NOAA FORM 17-4 (4-81)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Form Approved OMB Control No. 0648-0025
Expires 05/31/2024

INITIAL REPORT ON WEATHER MODIFICATION ACTIVITIES

This report is required by Public Law 92-205; 85 Stat. 735; 145 U.S.C. 330b. Knowing and willful violation of any rule adopted under the authority of Section 2 of Public Law 92-205 shall subject the person violating such rule to a fine of not more than $10,000, upon conviction thereof.

Complete in accordance with instructions on reverse and forward one copy to:
National Oceanic and Atmospheric Administration
Office of Oceanic and Atmospheric Research
1315 East-West Highway, WWMC-3, Rm 11216
Silver Spring, MD 20910

1. PROJECT OR ACTIVITY DESIGNATION, IF ANY
Bear River Basin, Idaho

2. DATES OF PROJECT
a. DATE FIRST ACTUAL WEATHER MODIFICATION ACTIVITY IS TO BE UNDERTAKEN: 12/10/2021
b. EXPECTED TERMINATION DATE OF WEATHER MODIFICATION ACTIVITIES: 04/15/2022

3. PURPOSE OF PROJECT OR ACTIVITY
Augment Winter Snowpack

4. (a) SPONSOR

NAME	Mike Morrison			
AFFILIATION	Idaho Water Resources Board	PHONE NUMBER (208) 287-4835		
STREET ADDRESS	322 East Front Street			
CITY	Boise	STATE ID	ZIP CODE 83720	

4. (b) OPERATOR

NAME	David Yorty			
AFFILIATION	North American Weather Consultants	PHONE NUMBER (801) 942-9005		
STREET ADDRESS	8180 South Highland Dr. Ste B-2			
CITY	Sandy	STATE UT	ZIP CODE 84093	

5. TARGET AND CONTROL AREAS (See Instructions)

TARGET AREA		CONTROL AREA	
LOCATION	SIZE OF AREA	LOCATION	SIZE OF AREA
Bear River watershed in Idaho, Utah and Wyoming	5000 SQ. MI	na	na SQ. MI

6. DESCRIPTION OF WEATHER MODIFICATION APPARATUS, MODIFICATION AGENTS AND THEIR DISPERSAL RATES, THE TECHNIQUES EMPLOYED, ETC. (See Instructions)

Aircraft seeding of Bear River Watershed in Idaho, Utah and Wyoming using burn-in-place and ejectable flares.

7. LOG BOOKS *Enter name, affiliation, address, and telephone number of responsible individual from whom log books or other records may be obtained.*

NAME	David Yorty		
AFFILIATION	North American Weather Consultants	PHONE NUMBER (801) 942-9005	
STREET ADDRESS	8180 S. Highland Dr. Ste B-2		
CITY	Sandy	STATE UT	ZIP CODE 84093

8. SAFETY AND ENVIRONMENT

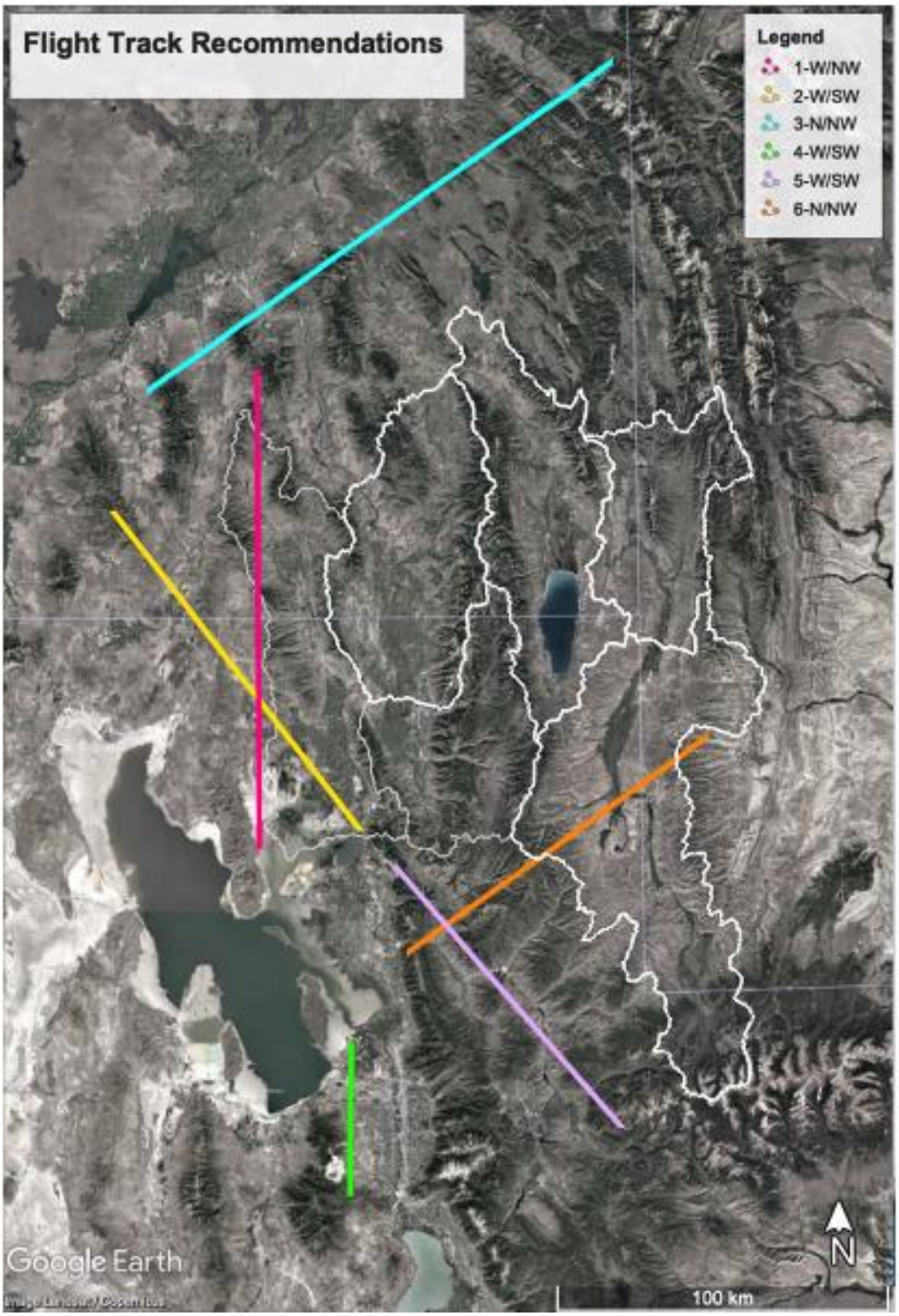
YES	(NO)	Has an Environmental Impact Statement, Federal or State, been filed? If yes, please furnish a copy as applicable.
(YES)	NO	Have provisions been made to acquire the latest forecasts, advisories, warnings, etc., of the National Weather Service, Forest Service, or others when issued prior to and during operations? If yes, please specify on a separate sheet.
(YES)	NO	Have any safety procedures (*operational constraints, provisions for suspension of operations, monitoring methods, etc.*) and any environmental guidelines (*related to the possible effects of the operations*) been included in the operational plans? If yes, please furnish copies or a description of the specific procedures and guidelines.

9. OPTIONAL REMARKS (See instructions. Use Separate Sheet).

CERTIFICATION: I certify that all statements in this report on this weather modification project are complete and correct to the best of my knowledge and are made in good faith.

NAME OF REPORTING PERSON: David Yorty	
AFFILIATION: North American Weather Consultants	SIGNATURE
STREET ADDRESS: 8180 S. Highland Dr. Ste B-2	OFFICIAL TITLE: Meteorologist

CITY	STATE	ZIP CODE	DATE	PHONE NUMBER
Sandy	UT	84093	12/1/2021	(801) 942-9005



Target areas (white outlines) and likely aircraft seeding tracks for the Bear River Basin

Suspension Criteria:

Suspension criteria have been developed in order to avoid contribution of seeding to a potentially hazardous situation. This includes three basic situations that have the potential to occur in winter orographic seeding:

- Excess snowpack accumulation
- Flooding
- Severe weather

Excess Snowpack Accumulation

Snowpack begins to accumulate in the mountainous areas in November and continues through March and usually into April. Excessive snowpack can become a potential hazard as it relates to resultant snowmelt and flood potential. SNOTEL sites provide daily measurements and can be compared to seasonal normal value, to determine when suspension due to high snowpack is necessary.

The following thresholds may be used as a guide regarding the temporary or seasonal suspension of operations. These are not hard and fast criteria, but rather are designed to prompt close coordination with water managers.

a. 200 % of average on January 1

b. 180 % of average on February 1

c. 160 % of average on March 1

d. 150 % of average on April 1

Another important consideration includes available runoff forecasts. Reservoir storage levels, soil moisture content, and other factors are considered in these forecasts which be of value in any snowpack related suspensions.

Flooding Situations

In addition to the possibility of flooding due to excessive spring snowmelt and runoff, the potential exists for winter season flooding due to rainfall on existing snowpack and/or frozen ground. Precautions must be taken to ensure accurate forecasting and timely suspension of operations during any potential flooding situations.

Severe Weather

During periods of hazardous weather phenomena associated with both winter orographic and convective precipitation systems, it is sometimes necessary or advisable for the National Weather Service (NWS) to issue special weather bulletins advising the public of the weather phenomena. Those of potential concern in the conduct of winter cloud seeding programs include the following:

- **Heavy Snow Warnings** - Issued by the NWS when snow accumulations of twelve inches or more per 12-hour period or eighteen inches or more per 24-hour period are expected in mountainous areas above 7000 feet. Lower snowfall amount criteria may be used for valleys and mountain valleys below 7000 feet.

- **Winter Storm Warnings -** Issued by the NWS when it expects heavy snow warning criteria to be met, along with strong winds/wind chill or freezing precipitation.

- **Flash Flood Warnings -** Issued by the NWS when flash flooding is imminent or in progress, or a dam break is imminent or occurring.

- **Avalanche Warnings –** issued when extreme avalanche conditions pose a threat to life and/or property

Seeding operations may be suspended whenever the NWS issues a flood warning for or adjacent to the target area. However, since an objective of the cloud seeding program is to increase winter snowfall in the mountainous areas where snow commonly falls, suspensions are not generally necessary when Heavy Snow or Winter Storm Warnings are issued, unless there are special, extenuating considerations. Extreme avalanche conditions, particularly those affecting populated areas or transportation corridors, may also be cause for suspension of operations in some situations.

Flash Flood Warnings are usually issued when heavy rainfall is expected, or when moderate rainfall is expected for extended periods. These are unlikely to occur in this region during the winter season. Other types of flood advisories may be issued as well, during events involving rain on snowpack or frozen ground, and should be examined to see whether a suspension is warranted.