



COLORADO WATER CONSERVATION BOARD
WATER SUPPLY RESERVE ACCOUNT
APPLICATION FORM



Today's Date: December 30, 2015

Remote Cloud Seeder for Upper Gunnison Basin

Name of Water Activity/Project

Upper Gunnison River Water Conservancy District

Name of Applicant

Gunnison Basin

Amount from Statewide Account:

0

Amount from Basin Account(s):

25,000

Total WSRA Funds Requested:

25,000

Approving Basin Roundtable(s)

(If multiple basins specify amounts in parentheses.)

FEIN: 841180992

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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>. In addition, the applicant should also refer to the [Supplemental Scoring Matrix](#) applied to Evaluation Criteria Tiers 1-3 for Statewide Account requests.

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
1313 Sherman St., Room 721
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.

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

1.	Applicant Name(s):	Upper Gunnison River Water Conservancy District		
	Mailing address:	210 W. Spencer Ave., Ste B Gunnison, CO 81230		
	FEIN #:	84-0925208		
	Primary Contact:	Frank Kugel	Position/Title:	General Manager
	Email:	fkugel@ugrwcd.org		
	Phone Numbers:	Cell: (970) 209-6141	Office:	(970) 641-6065
	Alternate Contact:	Jill Steele	Position/Title:	Office Manager
	Email:	jill@ugrwcd.org		
	Phone Numbers:	Cell: (970) 209-6574	Office:	(970) 641-6065

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.
- ☐ 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

Upper Gunnison River Basin Weather Modification Program Highlights

Program Summary:

- Manager: Upper Gunnison River Water Conservancy District (UGRWCD) (Key contact: Frank Kugel)
- Contractor: North American Weather Consultants, Inc. (NAWC), with headquarters in Sandy, Utah, is the contractor for the operational seeding activities of the Program, and holds the permit for the Program. (Key contact: Don Griffith)
- Target Area: The mountainous areas above 9,000 feet mean sea level located within Gunnison, northwestern Saguache, and northern Hinsdale Counties that contribute streamflow to Blue Mesa Reservoir as shown on the Program map attached. Drainages that originate from these areas include, but are not limited to, the upper Gunnison River, East River, Taylor River, Slate River, Ohio Creek, Tomichi Creek, Cochetopa Creek, Cebolla Creek, and Lake Fork of the Gunnison River.
- Seeding Equipment and Instrumentation: Up to 30 cloud seeding generators, one icing rate meter
- Season: Up to 5 months (Nov 15 through Apr 15)
- History: Program began in 2002 which initially included only those drainages above 9,000 feet mean sea level in Gunnison County during the first season (2002-2003). Later, at the request of the sponsors, the Target Area was expanded to include additional watershed areas in two adjoining counties to the south (Hinsdale and Saguache).
- Permit: State of Colorado Weather Modification Permit No. 2012-01 through April 15, 2013, with conditional approval given for the next five winters through operational season 2016-2017
- Scientific Evaluations: Pursuant to the 2012 State of Colorado Weather Modification Rules and Regulations, NAWC has completed a target/control evaluation of the Program since 2013. For WY 2015, NAWC reports that the estimated results of the target/control evaluation indicate an average of 8% to 12% increases in April 1st snow water content at target area SNOTEL sites.

Program Objectives:

- Increase precipitation and snowpack water content to benefit the natural habitat, agriculture, municipalities, recreation, tourism, and the area economy in a cost efficient manner
- Increase water supply within the upper Colorado River basin
- Improve the science and techniques in operation in Colorado

Program Sponsors:

- Upper Gunnison River Water Conservancy District (UGRWCD)
 - Gunnison County
 - Dos Rios Water & Sewer
 - Gunnison County Stock Growers Association
 - Town of Crested Butte
-
- East River Regional Sanitation District / Skyland Metro District

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- Antelope Hills Water
- Colorado Water Conservation Board (CWCB) and the Lower Basin States (Metropolitan Water District of Southern California, Southern Nevada Water Authority, Central Arizona Water Conservation District, and California Six Agency Committee)

Program Funding:

- Program funding varies year by year
- Used to seed storms or portions of storms that meet NAWC generalized seeding criteria in the Target Area from November 15 through April 15
- Existing funding not adequate to take advantage of all seeding potentials and/or scientific evaluation opportunities

Future Program Enhancements:

- Instrumentation: Essential to include new meteorological instrumentation in the Program where necessary to assist with seed/no-seed decisions
 - NAWC recommended installation of one ground-based icing meter at Crested Butte Ski Area in order to make observations of supercooled liquid water to assist with these decisions. The icing meter was installed in the fall of 2014.
 - NAWC recommends including a new icing meter on Monarch Pass
 - Continued funding support needed for new instrumentation operations, maintenance and data analyses in future years
- *****Remote Generators: Desirable to include remote generators in the Program where necessary. NAWC recommends the addition of 1-2 remotes to target high yield areas in the Target Area (e.g. Upper East River drainage)*****
- Manual Generators: NAWC recommends the addition of 2-3 manual generators in the area south of Aspen to target highly seedable storms that have a northerly wind component
- Scientific Evaluations: On-going scientific evaluations of the seeding effectiveness of the entire seeding program:
 - Evaluate current generator locations and relocate if necessary to maximize seeding potential
 - NAWC provides annual target/control evaluations pursuant to the 2012 Weather Modification Rules & Regulations
 - NAWC has identified a potential opportunity in the 2015-16 season to use the CWCB-leased radiometer in the Target Area to make observations of supercooled liquid water to allow for comparisons of observed data from the existing ground based icing meter
 - This summer 2015, NAWC will prepare a scientific analysis and report of the icing events observed at the Crested Butte ski area site last winter
- Collaboration: Seek opportunities for shared generator installations with neighboring basins

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

The Contracting Entity and the Applicant are the 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.

☒ 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.

The UGRWCD has been 'de-Bruced'.

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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

☒

Other

Explain:

Increasing Water Supply

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

The intent of this project is to increase snowpack which would provide extra water for nonconsumptive, agricultural, or M&I use.

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

☐

Study

☒

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)

Efficiency Savings (acre-feet/year OR dollars/year – **circle one**)

Area of Restored or Preserved Habitat (acres)

Other -- Explain:

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

Latitude:

Longitude:

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 proposed activity involves purchasing a remotely operated cloud seeder that utilizes silver iodide as the seeding nuclei. Following procurement, the seeder will be delivered to and installed at the proposed site, which is about 1/2 mile northeast of Lake Irwin, around 10,600 feet near Kebler Pass between Paonia and Crested Butte, Colorado on private land. This seeder will join 2 other cloud seeders operated by North American Weather Consultants for the purpose of increasing snowpack levels in the Upper Gunnison Basin and other surrounding higher terrain. This particular location allows the cloud seeder to be close to the cloud bases it will target as well as be upwind of a good portion of our target area during storm events with north-northwest winds accompanying it and fills in one of the remaining “coverage gaps” we have for the Upper East River Basin.

Our Cloud Seeding process:

NAWC has a meteorologist who monitors winter storms and will advise those running the cloud seeders in our network when to turn their seeder on and off. Criteria that must be met in order for effective cloud seeding include wind direction towards the target area, humidity greater than 90%, temperatures at cloud bases in the optimal range, and it must be snowing. Cloud seeders do not cause a snowstorm to develop, they do provide condensation nuclei for liquid water droplets present in the cloud to adhere to form more snowflakes with the right conditions. A typical winter has between 20-25 winter storms that are seedable. The cloud seeder works simply by igniting a propane-fed flame and spraying a solution of acetone containing silver iodide into the flame. The heat generated by the large burner combined with prevailing upslope winds will lift the atomized silver iodide up into the cloud.

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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
 - 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 BRT's 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.

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

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- c) The water activity meets the provisions of Section 37-75-104(2), Colorado Revised Statutes.² 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.
- 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 contract or purchase order between the applicant and the State of Colorado is executed. 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)

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

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2. For Applications that include a request for funds from the **Statewide Account**, describe how the water activity/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. The applicant should also refer to the Supplemental Scoring Matrix applied to Evaluation Criteria Tiers 1-3 for Statewide Account requests. 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).
- 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.
- 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.

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).
- 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.

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.
- 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.

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- j. The water activity is complimentary to or assists in the implementation of other CWCB programs.
Continued: Explanation of how the water activity/project meets all applicable **Evaluation Criteria**.
Please attach additional pages as necessary.

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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.

Cloud seeding tries to get more water to fall to the target area from the atmospheric ocean of water vapor present above us during winter storms. Cloud seeding does not “rob” downwind areas of their precipitation due to the phenomenon of vertical movement of water and water vapor during cloud formation and storm events – think of a thunderhead and/or hail stones developing during thundershower, both rely on vertical currents. The extra supercooled liquid water (SLW) that cloud seeding causes to fall out of the cloud base as a snowflake is replenished via currents and mixing as the cloud continues its path downwind.

Water bodies affected include the Aspinall Unit Reservoirs – Blue Mesa, Morrow Point and Crystal. NAWC considers the range of a cloud seeder to be 15-20 miles maximum, higher wind speeds in the storm would increase this range but also increases the uncertainty of where our silver iodide plume is so seeding is suspended for extremely high winds. Major streams and rivers that benefit from our program include: East River, Taylor River and the Gunnison River; all of which end up in the Colorado River.

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

The proposed remote generator would be sited on private property associated with Irwin Lodge.

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 10 percent of the entire water activity budget will be withheld until final project/water activity documentation is completed. All products, data and information developed as a result of this grant must be provided to the CWCB in hard copy and electronic format as part of the project documentation. This information will in turn be made widely available to Basin Roundtables and the general public and help promote the development of a common technical platform.

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



Signature of Applicant:

Print Applicant's Name: Frank Kugel

Project Title: Remote Cloud Seeder for Upper Gunnison River Basin

Date: January 8, 2016

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

Craig Godbout – WSRA Application
Colorado Water Conservation Board
1313 Sherman St., Room 721
Denver, CO 80203
303-866-3441, ext. 3210 (office)
303-547-8061 (cell)
craig.godbout@state.co.us