Water Supply Reserve Account – Grant and Loan Program
Water Activity Summary Sheet
March 18-19, 2014
Agenda Item 17(i)

Applicant: Geothermal Greenhouse Partnership, Inc.

Water Activity Name: Geothermal Greenhouse Partnership Project

County: Archuleta

River Basin: Southwest

Water Source: Animas River

Amount Requested: $25,000 from the Southwest Basin Account, (delayed) $50,000 from the Statewide Account.

Matching Funds: $25,000 cash match from the WSRA Southwest Basin Account (5% of total project costs/33% of total grant request), $27,440 in-kind from Community at large (6% of total project costs/37% of total grant request), $283,000 in-kind Town of Pagosa Springs (61% of total project costs/377% of total grant request), $25,000 cash match Town of Pagosa Springs (5% of total project costs/33% of total grant request), $25,000 cash match Musser Fund (5% of total project costs/33% of total grant request).

Staff Recommendation:
Staff recommends approval of up to $25,000 from the Southwest Basin Account for the project titled: Geothermal Greenhouse Partnership Project.

Water Activity Summary: WSRA Grant funds will be expended to assist in the financing of the Geothermal Greenhouse Project which includes three 42 foot agricultural growing domes heated by geothermal energy, grounded in permaculture practices and centrally located in downtown Pagosa Springs at Centennial Park, and will become part of the already existing District Heating System of the Town of Pagosa Springs.

Specifically, WSRA funds will finance the construction of infrastructure which includes: a closed loop system for heating/cooling the domes where geothermal water is used to heat well water which is then circulated under and through the domes; and the delivery systems for irrigation and potable water to the domes. The geothermal loop also provide heat for the surrounding beds, walk ways and public seating area. Inside the domes water infrastructure also includes ponds, radiators, sprinkler system, temperature instrumentation and various meters as needed.

Overall the project includes three domes: an education dome which will house a center for K-12 science education, as well as for advanced study in agriculture and renewable energy technologies; a commercial growing dome which includes an educational component and will provide a test site for the commercialization of organic crops at high altitudes using the geothermal resource; and a community garden dome which includes education and will provide an opportunity for the public to grow year-round crops. The influence of the GGP Project will extend well beyond Pagosa Springs as

it serve as a model for other communities both state and nation wide that possess a geothermal resource.

Threshold and Evaluation Criteria:
The application meets all four Threshold Criteria.

Funding/Match Summary:

Funding Source	In-kind	Cash	Total
WSRA Southwest Basin Account	$0	$25,000	$25,000
Community at large	$27,440	$0	$27,440
Town of Pagosa Springs	$283,000	$25,000	$308,000
Musser Fund	$0	$25,000	$25,000
Total Project Costs	**$310,440**	**$75,000**	**$385,440**

Discussion:
The Geothermal Greenhouse Partnership Project applicants initially submitted a WSRA Grant request for $25,000 from the Southwest Basin Account, and $50,000 from the Statewide Account, however due to an anticipated WSRA Statewide Account shortfall the applicant has agreed to delay their Statewide Account request.

Issues/Additional Needs:
No additional issues or needs were identified.

Staff Recommendation:
Staff recommends approval of up to $25,000 from the Southwest Basin Account for project titled: Geothermal Greenhouse Partnership Project.

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 will help promote the development of a common technical platform. In accordance with the revised WSRA Criteria and Guidelines, staff would like to highlight additional reporting and final deliverable requirements. The specific requirements are provided below.

Reporting and Final Deliverable: 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 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 summarizes 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 (§12-25-102(10) C.R.S.)) performed under this grant shall be performed by or under the responsible charge of professional engineer licensed by the State of Colorado to practice Engineering.

SOUTHWEST BASINS ROUNDTABLE
Michael Preston, Chair
c/o Dolores Water Conservancy District
P.O. Box 1150
Cortez, Colorado 81321
970-565-7562

January 15, 2014

Mr. Craig Godbout
Water Supply Management Section
Colorado Water Conservation Board
1580 Logan Street, Suite 600
Denver, Colorado 80203

SUBJECT: Geothermal Greenhouse Partnership Project - $25,000 from Basin Account and $50,000 from the Statewide Account

Dear Mr. Godbout:

The Southwest Basin Roundtable is pleased to recommend funding of $25,000 from the Southwest Basin Account and $50,000 from the Statewide Account for the Geothermal Greenhouse Partnership Project. The application was considered in detail and approved at the January 8, 2014 meeting of the Southwest Basin Roundtable. There was a quorum of Roundtable members present.

The proposed project is an IPP and a multi-benefit project. Geothermal heat has long been used to heat public buildings in downtown Pagosa Springs and this project extends geothermal use to three growing domes (educational, commercial and community). The requested funds are for water infrastructure to move geothermal water to the three domes. In addition to the educational and agricultural benefits from this project, it also provides a water quality benefit by further cooling water temperatures before water is released to the San Juan River.

The completed Grant Application will be forwarded directly to you by the applicant. Please contact the applicant directly or me at 970-565-7562, mpreston@frontier.net, if you have questions or wish to discuss this application in more detail.

Sincerely,

Michael Preston
Southwest Basin Roundtable Chair

COLORADO WATER CONSERVATION BOARD

WATER SUPPLY RESERVE ACCOUNT APPLICATION FORM

Today's Date: November 15, 2013

Geothermal Greenhouse Partnership Project

Name of Water Activity/Project

Geothermal Greenhouse Partnership, Inc.

Name of Applicant

Southwestern Colorado Basin Roundtable

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

Amount from Statewide Account: $50,000.00

Amount from Basin Account(s): $25,000.00

Total WSRA Funds Requested: $75,000.00

FEIN 45-4786340

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): Geothermal Greenhouse Partnership, Inc.

Mailing address: P.O. Box 5333
Pagosa Springs, CO 81147

FEIN #: 45-4786340

Primary Contact: Sally High Position/Title: Board Secretary

Email: sallyhigh@skywerx.com

Phone Numbers: Cell: 970.799.1693 Office:

Alternate Contact: Pauline Benetti Position/Title: Grant Writer

Email: paulineb@centurytel.net

Phone Numbers: Cell: 970.382.1526 Office: 970.264.5232

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

The Geothermal Greenhouse Partnership (GGP) came into being in 2009 when a group of individuals (including members of town and county government) formed an all volunteer GGP Project Committee of seven persons established to promote, seek funding for and develop the Geothermal Greenhouse Partnership Project and manage the affairs of the Project. The Project envisioned 1) three growing domes (educational, commercial, community) along the San Juan River in downtown Pagosa Springs (Centennial Park) heated by geothermal water to produce year-round agricultural products and 2) an educational curriculum based on sustainable agricultural principles. Shorty thereafter, the Town of Pagosa granted the Partnership both land and water for the project.

These folks understood the value of our underutilized geothermal resource and the potential it held for revitalization of our economically blighted small mountain town based on environmentally sustainable practices. Initially, the Project was under the fiscal sponsorship of the Southwest Land Alliance. In 2012 it received its own 501 (c) 3 status.

2009 was spent developing relationships with educational entities and with entrepreneurs interested in donating in-kind resources. With the beginning of 2010, it became apparent that future plans for the GGP were contingent on resolution of the question concerning the extent of the geothermal resource. Success was dependent upon developing relationships and cooperation among the different entities and individuals involved in the geothermal resource. In 2011 the GGP was instrumental in bringing about that success in the form of an organization of geothermal water stakeholders.

The GGP was also successful in its campaign to build relationships across the state of Colorado; that effort included (but is not limited to) visits from and with State Senators and Representative, the State Director of the USDA, the National Renewable Energy Labs of Golden, Colorado, the Colorado School of Mines and hosting both the Governors Energy Office Geothermal Working Group Meeting and a two month study tour of professors and students from the Colorado School of Mines. (Complete details available on the Southwestern Colorado Basin Roundtable Application, Question #5.)

In 2012 the first grant was received and the GGP held its first major fundraising activity and auction. In 2013 the GGP hosted it first environmental film festival and entered into contract with Davis Engineering to produce engineering and design plans for the first dome. In 2014 the GGP submitted a grant application to the Southwestern Colorado Basin Roundtable and the Colorado Water Conservation Board.

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

N/A

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.

   N/A

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)
X	Agricultural
	Municipal/Industrial
	Needs Assessment
	Education
	Other Explain:

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

This is a multipurpose project with benefits in several areas:

- Agricultural: will provide locally grown organic produce;
- Educational: will provide K-12 and advanced study of agriculture at high altitude using the geothermal resource
- Environmental: will use a non-consumptive geothermal resource for heating and based on principles of permaculture
- Community revitalization: will provide jobs and attract commercial greenhouse interests
- Business Incubation Model: will serve as a model to other business and communities, state and nationwide,

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

	Study	X	Implementation

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

	New Storage Created (acre-feet)
	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)
See note below.	Efficiency Savings (acre-feet/year OR dollars/year – **circle one**)
	Area of Restored or Preserved Habitat (acres)
	Other -- Explain:

Note: One goal of the Project is improved water usage efficiency. Growing Domes use 1/3 less water than conventional methods. The incorporation of permaculture principles inside and outside the domes will increase that efficiency. A second goal is improved heating/cooling efficiency with the geothermal transfer system. It will use fewer BTUs than either electric or natural gas. Part of the educational curriculum will be the study and publication of these greater efficiencies.

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

   Latitude: 37.2675 degr. N Longitude: 107.02805 degr.W

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.

The GGP Project includes three 42 foot agricultural growing domes heated by geothermal energy, grounded in permaculture practices and centrally located in downtown Pagosa Springs at Centennial Park. An education dome includes a center for K-12 science education, as well as for advanced study in agriculture and renewable energy technologies. A commercial growing dome also includes an educational component and will provide a test site for the commercialization of organic crops at high altitudes using the geothermal resource. A community garden dome also includes education and will provide an opportunity for the public to grow year-round crops. The influence of the GGP Project will extend well beyond Pagosa Springs as it serve as a model for other communities both state and nation wide that possess a geothermal resource.

Funds from the Southwestern Colorado Basin Roundtable will support water infrastructure for the Education Dome. The request for CWCD funding will support the water infrastructure for the two remaining domes. That infrastructure includes a closed loop system for heating/cooling the domes where geothermal water is used to heat well water which is then circulated under and through the domes. The GGP project will become part of the already existing District Heating System of the town of Pagosa Springs. The infrastructure also includes the delivery systems for irrigation and potable water to the domes. Funds will be used to install all three water service, including excavation, backfilling and compacting as needed. Inside the domes water infrastructure also includes ponds, radiators, sprinkler system, temperature instrumentation and various meters as needed. (See Exhibit A for details.)

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]

The Geothermal Greenhouse Partnership (GGP) project fully meets the eligibility requirements outlined in Part 2 of the Colorado Water Conservation Board's (CWCB) criteria and guidelines. Specifically, the GGP is consistent with Section 37-75-102 Colorado Revised Statutes in that the project does not supersede, abrogated, or otherwise impair state water rights. Nor does the project repeal or in any manner amend the existing water rights adjudication system. Moreover, the GGP does not 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. In addition, the GGP does not diminish, impair, or cause injury to any property or contractual right created by intergovernmental agreements, contracts, and 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. The project does not supersede, abrogate, or cause injury to vested water rights or decreed conditional water rights. Finally, the GGP 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. Compliance with state water laws have been confirmed by Colorado Division of Water Resources water commissioner, Joe Crabb, as well as past commissioner Val Valentine and legal counsel Rod Proffit.

Additional detail related to the GGP water permit includes: 1) maximum output from the shallow infiltration gallery well is 112 gallons per minute (gpm) or .25 cubic feet per second (cfs)--it should be noted, too, that this is ground water, not river or surface water; 2) irrigation use is limited to 1.8 acres in

[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.

Pagosa Springs Centennial Park including the GGP; 3) the filtered fresh water is also utilized in the downtown heating district closed loop; and 4) the Town of Pagosa Springs has applied to the Water Court for water rights to be defined and prioritized. The GGP project is within the Town of Pagosa Springs Centennial Park Complex which has San Juan River Well water rights for irrigation and geothermal heat exchanging (transferring) purposes. After the determination by the water court, the GGP's irrigation water will be quantified in a town ordinance.

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.

The GGP is undergoing an evaluation and approval process and is pending approval by the Southwest Basin Roundtable (SBR) at their January 8, 2014 meeting.

c) 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.

The GGP is consistent with and in compliance with Section 37-75-104(2) of the Colorado Revised Statutes which relates to the Statewide Water Supply Initiative (SWSI). With input and advice from affected local governments, water providers, and other interested stakeholders, the SBR has been conducting an ongoing SWSI-required needs assessment since approximately 2006/2007. This GGP project was identified in the SBR's consumptive and non-consumptive water supply needs assessment and placed on their identified projects and processes (IPP) list. As described in 1.a., above, the GGP will use .25 cfs of available waters within the southwest basin. Part II of this application describes in detail how the water infrastructure development component of the GGP will utilize these waters

SBR chair, Mike Preston's, approval letter for the water supply reserve account application, will include a description of how the GGP helps to meet the water supply needs identified in the SBR's consumptive and/or non-consumptive needs assessments.

[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.

d) 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)

Funding	**Source**
$ 25,000 (cash)	Town of Pagosa Springs
283,000 (in kind)	Town of Pagosa Springs
25,000 (grant)	Musser Fund
25,000 (grant)	Southwestern Colorado Basin Roundtable
27,440 (in kind)	Community
Total $ 385,440	Matching Funds

Ultimately, the entire GGP project will require $1.3 million to fully plan and construct. Water infrastructure costs are $75,000 for all three domes. The SBR grant will provide $25,000 for the Education Dome. The request for CWCD funds is for $50,000. Compared to typical water projects, this is a relatively small figure for such a beneficial and multi-use project.

The table above is a selective list of in-kind and cash donations, yet indicates that the project has well over the matching funds required by CWCD. The project has Town support in the form of $25,000 matching funds for construction of domes and a lease agreement for both the land and water and associated water rights needed to support the project. The GGP project has retained Davis Engineering to complete engineering plans for the infrastructure master plan and Phase 1—which is construction of just one dome. This work is being supported by funds from the Musser Fund and will be complete by March 2014. Obtaining a $25,000 SBR grant and a $50,000 CWCD grant would insure completion of the water infrastructure for all three domes. It should be noted, too, that local support in the form of in-kind contributions and donations are significant. Examples include pro bono work from Davis Engineering (value $8000), Anderson Architecture (value $1000), Dee McPeek Graphics (value $300), and Design a Sign (value $300). The GGP also has a pledge from Growing Spaces for one of the growing domes at below wholesale price, as well as excavation, landscape, and design work from Hart Construction, Lucero Construction and Smithco Construction..

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

The GGP is a unique, multi-purpose project that uses a water right to develop a beneficial- and multi-use agricultural project, as well as an environmental education project. Water has both consumptive and non-consumptive uses in this project. A nearby well provides consumptive irrigation water for the project and a closed-loop geothermal heating system from the town comprises the non-consumptive use. Importantly, too, is the water savings from the GGP Project. Agriculture grown in a closed structure, such as a domes, results in significantly less evaporative loss, resulting in approximately one-third less water usage than conventional agriculture. Plus, water will be used more efficiently in these well-managed growing domes, yielding more crop per gallon. Moreover, since the domes and the growing methods are all based on the principles of permaculture, water savings are further enhanced.

As described in Part II of this application, the GGP project addresses multiple needs for the southwest basin. It will provide affordable, locally grown, and organic food for businesses (i.e., restaurants) and organizations (e.g., Senior Center, soup kitchen, etc.), the public, and schools in and around Archuleta County. Moreover, this project has the potential to re-vitalize the county and community of Pagosa Springs, which has been designated an *Enhanced Rural Enterprise Zone* because it has been identified as economically distressed. In addition to generating numerous jobs and income from the sale of agricultural crops, studies indicate substantially increased tourism opportunities (i.e., increased sales taxes) for the area from visitors to the project. Also, the GGP will serve as a model for others, both locally and beyond to replicate successes. One of the major goals of the project is to share information about producing food locally with less water, at high altitudes using geothermal energy. Finally, the project will help to build skills and resilience in the community to aid in preparing for the potential of less available water in the future.

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.

This GGP project promotes cooperation and collaboration among a host of traditional consumptive water interests, as well as non-consumptive interests. Currently, the GGP, a 501(c)3, has letters of support from the Town of Pagosa Springs, Archuleta County, Pagosa Area Water and Sanitation District, the San Juan Water Conservancy District, Public School District Joint 50 and the CSU Extension Office. In addition, the project has Town support in the form of $25,000 matching funds and a lease agreement for both the land and water and associated water rights needed to support the GGP project. Moreover, local support in the form of in-kind contributions and donations are significant. Examples include pro bono work from Davis Engineering, Anderson Architecture, Dee McPeek Graphics, and Design a Sign. The GGP also has a pledge for below wholesale price for one of the domes from Growing Spaces, as well as pledges for excavation, landscape, and design work from Hart Construction, Lucero Construction and Smithco Construction.

The educational component of the project promotes cooperation and collaboration with Colorado State Forest Service's Project Learning Tree (including "Forests to Faucets" and other water curriculum), Colorado Environmental Education Leadership Council that includes CPW Department of Natural Resources and Colorado Department of Education, Colorado Environmental Film Festival, Colorado State University Extension, and the U.S. Environmental Protection Agency. Archuleta School District intends to utilize the learning facility for STEM education. Year-round activities will engage students, seniors, community members and eco-tourists. Education about the Colorado Water Plan and water ecology will be a primary focus.

The GGP fully agrees with and supports the CWCB and the IBCC process that education about the Colorado Water Plan, the present and future water gap, water scarcity, conservation, and ecology is crucial to our shared future. The multi-faceted mission of the GGP allows the organization to demonstrate wise use of water and teach learners of all ages about water issues in Colorado. The GGP looks forward to fulfilling its educational mission and demonstrating water conservation after the three greenhouse domes are built. Even now, before the construction of the project is complete, the GGP is publically engaged in water education. In the summer of 2013, the GGP produced the first Colorado Environmental Film Festival Caravan. Seven of the featured films specifically addressed water issues, including the award-winning "Watershed: Exploring a New Ethic for a New West." The GGP will produce the second Colorado Environmental Film Festival Caravan in Pagosa Springs in 2014. Completing the water infrastructure is essential to continuing the GGP project mission and will allow us to begin fundraising for the final phase of the project – installation of the domes, hardscaping and landscaping. The SBR and CWCB's involvement in this project is of paramount importance to the GGP water education activities and the health of the San Juan River.

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.

Some general observations relevant to the GGP project can be made from the Consumptive Needs Assessment in SWSI 2010. The southwest basin as a whole is estimated to currently have only about 66% of the water supply available to agriculture to supply the crop demand (Table 4-9: Irrigation Water Requirement for number of currently irrigated acres vs. Water Supply-Limited Consumptive Use), which places it near the bottom third of basins statewide for water availability. SWSI 2010, in Section 5.1, recognizes that ". . . agriculture is a critical part of the history and economy of the area, and provides protection of open space and wildlife habitat." This unique GGP project will help to meet agricultural needs in Archuleta County and will do so using a multitude of water efficiency methods. Very importantly, it will also serve as a model of water conservation and sustainable agriculture across the State and Nation.

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).

With the funds from the Southwest Water Roundtable plus matching funds and in kind community efforts (e.g., excavation), the GGP will install all water infrastructure required by the first dome, the Education Dome. The engineering plans for the job will be completed by Davis Engineering by March 2014 supported by a $25,000 grant from the Musser Fund. With a $50,000 grant from the CWCD Statewide Account, installation of the potable, irrigation and geothermal water infrastructure for the project as a whole can be completed. Our attempts at fundraising with both public entities and private foundations have been met with great interest - and the request that we return when some part of the project has been realized, with the exception of the Musser Fund. With water infrastructure complete, our opportunities for additional funding from other organizations will be significantly improved.

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.

The total matching figure (see question 1. d.) is $387,599 just under 30% of the $1.3 million total cost of the project and this does not include pledges for excavation and mapping. That figure is over 300% of the $100,000 request from the CWCD and the SRT for total water infrastructure costs. The Project has overwhelming local financial support. It is recognized for the benefits it will confer: an endeavor to meet the need for water conservation, a model to attract sustainable agriculture to our community, a training ground for preparing young people to find jobs, and a source of locally grown organic produce.

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.

As previously indicated, this GGP project will help to meet agricultural needs in Archuleta County and will do so using a multitude of water efficiency methods. In so doing, it will also respond to environmental needs. The project includes three 42 foot agricultural growing domes (education, commercial, community) and a geothermal botanical garden centrally located in downtown Pagosa Springs at Centennial Park. The education dome will include a center for k-12 science education, as well as for advanced study in agriculture and renewable energy technologies. The commercial growing dome will also include an educational component and will provide a test site for the commercialization of organic crops at high altitudes using geothermal resources. The community garden dome also incorporates education and will provide an opportunity for the public to grow year-round crops. As mentioned previously, the GGP project will provide affordable, locally grown, and organic food for businesses (i.e., restaurants) and organizations (e.g., Senior Center, soup kitchen, etc.), the public, and schools in and around Archuleta County.

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.

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

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

The GGP project provides a multitude of benefits to Colorado in relationship to the amount of funds requested: $25,000 from the SBR and $50,000 from the CWCD to be used for establishing the Project's water infrastructure. The Colorado Water Plan, launched by Gov. John Hickenlooper's May 14th executive order, focuses attention on the projected gap between future water demands--aggravated by

population growth, and the State's water supply—threatened by a warming climate. The GGP project will work toward narrowing that gap by using a water right to develop a beneficial- and multi-use agricultural project, as well as an environmental education project.

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

The GGP project supports other CWCB programs such as the Colorado Water Plan, the water conservation and efficiency program, water supply planning efforts, and basin roundtable work. In addition, the GGP project compliments the CWCB education and outreach efforts.

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 GGP project is within the Town of Pagosa Springs Centennial Park Complex which has San Juan River Well water rights for irrigation and geothermal heat exchanging (transferring) purposes. There are no water right conflicts. The Town has granted the project a lease on the land for ten year and a geothermal water Tap Agreement for ten years @ 100 gpm, as well as potable and irrigation water sources.

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

There are no related studies or permitting issues.

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.

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: Sally High

Print Applicant's Name: Sally High, GGP Board Secretary

Project Title: Geothermal Greenhouse Partnership, Inc.

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

Statement of Work

WATER ACTIVITY NAME – Geothermal Greenhouse Partnership Project

GRANT RECIPIENT – Geothermal Greenhouse Partnership, Inc.

FUNDING SOURCE - i

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)

The GGP Project includes three 42 foot agricultural growing domes heated by geothermal energy, grounded in permaculture practices and centrally located in downtown Pagosa Springs at Centennial Park. It also includes surrounding beds, walk ways and public seating area. An education dome includes a center for K-12 science education, as well as for advanced study in agriculture and renewable energy technologies. A commercial growing dome also includes an educational component and will provide a test site for the commercialization of organic crops at high altitudes using the geothermal resource. A community garden dome also includes education and will provide an opportunity for the public to grow year-round crops. The influence of the GGP Project will extend well beyond Pagosa Springs as it serve as a model for other communities both state and nation wide that possess a geothermal resource.

OBJECTIVES

List the objectives of the project

- Prepare substructure for installation of water infrastructure outside and under domes
- Install water infrastructure outside and under domes
- Complete water infrastructure inside domes

TASKS

The project involves the water infrastructure for three domes and surrounding gardens, walk ways and public seating area; we are asking the Southwestern Basin Round table for funds to complete the first third of the project; and we are asking for a CWCD grant to complete the remaining two-thirds. We provide a breakdown of the tasks involved in the project; these processes are the same for each of the domes.

TASK 1 – Provide Geothermal Water

Description of Task

- Provide geothermal hot water to create a suitable climate for winter gardening inside Growing Dome Greenhouse by connecting to Town's geothermal system
- Provide geothermal hot water to surrounding bed, walkways and public seating area

Method/Procedure

- Trench and Install supply and return pipes, and connect pipes and embed in appropriate bedding materials, compact and backfill.
- Asphalt and gravel across parking lots and roadways as needed
- Install flow meter and temperature monitoring devices, plus appropriate valves and connections to future Growing Dome Greenhouses

Deliverable

Town geothermal well water available ready for connection to interior systems of Greenhouse

TASK 2 – Provide Well Water

Description of Task

- Provide well water to create a suitable environment for year-round gardening inside the Growing Dome Greenhouse by connecting to Town's Infiltration well nearby.

Method/Procedure

- Trench and Install supply and return pipes, connect pipes and embed in appropriate bedding materials, compact and backfill.
- Provide electrical supply to pump.
- Install pump, flow meter and temperature monitoring devices, plus appropriate valves and connections to future Growing Dome Greenhouses

Deliverable

- Town well water available ready for connection to interior systems of Greenhouse

TASK 3 – Provide Potable Water

Description of Task

- Provide potable water for human consumption, hand washing and vegetable preparation for gardening inside Growing Dome Greenhouse by connecting to Town's potable water system.

Method/Procedure

- Trench and Install supply and return pipes, connect pipes and embed in appropriate bedding material, compact and backfill.
- Asphalt and gravel across parking lots and roadways as needed
- Install appropriate valves and connections to future Growing Dome Greenhouses

Deliverable

- Potable water available ready for connection to interior systems of Greenhouse

TASK 4 – Provide water to inside of Dome

Description of Task

- Install Interior heating /cooling and irrigation systems in greenhouse.

Method/Procedure

- Install 3 types of heating/cooling systems to create optimum growing conditions for year round gardening in Growing Dome Greenhouse:
    - In ground heating for winter growing
    - Radiators for hanging/cooling
    - Heat exchange coils in the water tank for heating/cooling according to season

- Install irrigation systems
    - Irrigation
    - Sprinkler
    - Misting

Deliverable

- These systems provide Temperature stabilizing systems; fully operational heating/cooling, irrigation and misting system optimize and maximize plant yields while minimizing water consumption. These systems will be monitored and recorded to provide valuable information for other comparable project and for educational purposes

THE ABOVE TASKS WILL BE THE SAME FOR EACH OF THE THREE DOMES.

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. Sample budget tables are provided below. Please note that these budget tables are examples and will need to be adapted to fit each individual application. Tasks should correspond to the tasks described above.

Dome 2 – Water Infrastructure				
	Labor	Material	Matching Funds (If Applicable)	Total Project Costs
Task 1 – Geothermal Water	$ 4,600	$ 3,900		$ 8,500
Task 2 - Well Water	1,500	1,000		2,500
Task 3 - Potable Water	3,100	1,650		4,750
Task 4 - Inside Dome	4,250	5,000		9,250
In-Kind Contributions			5,000	
			5,000	
Total Costs:	$13,450	$11,550		$25,000

Dome 3 Water Infrastructure				
	Labor	Material	Matching Funds (If Applicable)	Total Project Costs
Task 1 – Geothermal Water	$ 4,600	$ 3,900		$ 8,500
Task 2 - Well Water	1,500	1,000		2,500
Task 3 - Potable Water	3,100	1,650		4,750
Task 4 - Inside Dome	4,250	5,000		9,250
In-Kind Contributions			5,000	10,000
			5,000	
Total Costs:	$13,450	$11,550		$25,000

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. Sample schedules are provided below. Please note that these schedules are examples and will need to be adapted to fit each individual application.

Task	Start Date	Finish Date
1	Upon NTP	NPT + 90 days
2	Upon NTP	NTP + 90 days
3	Upon NTP	NTP + 90 days
4	Upon NTP	NTP + 180
5	NTP + 60 days	NTP + 240

NTP = Notice to Proceed

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.