

Idaho Water Resource Board

Cloud Seeding Program

Authorization for Cloud Seeding Operations in Idaho



EXECUTIVE SUMMARY

In accordance with Idaho Code § 42-4303, the Idaho Water Resource Board (IWRB) is statutorily designated as the agency responsible for authorizing all cloud seeding activities in Idaho. The IWRB requires compliance with specified operational, safety, and reporting criteria to ensure transparency, public trust, and effective water resource management associated with cloud seeding projects and programs.

Authorization by the IWRB is required prior to conducting cloud seeding in Idaho. The purpose of this document is to provide interested parties or entities with a framework for obtaining and maintaining the required authorization. This document details the requisite authorization and reporting criteria requirements for any cloud seeding project or program within the State of Idaho.

Items outlined in Section I, 'Request for Authorization' present the minimum information required by the IWRB for consideration of authorization. The IWRB will determine if a proposed project or program is authorized to conduct cloud seeding. A Request for Authorization is not required for any party or entity already authorized by the IWRB. However, entities possessing authorization should review all sections in this document. If the IWRB updates this document, all authorized parties must comply with the most current version.

I. Request for Authorization

- a. Requests for authorization shall be submitted using the "Request for Authorization to Conduct Cloud Seeding Operations" form (Attachment A) to the IWRB at least three (3) months ahead of proposed operations. The request for authorization shall include:
 - i. Primary applicant contact information and name of subcontractor.
 - ii. Proposed Project or Program name.
 - iii. A schedule with start and end date; any applicant requesting authorization to conduct operations outside of the range of October 1 – April 30 ("Operational Period") shall include a narrative justification for proposed activity.
 - iv. A summary of the proposed project or program and how its outcomes may meet one or more of the various public benefits of cloud seeding in Idaho listed in [Idaho Code § 42-4301 \(c\)](#).
 - v. Method(s) of seeding (e.g., aircraft, ground-based, unmanned aerial systems (UAS), or other).
 - vi. Active seeding agent(s) or material(s) to be used.
 - vii. Map(s) of the project(s) or program area that shall include:
 1. Operational and target area boundaries.
 2. HUC-8-level watershed boundaries for the target area.
 3. General location of any ground-based generators.
 4. Flight paths of any aircraft used for cloud seeding.
 5. General location of any UAS launch sites.
 6. General location of weather instrumentation.
 - viii. A description of any cloud seeding infrastructure and/or equipment used in the project or program that shall include:
 1. Quantity and type (e.g., 1 aircraft, 10 ground generators, 2 UAS) and their make and model.

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2. An estimate of the release rate (grams per hour) of seeding material for any method and the total amount (grams or pounds) to be released during the operational period.
3. For operations proposing use of pyrotechnic flares, provide the:
 - a. Flare make and model.
 - b. Estimated quantity needed for an operational period.
- ix. A list of weather instruments to be used in the project or program.
- x. A list of meteorologists supporting the project or program.
- xi. A summary of relevant cloud seeding experience and/or certifications held by the applicant party and any subcontractor(s), that shall include at least one of the following:
 - a. Proof of Certification as a Weather Modification Association (WMA) Cloud Seeding Operator.
 - b. Description of at least five years of relevant operational experience.
- xii. Operational Suspension Criteria that indicate specific thresholds for suspending operations and that, minimally address:
 1. Avalanche Risks.
 2. Flood Risks.
 3. Severe Weather Risks.

II. Conditions for Maintaining Authorization

- a. Within 60 calendar days of the date of authorization by the IWRB and prior to commencing operations, authorized entities shall have the following on file with the IWRB:
 - i. Safety Data Sheet (SDS), when available, for the active seeding material(s) to be used during the operational period.
 - ii. Proof of liability insurance coverage from an Idaho-licensed insurer, valid for the entire operational period.
- b. Operators shall comply with all applicable local, state, and federal laws and regulations that pertain to cloud seeding operations, including:
 - i. Aviation laws or regulations.
 - ii. Site access requirements, restrictions, and agreements.
- c. If requested by the Board, provide informational presentation(s) about their project or program to IDWR staff and/or the Board.
- d. Authorized entities shall notify the IWRB in writing within 24 hours of:
 - i. Any suspension of operations including the reason for and expected duration of the suspension and notice of when operations resume.
 - ii. Any hazardous conditions resulting from operations.
- e. Any modifications to the project or program approved by the Board under the original Request for Authorization are to be submitted in writing to Board staff for evaluation within 30 days of implementation. Modifications that may require reauthorization may be subject to consideration by the Board.

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III. Revocation of Authorization

- a. The IWRB reserves the right to revoke authorization for cloud seeding operations if the authorized entity:
 - i. Fails to meet the conditions in Section II.
 - ii. Violates local, state, or federal laws or regulations.
 - iii. Operates in a manner that poses risks to public safety or the environment.
- b. Authorized parties will be notified in writing of any violations or non-compliance and will be given an opportunity to address deficiencies before revocation is enforced.

IV. Reporting Criteria: Monthly

- a. The previous month's activity shall be submitted by the end of the next calendar month using the IWRB's "Cloud Seeding Monthly Report of Operations" tables. The monthly report shall include:
 - i. A summary table of the previous month's operational activity:
 1. Total number of days that cloud seeding occurred.
 2. Number of days cloud seeding by ground-generator(s) occurred.
 3. Number of days aircraft (or UAS) cloud seeding occurred.
 4. Total generator runtime.
 5. Total flight time (aircraft and UAS).
 6. Number and type of flares consumed.
 7. The total quantity of material released by each method of seeding.
 - ii. Detailed monthly operational data specific to each method(s) used during the previous month:
 1. Infrastructure or equipment used, corresponding to Site ID on project map.
 2. The date(s) (e.g., MM-DD-YYYY) cloud seeding occurs by each method's infrastructure or equipment.
 3. The amount of cloud seeding material released by each method's infrastructure or equipment.
 4. The total number of seeding hours by each method's infrastructure or equipment.
 - iii. Summary of suspension periods including dates, times, and reason(s) for each suspension.

V. Reporting Criteria: Annual

- a. An annual report covering cloud seeding operations during the previous winter's Operational Period for each project or program shall be submitted within 90 days of the end of operational cloud seeding:
 - i. Copies of NOAA 17-4 and 17-4A forms.
 - ii. A project or program map(s)
 - iii. Start and end date of operations.
 - iv. Total number of operational hours for each method used during the Operational Period.
 - v. Total amount of seeding material released (grams) by each method.

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- vi. Average release rate (grams/hour) of seeding material for each method.
- vii. Quantity and type (ejectable, burn in place, other) of any flares consumed.
- viii. A summary of any suspension periods.
- ix. A summary of the project's or program's effectiveness, including an estimate of water produced from cloud seeding during the operational period (in units of acre-feet) and the methods used to develop that estimate.
- b. The IWRB may at any time require project or program operational data or supporting information to be provided to an independent third party solely for the purposes of analysis, evaluation and monitoring.
 - i. For the protection and security of a project's or program's operational infrastructure, all related data shall be treated as confidential business information.
- c. Authorized parties shall retain all operational records and data to be provided to the IWRB or an independent third party upon request.

VI. Requesting Authorization and Submittal of Monthly and Annual Reports

- a. Requests for authorization and all operator monthly and annual reporting data shall be submitted in writing to the IWRB or its designated representative at one of the following:
 - i. Email: CloudSeedingProgram@idwr.idaho.gov
 - ii. Mail: PO Box 83720, Boise, ID 83720-0098.
 - iii. In Person: Any Idaho Department of Water Resources (IDWR) office.

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Attachment A

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Request for Authorization to Conduct Cloud Seeding Operations



Operator Information

Operator Name: _____
Subcontractor Company Name: _____
Phone Number: _____
Mailing Address: _____
Email Address: _____

Project or Program Information

Project or Program Name: _____
Project or Program Summary: _____

Geographical Area: _____
Operational Schedule (Anticipated Start and End Dates): _____

Proposed Seeding Agent(s):

- | | |
|--|---------------------------------------|
| ☐ Silver Iodide (AgI) | ☐ Dry Ice |
| ☐ Liquid Propane (LP) | ☐ Other: _____ |

Proposed method(s) for seeding:

- | | |
|---|---|
| ☐ Aircraft | ☐ Unmanned Aerial System (UAS) |
| ☐ Ground-Based Remote Generator(s) | ☐ Other: _____ |
| ☐ Ground-Based Manual Generator(s) | |

Equipment Information

Equipment Type and Quantity:

- | |
|---|
| ☐ #: _____ Remote Ground-Based Generator (AgI) |
| ☐ #: _____ Manual Ground-Based Generator (AgI) |
| ☐ #: _____ Remote Ground-Based Generator (LP) |
| ☐ #: _____ Aircraft and Model: _____ |
| ☐ #: _____ UAS and Model: _____ |
| ☐ #: _____ Other and Model: _____ |

Estimated Rate(s) of Dispersion (grams per hour) for any equipment proposed:

Manufacturer and Type (ejectable, burn in place, other) of Pyrotechnics (if applicable): _____

Number of Meteorologists: _____

Weather Instrumentation: _____

Description of Relevant Experience: _____

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Documentation to be Attached

- ☐ Detailed map of project area with target basins
- ☐ Weather Modification Association Cloud Seeding Operator Proof of Certification attached (if applicable)
- ☐ Suspension Criteria for the proposed project or program

Request Agreement

I certify that I have read and agree to the authorization application criteria outlined in the “Authorization for Cloud Seeding Operations in Idaho” (CS-Authorization) and that the information provided is complete and accurate to the best of my knowledge.

Authorized Signature: _____

Printed Name: _____

Title: _____

Date: _____