	$2,000.00	$27,960.00	$29,960.00
4. Pilot Ground Water Recharge Testing	$30,160.00	$5,000.00	$2,000.00	$23,160.00	$25,160.00
5. Project Management/Coordination/Documentation	$30,790.00	$3,000.00	$0.00	$27,790.00	$27,790.00
B. Evaluate Surface Water Storage Options	$15,000.00	$0.00	$0.00	$15,000.00	$15,000.00
TOTAL	**$180,000.00**	**$30,000.00**	**$8,000.00**	**$142,000.00**	**$150,000.00**
MATCHING FUNDS		$30,000.00			
WSRA BASIN ACCOUNT			$8,000.00		
WSRA STATEWIDE ACCOUNT				$142,000.00	

PROJECT BUDGET

A	Ground Water Monitoring	
	Ground Water Level Monitoring	$6,000.00
	Well Surveying	$6,000.00
	SUBTOTAL	**$12,000.00**
1	Install Piezometers	
	Site visits & design / specify piezometer installation	$5,140.00
	Site field observation of piezometer installation	$16,300.00
	6 piezometers to 30 feet in L1	$9,000.00
	1 piezometer installation to 300 feet in L3	$15,000.00
	Evaluation of drill cuttings; permits and reports	$5,160.00
	Meetings / teleconferences with SLV personell	$1,380.00
	SUBTOTAL	**$51,980.00**
2	Establish Water Table Gradients	
	Data analysis	$5,110.00
	Meetings / teleconferences with SLV personell	$0.00
	SUBTOTAL	**$5,110.00**
3	Aquifer Testing	
	Site visits to locate facilities and plan testing	$5,140.00
	Aquifer tetsing (1 well per study area)	$14,860.00
	Pump installation subcontractor for testing	$6,000.00
	Data analysis	$7,900.00
	Meetings / teleconferences with SLV personell	$1,060.00
	SUBTOTAL	**$34,960.00**
4	Pilot Ground Water Recharge Testing	
	Site visits to locate facilities and plan testing	$3,900.00
	Pilot testing (1 site per study area)	$16,780.00
	Pump or excavation contractor for site prep	$2,000.00
	Data analysis	$6,420.00
	Meetings / teleconferences with SLV personell	$1,060.00
	SUBTOTAL	**$30,160.00**
5	Project Management/Coordination/Documentation	
	Task management & coordination	$4,440.00
	Prepare and provide a draft feasibility report and graphics	$10,840.00
	Assess, review comments and prepare final report and graphics	$4,520.00
	Prepare and provide presentation in SLV	$5,620.00
	Project Management and Legal	$5,370.00
	SUBTOTAL	**$30,790.00**
B	Evaluate Surface Water Storage Options	
	Discussions with Division Engineer and Evaluation	$15,000.00
	SUBTOTAL	**$15,000.00**
	TOTAL	**$180,000.00**

San Luis Valley Irrigation Well Owners, Inc. 2014

Estimated Timeline: Feasibility Study of GroundWater Recharge for Augmentation and Aquifer Sustainability

	Task	June	July	Aug	Sept	Oct	Nov	Dec
1	**Install Piezometers**							
	Site visits & design / specify piezometer installation	■						
	Onsite field observation of piezometer installation	■	■					
	6 Piezometers to 30' in L1 (San Antonio & Punche areas)	■						
	1 Piezometer installation to 300' in L3 Conejos study area)		■					
	Evaluation of drill cuttings; permits & reports			■				
	Meetings / teleconferences with SLV personnel	■		■				
2	**Establish Water Table Gradients**							
	Data analysis			■				
	Meting / teleconferences with SLV personnel	■		■				
3	**Aquifer testing**							
	Site visits to locate facilities & plan testing	■						
	Aquifer testing (1 per study area)		■	■				
	Pump installation subcontractor for testing (if needed)		■	■				
	Data analysis				■	■		
	Meeting / teleconferences with SLV personnel	■	■		■		■	
4	**Pilot Ground Water Recharge Testing**							
	Site visits to locate facilities & plan testing	■						
	Pilot testing (1 site per study area)		■	■				
	Pump or excavation subcontractor for site prep (if needed)	■						
	Data analysis			■	■	■		
	Meeting / teleconferences with SLV personnel	■	■		■		■	
5	**Project Management / Coordination / Documentation**							
	Task Management & Coordination	■	■	■	■	■	■	■
	Prepare and provide a draft feasibility report & graphics				■	■		
	SLV Irrigation Well Owners: review and provide comments						■	
	Assess review comments and prepare a final report & graphics						■	■
	Prepare and provide presentation in SLV							■