

**Water Supply Reserve Fund  
Water Activity Summary Sheet  
July 21-22, 2021  
Agenda Item 16(a)**

**Applicant & Grantee:** Jackson County Water Conservancy District  
**Water Activity Name:** North Platte Basin Airborne Cloud Seeding Project  
**Water Activity Purpose:** Other - Implementation  
**County:** Jackson County  
**Drainage Basin:** North Platte River  
**Water Source:** North Fork River  
**Amount Requested:** \$225,000 North Platte Basin Account  
\$225,000 Total Request

**Matching Funds:** **Basin Account Match = \$93,000 (\$75,000 cash & \$18,000 In-kind)**

- 29.25% of Total Project Cost (meets 25% min)

| <b>Staff Recommendation:</b>   |
|--|
| Staff recommends approval of up to \$225,000 from the North Platte Basin Account to help fund the project: North Platte Basin Airborne Cloud Seeding Project |

**Water Activity Summary:** If approved, WSRF funds will be expended to provide operational monies for a cooperative airborne cloud seeding project that is an extension into the North Platte Basin of the Wyoming Water Development Office cloud seeding project in the Sierra Madre/Medicine Bow Mountains of southern Wyoming.

This airborne cloud seeding project would be an extension of the current cloud seeding project that was started three years ago and is the only airborne cloud seeding project currently in Colorado. The applicant states the “*Never Summer Cloud Seeding Validation Report*” provided with their application has shown positive evidence of water increase to encourage the CWCB Board to try another round of cloud seeding.

Collaboration and cooperation between cloud-seeding programs results in significant savings. Aerial seeding will occur upwind of the target watershed along a path perpendicular to the wind direction, at distances related to the storm wind velocities and ice crystal growth times. Cloud seeding is temporarily suspended when snowpack snow water equivalent thresholds are exceeded, during emergencies in the target area and when high avalanche hazard levels warrant suspension. The applicant states while additional snowpack is good for Colorado, there are thresholds that are set on snow water equivalent to ensure that snowpack in a watershed stays within the realm of natural variability for the local climate.

The applicant states this proposal will result in 3,000-4,000 acre feet of new water supplies developed or conserved.

**Discussion:** The proposal is consistent with the North Platte Roundtable’s Basin Implementation Plan, in particular, an increase in annual water supply would help meet the following North Platte Basin Goals set forth in their BIP: Maintain and maximize the consumptive use of water permitted in the Equitable Apportionment Decree and the baseline depletion allowance of the Three State Agreement; and Increase economic development and diversification through strategic water use and development.

**Issues/Additional Needs:** No issues have been identified.

**Eligibility Requirements:** The application meets requirements of all eligibility components.

**Evaluation Criteria:** Staff has determined this activity satisfies the Evaluation Criteria.

| <b>Funding Sources/Match</b>              | <b>Cash</b>      | <b>In-Kind</b>  | <b>Total</b>     | <b>Status</b> |
|---|------------------|-----------------|------------------|---------------|
| Jackson County Water Conservancy District | \$75,000         | \$18,000        | \$93,000         | Secured       |
| <b>Sub-Total Matching Funds</b>           | \$75,000         | \$18,000        | \$93,000         |               |
| WSRF North Platte Basin Account           | \$225,000        | \$0             | \$225,000        | Secured       |
| <b>Total Project Costs</b>                | <b>\$300,000</b> | <b>\$18,000</b> | <b>\$318,000</b> |               |

**CWCB Project Manager:** Andrew Rickert



Last Update: September 18, 2020

**Colorado Water Conservation Board**  
**Water Supply Reserve Fund**  
**Grant Application**

**Instructions**

All WSRF grant applications shall conform to the current [2020 WSRF Criteria and Guidelines](#).

To receive funding from the WSRF, a proposed water activity must be recommended for approval by a Roundtable(s) **AND** the approved by the Colorado Water Conservation Board (CWCB). The process for roundtable consideration and recommendation is outlined in the 2020 WSRF Criteria and Guidelines. The CWCB meets bimonthly.

If you have questions, please contact the WSRF Grant Program Manager (for all Roundtables) or your Roundtable Liaison:

|  |  |
|--|--|
| <p>Ben Wade<br/><a href="mailto:ben.wade@state.co.us">ben.wade@state.co.us</a><br/>303-866-3441 x3238 (office)</p> | <p>Sam Stein<br/><a href="mailto:Sam.stein@state.co.us">Sam.stein@state.co.us</a><br/>303-866-3441(office)</p> |
|--|--|

**WSRF Submittal Checklist (Required)**

- YES  NO  This request was recommended for CWCB approval by the sponsoring roundtable.
- YES  NO  I have read and understand the [2020 WSRF Criteria and Guidelines](#).
- YES  NO  Grantee will be able to contract with CWCB using the [Standard Contract](#).<sup>1</sup>
  
- Application Documents included:**
- YES  NO  Exhibit A: Statement of Work<sup>2</sup> (*Word – see Template*)
- YES  NO  Exhibit B: Budget & Schedule<sup>2</sup> (*Excel Spreadsheet – see Template*)
- YES  NO  Letters of Matching and/or Pending 3<sup>rd</sup> Party Commitments<sup>2</sup>
- YES  NO  Map<sup>2</sup>
- YES  NO  Photos/Drawings/Reports
- YES  NO  Letters of Support
  
- Contracting Documents<sup>3</sup>**
- YES  NO  Detailed/Itemized Budget<sup>3</sup> (*Excel Spreadsheet – see Template*)
- YES  NO  Certificate of Insurance<sup>4</sup> (*General, Auto, & Workers’ Comp.*)
- YES  NO  Certificate of Good Standing<sup>(4)</sup>
- YES  NO  W-9 Form<sup>4</sup>
- YES  NO  Independent Contractor Form<sup>4</sup> (*If applicant is individual, not company/organization*)
- YES  NO  Electronic Funds Transfer (ETF) Form<sup>4</sup>

<sup>1</sup>Click “Grant Agreements”. For reference only/do not fill out or submit/required for contracting  
<sup>2</sup> Required with application if applicable.  
<sup>3</sup> Additional documentation providing a Detailed/Itemized Budget maybe required for contracting. Applicants are encouraged to coordinate with the CWCB Project Manager to determine specifics.  
<sup>4</sup> Required for contracting. While optional at the time of this application, submission can expedite contracting upon CWCB Board approval.



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| Schedule     |                             |   |
|--------------|-----------------------------|---|
| CWCB Meeting | Application Submittal Dates | Type of Request   |
| January      | October 1                   | Basin Account   |
| March        | December 1                  | Basin/Statewide Account/Water Plan Grant Match <sup>1</sup> |
| May          | February 1                  | Basin Account   |
| July         | April 1                     | Basin Account   |
| September    | June 1                      | Basin/Statewide Account                                     |
| November     | August 1                    | Basin Account   |

<sup>1</sup> If either the basin or statewide match includes matching funds from a pending Water Plan Grant, both must be submitted by December 1st deadline for March Board meeting review.

| Water Activity Summary                                |   |
|---|---|
| Name of Applicant                                     | JACKSON COUNTY WATER CONSERVANCY DISTRICT             |
| Name of Water Activity                                | NORTH PLATTE BASIN AIRBORNE CLOUD SEEDING PROJECT (B) |
| Approving Roundtable(s)                               | Basin Account Request(s) <sup>1</sup>                 |
| NORTH PLATTE BASIN ROUNDTABLE                         | \$225,000   |
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |
| Basin Account Request Subtotal                        | \$225,000   |
| Basin Account Request Subtotal Approved by Roundtable | \$225,000   |
| Statewide Account Request <sup>(1)</sup>              | \$  |
| Total WSRF Funds Requested (Basin & Statewide)        | \$225,000   |
| Total Project Costs                                   | \$318,000   |

<sup>1</sup> Please indicate the amount recommended for approval by the Roundtable(s)

| Grantee and Applicant Information |   |
|-----------------------------------|---|
| Name of Grantee(s)                | JACKSON COUNTY WATER CONSERVANCY DISTRICT |
| Mailing Address                   | PO BOX 1019, WALDEN, CO 80480             |
| FEIN                              | 84-0934121                                |



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| Grantee and Applicant Information                    |  |
|--|--|
| <b>Grantee's Organization Contact<sup>1</sup></b>    | JAMES A. BALLER JR.  |
| Position/Title                                       | PRESIDENT  |
| Email  | <a href="mailto:BALLERRANCH@YAHOO.COM">BALLERRANCH@YAHOO.COM</a>   |
| Phone  | 970-819-1382   |
| <b>Grant Management Contact<sup>2</sup></b>          | TY WATTENBERG  |
| Position/Title                                       | SECRETARY/TREASURER  |
| Email  | <a href="mailto:TNWATTENBERG@GMAIL.COM">TNWATTENBERG@GMAIL.COM</a> |
| Phone  | 970-846-8401   |
| <b>Name of Applicant (if different than grantee)</b> | SAME AS GRANTEE  |
| Mailing Address                                      |  |
| Position/Title                                       |  |
| Email  |  |
| Phone  |  |

<sup>1</sup> Person with signatory authority

<sup>2</sup> Person responsible for creating reimbursement invoices (Invoice for Services) and corresponding with CWCB staff.

| Description of Grantee   |
|--|
| Provide a brief description of the grantee's organization (100 words or less).   |
| <p>The owners of the irrigated and non-irrigated lands within the limits of Jackson County, petitioned for the formation of the Jackson County Water Conservancy District (JCWCD) under the provisions of Article VI of Chapter 149, Colorado Revised Statutes 1953, as amended, and the JCWCD was created by order of the District Court in and for the County of Jackson State of Colorado on the 7<sup>th</sup> day of November 1961. The board consists of 7 elected directors, 1 from each division. The JCWCD was formed as a political subdivision of the State of Colorado and a body corporate with all the powers of a public corporation with the boundaries of the District being co-extensive with the exterior boundary lines of Jackson County, Colorado.</p> |

| Type of Eligible Entity (check one) |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | <b>Public (Government):</b> municipalities, enterprises, counties, and State of Colorado agencies. Federal agencies are encouraged to work with local entities. Federal agencies are eligible, but only if they can make a compelling case for why a local partner cannot be the grant recipient. |
| <input type="checkbox"/>            | <b>Public (Districts):</b> authorities, Title 32/special districts (conservancy, conservation, and irrigation districts), and water activity enterprises  |
| <input type="checkbox"/>            | <b>Private Incorporated:</b> mutual ditch companies, homeowners associations, corporations  |
| <input type="checkbox"/>            | <b>Private Individuals, Partnerships, and Sole Proprietors:</b> are eligible for funding from the Basin Accounts but not for funding from the Statewide Account.  |
| <input type="checkbox"/>            | <b>Non-governmental organizations:</b> broadly, any organization that is not part of the government   |
| <input type="checkbox"/>            | <b>Covered Entity:</b> as defined in <a href="#">Section 37-60-126 Colorado Revised Statutes</a>  |



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| Type of Water Activity (check one) |                |
|------------------------------------|----------------|
|                                    | Study          |
| X                                  | Implementation |

| Category of Water Activity (check all that apply) |                                |   |
|---|--------------------------------|---|
|   | Nonconsumptive (Environmental) |   |
|   | Nonconsumptive (Recreational)  |   |
|   | Agricultural                   |   |
|   | Municipal/Industrial           |   |
|   | Needs Assessment               |   |
|   | Education & Outreach           |   |
| X   | Other                          | Explain: Multipurpose – Increase water supply for all needs |

| Location of Water Activity  |                |
|---|----------------|
| Please provide the general county and coordinates of the proposed activity below in <b>decimal degrees</b> .<br>The Applicant shall also provide, in Exhibit C, a site map if applicable. |                |
| County/Counties   | Jackson County |
| Latitude  |                |
| Longitude   |                |

| Water Activity Overview   |
|---|
| <p>Please provide a summary of the proposed water activity (200 words or less). Include a description of the activity and what the WSRF funding will be used for specifically (e.g. studies, permitting, construction). Provide a description of the water supply source to be utilized or the water body affected by the activity. Include details such as acres under irrigation, types of crops irrigated, number of residential and commercial taps, length of ditch improvements, length of pipe installed, area of habitat improvements. If this project addresses multiple purposes or spans multiple basins, please explain.</p> <p>The Applicant shall also provide, in Exhibit A, a detailed Statement of Work, Budget, and Schedule.</p> |



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**Water Activity Overview**

WSRA funds will be expended to provide operational monies for a cooperative airborne cloud seeding project that is an extension into the North Platte Basin of the Wyoming Water Development Office cloud seeding project in the Sierra Madre/Medicine Bow Mountains of southern Wyoming. This airborne cloud seeding project would be an extension of the current cloud seeding project that was started three years ago. There is positive evidence of water increase to encourage the board to try another round of cloud seeding. Please refer to attachment – Never Summer Cloud Seeding Validation Report. Collaboration and cooperation between cloud-seeding programs results in significant savings. Aerial seeding will occur upwind of the target watershed along a path perpendicular to the wind direction, at distances related to the storm wind velocities and ice crystal growth times. Cloud seeding is temporarily suspended when snowpack snow water equivalent thresholds are exceeded, during emergencies in the target area and when high avalanche hazard levels warrant suspension. The additional snowpack is good for Colorado but thresholds are set on snow water equivalent to ensure that snowpack in a watershed stays within the realm of natural variability for the local climate.

**Measurable Results**

To catalog measurable results achieved with WSRF funds please provide any of the following values.

|             |   |          |
|-------------|---|----------|
|             | New Storage Created (acre-feet)   |          |
| 3,000-4,000 | New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive |          |
|             | Existing Storage Preserved or Enhanced (acre-feet)  |          |
|             | Length of Stream Restored or Protected (linear feet)  |          |
|             | Efficiency Savings (indicate acre-feet/year OR dollars/year)                                |          |
|             | Area of Restored or Preserved Habitat (acres)   |          |
|             | Length of Pipe/Canal Built or Improved (linear feet)  |          |
|             | Other   | Explain: |

**Water Activity Justification**

Provide a description of how this water activity supports the goals of [Colorado’s Water Plan](#), the most recent [Statewide Water Supply Initiative](#), and the respective [roundtable Basin Implementation Plan and Education Action Plan](#) <sup>(1)</sup>. The Applicant is required to reference specific needs, goals, themes, or Identified Projects and Processes (IPPs), including citations (e.g. document, chapters, sections, or page numbers).

For applications that include a request for funds from the Statewide Account, the proposed water activity shall be evaluated based upon how well the proposal conforms to Colorado’s Water Plan criteria for state support (CWP, Section 9.4, pp. 9-43 to 9-44;) (Also listed pp. 4-5 in [2020 WSRF Criteria and Guidelines](#)).



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**Water Activity Justification**

Cloud Seeding is supported in Colorado’s Water Plan – Chapter 4, Page 18 – Weather modification, also known as cloud-seeding, increases available water supplies. The World Meteorological Organization has stated that well designs, well-executed weather medication programs have demonstrable results; furthermore, these programs have no documented, negative environmental effects from the use of silver iodide for cloud-seeding. With seven permitted, ground-based, wintertime cloud-seeding programs, Colorado is a leading state for weather medication activities. The goal of these programs is to increase snowpack and streamflow. In comparison to other sources of new water, cloud-seeding is a relatively low-cost means of increasing system supplies.

On page 15 of the North Platte Basin Implementation Plan (NPBIP) and on page 7-1, Section 7.1 North Platte Basin Consumptive Uses: The Future of the SWSI 2010 North Platte basin report Basin wide Consumptive and Non-consumptive Water Supply Needs Assessment, June 2011 (2011 Report), Snowmaking as Water storage was identified as a potential future consumptive use and a possible strategic water development. On Page 19 of the NPBIP, a measurable outcome of the process to encourage the development of consumptive uses as prioritized by the roundtable in the 2011 Report was to develop 37,000 AF of additional storage (doubling of current storage) by 2050 and this project would increase annual stored water in the form of snow water equivalent in the increased snowpack. On Page 24 of the NPBIP, a measurable outcome of the process to identify instances where environmental and recreational needs are sustained and supported by agricultural water use was to complete at least two new multi-purpose water projects in the North Platte Basin by 2025 that meet multiple needs as identified in the NPBIP and other studies. An increased water supply from cloud seeding would also help reduce the average annual agricultural shortages which are currently 89,000 AF and projected to be 110,000 AF by 2050 as set forth on page 3. Section 2: Basin Needs of the NPBIP. An increased annual water supply would help meet the following North Platte Basin Goals set forth on page 2 of the NPBIP:

1. Maintain and maximize the consumptive use of water permitted in the Equitable Apportionment Decree and the baseline depletion allowance of the Three State Agreement.
2. Increase economic development and diversification through strategic water use and development.

<sup>1</sup> Access Basin Implementation Plans or Education Action Plans from Basin drop down menu.

**Matching Requirements: Basin Account Requests**

**Basin (only) Account** grant requests require a 25% match (cash and/or in-kind) from the Applicant or 3<sup>rd</sup> party and shall be accompanied by a **letter of commitment** as described in the [2020 WSRF Criteria and Guidelines](#) (submitted on the contributing entity’s letterhead). Attach additional sheet if necessary.

| Contributing Entity                       | Amount and Form of Match (note cash or in-kind) |
|---|---|
| Jackson County Water Conservancy District | \$75,000 (Cash)                                 |





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| Matching Requirements: Basin Account Requests  |                                    |
|--|------------------------------------|
| Jackson County Water Conservancy District – Grant Management   | \$18,000 (In Kind)                 |
|  |                                    |
|  |                                    |
|  |                                    |
|  |                                    |
|  |                                    |
| Total Match  | \$75,000 Cash and \$18,000 in kind |
| If you requested a Waiver to the Basin Account matching requirements, indicate the percentage you wish waived. |                                    |

| Matching Requirements: Statewide Account Requests   |   |
|---|---|
| <p><b>Statewide Account</b> grant requests require a 50% match as described in the <a href="#">2020 WSRF Criteria and Guidelines</a>. At least of 10% of the required Statewide Account Grant request match shall be cash from Basin Account funds whether that is from one or multiple basins; and the remaining 40% of the required match may be provided from any source, including other grants, cash from the Basin Account, or any combination of cash, in-kind services, or in-kind materials.and shall be accompanied by a <b>letter of commitment</b>. Attach additional sheet if necessary.</p> |   |
| Contributing Entity   | Amount and Form of Match<br>(note cash or in-kind): |
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |
| Total Match   | \$  |
| If you requested a Waiver to the Statewide Account matching, indicate % you wish waived. (Max 50% reduction of requirement).  |   |

| Related Studies  |
|--|
| Please provide a list of any related studies, including if the water activity is complimentary to or assists in the implementation of other CWCB programs. |



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**Related Studies**

Weather Modification – Medicine Bow/Sierra Madre Ranges Final Design and Permitting Study, Final Report by National Center for Atmospheric Research, Research Applications, Laboratory, Boulder, Phase II Report to the Wyoming Water Development Office Contract 05SC0296808SE

Airborne Cloud Seeding in Northern Colorado as an Extension of Seeding Operations Conducted for Southern Wyoming prepared by Weather Modification International 3802 20<sup>th</sup> Street North Fargo, ND 58102, for Wyoming Water Development Commission, State of Wyoming, February 2018

Compliments CWCD cloud seeding program, compact compliance and Three State Agreement

**Previous CWCB Grants**

List all previous or current CWCB grants (including WSRF) awarded to both the Applicant and Grantee. Include: 1) Applicant name; 2) Water activity name; 3) Approving RT(s); 4) CWCB board meeting date; 5) Contract number or purchase order

| Water Activity Name  | Approving RT | CWCB Meeting Date | Amount Approved | Amount Reimbursed | Expiration Date | Status      |
|--|--------------|-------------------|-----------------|-------------------|-----------------|-------------|
| Structures for Water Control: <u>Headgates</u> and Diversion | North Platte | Sept 2011         | \$183,883       | \$140,040.88      | 12/13/2013      | Completed   |
| North Platte Basin Implementation Plan                       | North Platte | October 2013      | \$107,500       | \$107,500         | 11/30/2017      | Completed   |
| Jackson County Basin Aug Plan                                | North Platte | Sept 2015         | \$161,000       | \$93,310          | 10/19/2020      | Extended    |
| Jackson County Basin Augmentation Plan Extension             | North Platte | January 2021      | \$49945.88      | \$0.00            | 12/31/21        | In-Progress |
| North Platte Basin Airborne Cloud Seeding Project            | North Platte | September 2018    | \$150,000       | 94,822            | 6/30/22         | In-Progress |

**Tax Payer Bill of Rights**

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.

March 24, 2021

Mr. Ben Wade

CWCB

Water Supply Planning Section

Ben,

The North Platte Basin Roundtable voted to approve Jackson County Water Conservancy District's application to continue to fund the Cloud Seeding Program for the amount of \$225,000, to come from the North Platte Basin Account funds. The application received eight votes in support, zero votes opposing the proposal and five Roundtable members recused themselves from the vote.

This project is in alignment with Water Plan and BIP goals and objectives and will help increase water supply for the basin.

If you have any questions please call me at 970-723-4498.

Sincerely,

Ty Wattenberg

North Platte Basin Roundtable Chair

# **JACKSON COUNTY WATER CONSERVANCY DISTRICT**

WALDEN, COLORADO 80480

**Directors**

**March 8, 2021**

DIVISION 1  
Ty Wattenberg  
SR Box 797  
Walden, CO 80480  
970-723-4498

**North Platte Basin Roundtable  
And**

**Ben Wade  
Program Manager  
Water Supply Planning Section  
Colorado Water Conservation Board  
1313 Sherman Street, Room 718  
Denver, Co 80203**

DIVISION 2  
Randy Miller  
P.O. Box  
Walden, CO 80480  
970-218-4974

DIVISION 3  
Richard F. Wyatt  
P.O. Box 1052  
Walden, CO 80480  
970-723-4471

**RE: Letter of Match Commitment from Jackson County Water  
Conservancy District for WSRF Application: North Platte Basin Airborne Cloud  
Seeding Project (B)**

DIVISION 4  
James A. Baller, Jr.  
48725 State Hwy. 14  
Walden, CO 80480  
970-723-4439

**Dear Ben and North Platte Basin Roundtable:**

DIVISION 5  
Scott S. Fischer  
P.O. Box 51  
Walden, CO 80480  
970-723-8308

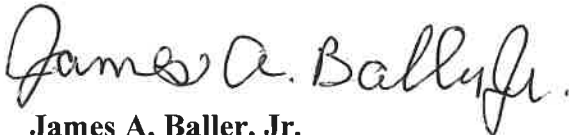
**Please consider this letter as written confirmation that the Board of Directors of the  
Jackson County Water Conservancy District has taken official action to commit  
\$75,000 in cash match to the North Platte Basin Airborne Cloud Seeding Project. In  
addition the Jackson County Water Conservancy District will commit an addition in  
kind match of \$18,000 for Grant Administration of this WSRF project. This grant  
administration in kind match is based on 6% of a total project cash expenditure of  
\$300,000.**

DIVISION 6  
Carl Trick, II  
P.O. Box 15  
Cowdrey, CO 80434  
970-723-4925

**If there are any question, please contact us.**

DIVISION 7  
Pat VanValkenburg  
11853 Highway 14  
Walden, CO 80480  
970-846-5153

**Sincerely,**



**James A. Baller, Jr.  
President, JCWCD**

**Cc: file**



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| <b><u>Colorado Water Conservation Board</u></b>  |  |
|--|--|
| <b>Water Supply Reserve Fund</b>   |  |
| <b><u>Exhibit A - Statement of Work</u></b>  |  |
| <b>Date:</b>   | <b>March 2, 2021</b>   |
| <b>Water Activity Name:</b>  | <b>North Platte Basin Airborne Cloud Seeding Project (B)</b>   |
| <b>Grant Recipient:</b>  | <b>Jackson County Water Conservancy District</b>   |
| <b>Funding Source:</b>   | <b>Water Supply Reserve Fund – Basin Account \$225,000<br/>District Cash Match - \$75,000 and \$18,000 In-Kind</b> |
| <b>Water Activity Overview:</b> (Please provide brief description of the proposed water activity (no more than 200 words). Include a description of the overall water activity and specifically what the WSRF funding will be used for. (PLEASE DEFINE ALL ACRONYMS).)   |  |
| <p>WSRA funds will be expended to provide operational monies for a cooperative airborne cloud seeding project that is an extension into the North Platte Basin of the Wyoming Water Development Office cloud seeding project in the Sierra Madre/Medicine Bow Mountains of southern Wyoming. This airborne cloud seeding project would be an extension of the current cloud seeding project that was started three years ago. Please refer to attachment titled Never Summer Cloud Seeding Validation Water Year 2020. There is positive evidence of water increase to encourage the board to try another round of cloud seeding. Collaboration and cooperation between cloud-seeding programs results in significant savings. Aerial seeding will occur upwind of the target watershed along a path perpendicular to the wind direction, at distances related to the storm wind velocities and ice crystal growth times. Cloud seeding is temporarily suspended when snowpack snow water equivalent thresholds are exceeded, during emergencies in the target area and when high avalanche hazard levels warrant suspension. The additional snowpack is good for Colorado but thresholds are set on snow water equivalent to ensure that snowpack in a watershed stays within the realm of natural variability for the local climate.</p> |  |
| <b>Objectives:</b> (List the objectives of the project. (PLEASE DEFINE ACRONYMS).)   |  |
| <ol style="list-style-type: none"> <li><b>1. Snowpack augmentation by airborne cloud seeding to increase annual North Platte Basin water supply for consumptive and non-consumptive uses</b></li> <li><b>2. Evaluate the cost/benefit of airborne cloud seeding to the North Platte Basin</b></li> <li><b>3. Demonstrate that a cooperative airborne cloud seeding project can be economically beneficial and effective to all parties participating in the project</b></li> </ol>   |  |



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| Tasks  |
|--|
| Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)   |
| <b><u>Task 1 - (Name) Permitting &amp; Fees</u></b>  |
| Description of Task:   |
| Payment of costs to obtain weather modification permit to conduct airborne cloud seeding in the North Platte River Basin. Includes cost for legal notifications, holding public hearings, permit fees, commercial permit fees (2% of the contract cost), and consulting costs to assist in completion of permit application. |
| Method/Procedure:  |
| Payment of invoiced expenses   |
| Grantee Deliverable: (Describe the deliverable the grantee expects from this task)   |
| Information on public comments received regarding project and copy of weather modification permit issued to contractor   |
| CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task)   |
| Copies of invoices received for legal notices, public hearing costs and permitting costs and fees and copy of approved weather modification permit issues to contractor  |

| Tasks  |
|--|
| Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)                 |
| <b><u>Task 2 - (Name) Target/Control Analysis and annual Evaluation</u></b>                                      |
| Description of Task:   |
| Target/Control Analysis using Snotel Data to obtain permit and annual reports in accordance §36-20-117(3) C.R.S. |
| Method/Procedure:  |
| WSRF funding will pay invoiced costs for annual evaluations  |
| Grantee Deliverable: (Describe the deliverable the grantee expects from this task)                               |
| Documentation that costs have been incurred and paid.  |



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<https://cwcb.colorado.gov/>

| Tasks  |
|--|
| CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task) |
| Copies of invoices received for annual evaluations and evidence that Target/Control Analysis was completed         |

| Tasks  |
|--|
| Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)                   |
| <u>Task 3 - (Name)</u> Cloud seeding Operations  |
| Description of Task:   |
| Aircraft flight hours, aircraft fuel, Burn in place pyrotechnics and ejectable pyrotechnics (seeding agents)       |
| Method/Procedure:  |
| Pay Invoices Received for Operational Costs  |
| Grantee Deliverable: (Describe the deliverable the grantee expects from this task)                                 |
| Documentation that costs have been incurred and paid.  |
| CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task) |
| Copies of invoices received for cloud seeding operations   |

| Tasks  |
|--|
| Provide a detailed description of each task using the following format: (PLEASE DEFINE ACRONYMS)                   |
| <u>Task 4 - (Name)</u> Grant Management (In Kind contribution from JCWCD)  |
| Description of Task:   |
| Prepare progress reports and reimbursement requests to CWCB  |
| Method/Procedure:  |
| Use volunteer time to prepare reports and reimbursement requests   |
| Grantee Deliverable: (Describe the deliverable the grantee expects from this task)                                 |
| Reports and Reimbursement Records  |
| CWCB Deliverable: (Describe the deliverable the grantee will provide CWCB documenting the completion of this task) |
| Copies of invoiced incurred and paid.  |

**Repeat for Task 3, Task 4, Task 5, etc.**



Last Update: March 17, 2020

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### Budget and Schedule

**Exhibit B - Budget and Schedule:** This Statement of Work shall be accompanied by a combined [Budget and Schedule](#) that reflects the Tasks identified in the Statement of Work and shall be submitted to CWCB in excel format. A separate excel formatted Budget is required for engineering costs to include rate and unit costs.

### Reporting Requirements

**Progress Reports:** The grantee shall provide the CWCB a progress report every 6 months, beginning from the date of issuance of a purchase order, or the execution of a contract. The progress report shall describe the status 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. The CWCB may withhold reimbursement until satisfactory progress reports have been submitted.

**Final Report:** At completion of the project, the grantee shall provide the CWCB a Final Report on the grantee's letterhead that:

- Summarizes the project and how the project was completed.
- Describes any obstacles encountered, and how these obstacles were overcome.
- Confirms that all matching commitments have been fulfilled.
- Includes photographs, summaries of meetings and engineering reports/designs.

### Payments

Payment will be made based on actual expenditures, must include invoices for all work completed and must be on grantee's letterhead. The request for payment must include a description of the work accomplished by task, an estimate of the percent completion for individual tasks and the entire Project in relation to the percentage of budget spent, identification of any major issues, and proposed or implemented corrective actions.

The CWCB will pay the last 10% of the entire water activity budget when the Final Report is completed to the satisfaction of CWCB staff. Once the Final Report has been accepted, and final payment has been issued, the water activity and purchase order or contract will be closed without any further payment. Any entity that fails to complete a satisfactory Final Report and submit to CWCB within 90 days of the expiration of a purchase order or contract may be denied consideration for future funding of any type from CWCB.

### Performance Requirements

Performance measures for this contract shall include the following:

(a) Performance standards and evaluation: Grantee will produce detailed deliverables for each task as specified. Grantee shall maintain receipts for all project expenses and documentation of the minimum in-kind contributions (if applicable) per the budget in Exhibit B. Per Grant Guidelines, the CWCB will pay out the last 10% of the budget when the final deliverable is completed to the satisfaction of CWCB staff. Once the final deliverable has been accepted, and final payment has been issued, the purchase order or grant will be closed without any further payment.

(b) Accountability: Per the Grant Guidelines full documentation of project progress must be submitted with each invoice for reimbursement. Grantee must confirm that all grant conditions have been complied with on each invoice. In addition, per the Grant Guidelines, Progress Reports must be submitted at least once every 6 months. A Final Report must be submitted and approved before final project payment.

(c) Monitoring Requirements: Grantee is responsible for ongoing monitoring of project progress per Exhibit A. Progress shall be detailed in each invoice and in each Progress Report, as detailed above. Additional inspections or field consultations will be arranged as may be necessary.

(d) Noncompliance Resolution: Payment will be withheld if grantee is not current on all grant conditions. Flagrant disregard for grant conditions will result in a stop work order and cancellation of the Grant Agreement.





Last Update: March 17, 2020

<https://cwcb.colorado.gov/>

Last Update: March 5, 2021



**COLORADO**

Colorado Water Conservation Board

Department of Natural Resources

**Colorado Water Conservation Board**

**Water Supply Reserve Fund**

**EXHIBIT B - BUDGET AND SCHEDULE - Direct & Indirect (Administrative) Costs**

Date: 3/2/21

Water Activity Name: North Platte Basin Airborne Cloud Seeding Project (B)

Grantee Name: Jackson County Water Conservancy District

| <u>Task No.</u> <sup>(1)</sup> | <u>Description</u>   | <u>Start Date</u> <sup>(2)</sup> | <u>End Date</u>        | <u>Matching Funds</u><br>(cash & in-kind) <sup>(3)</sup> | <u>WSRF Funds</u><br>(Basin & Statewide combined) <sup>(3)</sup> | <u>Total</u> |
|--------------------------------|--|----------------------------------|------------------------|--|--|--------------|
| <b>1</b>                       | <b><u>Permitting &amp; Fees</u></b>                            | <b><u>Sept 21</u></b>            | <b><u>June 25</u></b>  | \$4,250  | \$12,750   | \$17,000     |
| <b>2</b>                       | <b><u>Target/Control Analysis &amp; Annual Evaluations</u></b> | <b><u>Sept 21</u></b>            | <b><u>June 25</u></b>  | \$7,500  | \$22,500   | \$30,000     |
| <b>3</b>                       | <b><u>Cloud Seeding Operations</u></b>                         | <b><u>Sept 21</u></b>            | <b><u>March 24</u></b> | \$63,250   | \$189,750  | \$253,000    |
| <b>5</b>                       | <b><u>Grant Management</u></b>                                 | <b><u>Sept 21</u></b>            | <b><u>June 25</u></b>  | \$18,000 in kind   | \$0  | \$18,000     |
|                                |  |                                  |                        |  |  | \$0          |
| <b>Total</b>                   |  |                                  |                        | \$93,000   | \$225,000  | \$318,000    |

(1) The single task that include costs for Grant Administration must provide a labor breakdown (see Indirect Costs tab below) where the total WSRF Grant contribution towards that task does not exceed 15% of the total WSRF Grant amount.

(2) Round values up to the nearest hundred dollars.

• Additional documentation providing a Detailed/Itemized Budget may be required for contracting. Applicants are encouraged to coordinate with the CWCB Project Manager to determine specifics.

The CWCB will pay the last 10% of the entire water activity budget when the Final Report is completed to the satisfaction of the CWCB staff project manager. Once the Final Report has been accepted, the final payment has been issued, the water activity and purchase order (PO) or contract will be closed without any further payment. Any entity that fails to complete a satisfactory Final Report and submit to the CWCB with 90 days of the expiration of the PO or contract may be denied consideration for future funding of any type from the CWCB.

• Additionally, the applicant shall provide a progress report every 6 months, beginning from the date of contract execution

# NORTH PLATTE BASIN CLOUD SEEDING PROJECT



TARGET AREA  
NEVER SUMMER  
MOUNTAINS

