

Water Supply Reserve Account – Grant and Loan Program
Water Activity Summary Sheet
March 16-17, 2016
Agenda Item 14(k)

Applicant & Fiscal Agent: Upper Gunnison River Water Conservancy District
Water Activity Name: Remote Cloud Seeder for Upper Gunnison Basin
Water Activity Purpose: Multipurpose
County: Gunnison/Saguache/Hinsdale
Drainage Basin: Gunnison
Water Source: Gunnison River and tributaries
Amount Requested/Source of Funds: \$25,000 Gunnison Basin Account
Matching Funds: Basin Account Match (\$25,000) = 100% of total grant request (meets 5% min);
Applicant/3rd Party Match (\$38,774) = 63.63% of total project costs (\$68,774)
(refer to *Funding Summary/Matching Funds* section)

Staff Recommendation:
Staff recommends approval of up to \$25,000 from the Gunnison Basin Account to help fund the project titled: Remote Cloud Seeder for Upper Gunnison Basin.

Water Activity Summary: WSRA funds, if approved, will be expended to fund the project titled: Remote Cloud Seeder for Upper Gunnison Basin. 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 (NAWC) 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” in the Upper East River Basin.

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.

Discussion: This project would aid in increasing precipitation and snowpack water content to benefit the natural habitat, agriculture, municipalities, recreation, tourism, and the area economy. The project would also aid in increasing the water supply in the upper Colorado River basin.

This project is consistent with goals and actions identified in the Gunnison Basin Implementation Plan as well as Colorado's Water Plan.

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

Threshold and Evaluation Criteria:

The application meets all four Threshold Criteria.

Tier 1-3 Evaluation Criteria: n/a

Funding Summary/Matching Funds:

<u>Funding Source</u>	<u>Cash</u>	<u>In-kind</u>	<u>Total</u>
Lower Basin States	\$35,000	\$0	\$35,000
Upper Gunnison Stakeholders	\$5,000	\$3,774	\$8,774
Subtotal Matching Funds	\$40,000	\$3,774	\$43,774
WSRA Gunnison Account	\$25,000	n/a	\$25,000
Total	\$65,000	\$3,774	\$68,774

CWCB Project Manager: Joe Busto

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: 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.

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.

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.