Complete in accordance with instructions on reverse and forward copy:

TO: National Oceanic and Atmospheric Administration
Office of Oceanic and Atmospheric Research
1315 East-West Highway SSMC-3 Room 11216
Silver Spring, MD 20910

Form Approved: OMB No. 0648-0025 Expires 12/31/2007

NOAA FORM 17-4 (4-81)

U.S. DEPARTMENT OF COMMERCE
NAT'L OCEANIC AND ATMOSPHERIC ADM.

INITIAL REPORT ON WEATHER MODIFICATION ACTIVITIES (P.L. 205, 92ND. CONGRESS)

1. PROJECT OR ACTIVITY DESIGNATION, IF ANY
Northern Utah

2. DATES OF PROJECT

a. DATE FIRST ACTUAL WEATHER MODIFICATION ACTIVITY IS TO BE UNDERTAKEN: 12/01/2020

b. EXPECTED TERMINATION DATE OF WEATHER MODIFICATION ACTIVITIES: 03/31/2021

3. PURPOSE OF PROJECT OR ACTIVITY
Increase snowpack

4. (a) SPONSOR

NAME			
Craig Buttars			
AFFILIATION		PHONE NUMBER	
Cache County, Utah		4357167171	
STREET ADDRESS			
199 Main Street			
CITY	STATE	ZIP CODE	
Logan	UT	84321	

4. (b) OPERATOR

NAME			
David Yorty			
AFFILIATION		PHONE NUMBER	
North American Weather Consultants		8019429005	
STREET ADDRESS			
8180 South Highland Drive, Suite B-2			
CITY	STATE	ZIP CODE	
Sandy	UT	84093	

5. TARGET AND CONTROL AREAS (See Instructions)

TARGET AREA		CONTROL AREA	
LOCATION	SIZE OF AREA	LOCATION	SIZE OF AREA
Portions of Box Elder and Cache Counties, Utah	1250 SQ.MI	Various sites in Utah, Nevada, and Idaho	NA SQ.MI.

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

Approximately 30-35 ground-based cloud nuclei generators will be used. Each generator emits 8 grams per hour of silver iodide when active. Operational decisions will be made at NAWC offices in Sandy, Utah.

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	PHONE NUMBER	
North American Weather Consultants	8019429005	
STREET ADDRESS		
8180 South Highland Drive, Suite B-2		
CITY	STATE	ZIP CODE
Sandy	UT	84093

THIS REPORT IS REQUIRED BY PUBLIC LAW 92-205; 85 STAT 735; 15 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.

8. SAFETY AND ENVIRONMENT

	YES X NO	Has an Environmental Impact Statement, Federal or State been filed? If yes, please furnish a copy as applicable.
X	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.
X	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.)*

NAME				
Garrett Cammans			**CERTIFICATION:** I certify that the above statements are true, complete and correct to the best of my knowledge and belief.	
AFFILIATION			SIGNATURE	
North American Weather Consultants				
STREET ADDRESS			OFFICIAL TITLE	
8180 South Highland Drive, Suite B-2			President	
CITY	STATE	ZIP CODE	DATE	PHONE NUMBER
Sandy	UT	84093	10/19/2020	8019429005

INSTRUCTIONS FOR INITIAL REPORT ON WEATHER MODIFICATION ACTIVITIES

One completed copy of this form is to be received 10 days* or more prior to actual modification activities. A NOAA file number will be assigned by the Administrator after receipt of the initial report for each project or activity.

A supplemental report in a letter form referring to the appropriate NOAA file number must be made to the Administrator if the "Initial Report" is found to contain any material inaccuracies, misstatements, and omissions, or if there are changes in plans for the project or activity.

*For exceptions, see Sections 908.4(b) and (c), Part 908 of Title 15, Code of Federal Regulations.

Item 1. Enter designation, if any, used by operator for the project or activity.

Item 2. Enter: (a) Date first actual weather modification activity is to be undertaken;
(b) Date on which final weather modification activity is expected to occur.

Item 3. Enter the purpose of the project or activity: e.g., rainfall increase, hail suppression, cold fog dispersal, etc.

Item 4. Enter: (a) Name, phone number, affiliation, and address of the primary person for whom the project is to be performed (sponsor).

(b) Name, phone number , affiliation, and address of the person primarily responsible for carrying out the project (operator).

Item 5. A map should be attached showing size and location of target area, control area, coded number and location of each item of ground-based weather modification apparatus and coded number and location of key raingages, radars, or other precipitation measuring devices. Also show location of airport for airborne operations.

Item 6. Describe the weather modification apparatus, modification agents, and the techniques to be used. This would include type of ground or airborne apparatus to be used, type of modification material to be dispensed, rate of dispensing material in grams per hour or other appropriate units, type of precipitation gages to be used in target and control areas, and any other pertinent information such as type of radars, type of aircraft to be used, techniques to be employed, (e.g., cloud base seeding at 10,000 feet msl).

Item 7. List name, phone number , affiliation, and address of the responsible individual from whom log books or other records may be obtained.

Item 8. Provide applicable answers to questions as indicated.

Item 9. This item is to permit the reporting person to include any information not covered by items 1 through 8 but which he feels is significant or of interest. It is also to be used to include any information not covered elsewhere that the Administrator may request.

INFORMATION PROVIDED UNDER THE PROVISIONS OF THE PAPERWORK REDUCTION ACT OF 1995

The Paperwork Reduction Act of 1995 requires that individuals or organizations be provided with the following information if they provide information on paper forms which are collected by the Federal Government. (This includes reports required of weather modification activities.)

1. Public Law 92-205, enacted December 18, 1971 (amended by Public Law 94-490, Section 6(b), October 15, 1976) requires that all non-federal weather modification activities in the United States and its territories be reported to the Secretary of Commerce. The National Oceanic and Atmospheric Administration has implemented the Act and the current reporting requirements are published in the Catalog of Federal Regulations (15 CFR 908).

2. The intent of the program is to increase expertise in the field of weather modification, to allow scientists and other concerned persons to have access to information on current and past efforts at weather modification, to help avoid unneeded and wasteful duplications, to aid in preventing territorial overlapping of weather modification operations, to provide data to assess possible harmful or dangerous activities, and to furnish information to check both desirable and undesirable atmospheric changes against records of weather modification efforts. To meet this objective, information is collected on the location and size of the target area, names and addresses OF sponsors and operators, beginning and ending dates of the project, specific purpose, description of apparatus and seeding agents to be used, number of days of operations, number of hours of operations of each type of weather modification apparatus, and total amount of seeding agent used.

3. Public reporting burden for this collection of information is estimated to average 40 hours for reporting and 200 hours for record keeping, based on one-half hour per response on Form 17-4 and one-half hour per response on Form 17-4A, and five hours per record keeper. It is estimated that the time per response is approximately the same across all respondents. Send comments regarding this burden estimate or any other aspect of this data collection, including suggestions for reducing this burden to: Ms. Karen Williams, DOC/NOAA/OAR, 1315 East West Highway, Silver Spring, MD 20910.

4. Reporting of this information under Public Law 92-205, enacted December 18, 1971 (amended by Public Law 94-490, Section 6(b), October 15, 1976) is <u>mandatory</u>.

5. Confidentiality is not a requirement for this reporting; no sensitive information is required.

6. Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

September 1, 2000
Expires 09/30/2007

Utah Winter Cloud Seeding Suspension Criteria

These criteria apply to Southern/Central Utah, Northern Utah, Western Uintas, and High Uintas programs.

Certain situations require suspension criteria to minimize either an actual or apparent contribution of seeding to a potentially hazardous situation. The ability to forecast and avoid hazardous conditions is very important in limiting liability associated with weather modification and to maintain a desirable public image.

There are three hazardous situations around which suspension criteria have been developed. These are:

1. Excess snowpack accumulation

2. Rain-induced winter flooding

3. Severe weather

1. Excess Snowpack Accumulation

Snowpack begins to accumulate in the mountainous areas of Utah in November and continues through April. The heaviest average accumulations normally occur from January through March. Excessive snowpack becomes a potential hazard from the resultant snowmelt. The Natural Resources Conservation Service (NRCS) maintains a network of high elevation snow pack measurement sites in the State of Utah, . This network is known as the SNOTEL network. SNOTEL observations are routinely available at several times per day. The following set of criteria, based upon observations from these SNOTEL site observations, has been developed as a guide for suspension of operations.

a. 200 % of average on January 1 st

b. 180 % of average on February 1 st

c. 160 % of average on March 1st

d. 150 % of average on April 1st

These suspensions will be determined on a geographical division or sub-division basis. The NRCS has divided the State of Utah into 13 such divisions as follows: Bear River, Weber-Ogden Rivers, Provo River-Utah Lake-Jordan River, Tooele Valley-Vernon Creek, Green River, Duchesne River, Price-San Rafael, Dirty Devil, South Eastern Utah, Sevier River, Beaver River, Escalante River, and Virgin River. Since SNOTEL observations are available on a daily basis,

suspensions (and cancellation of suspensions) can be made on a daily basis using linear interpolation of the first of month criteria.

Streamflow forecasts, reservoir storage levels, soil moisture content and amounts of precipitation in prior seaons are other factors which need to be considered when the potential for suspending seeding operations exists.

2. Rain-induced Winter Floods

The potential for wintertime flooding from rainfall on low elevation snowpack is fairly high in some of the more southern target areas during the late winter/early spring period. Every precaution must be taken to insure accurate forecasting and timely suspension of operations during these potential flooding situations. The objective of suspension under these conditions is to eliminate both the real and/or perceived impact of weather modification when any increase in precipitation has the potential of creating a flood hazard.

3. 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. Each phenomenon is described in terms of criteria used by the NWS in issuing special weather bulletins. Those of concern in the conduct of winter cloud seeding programs include the following.:

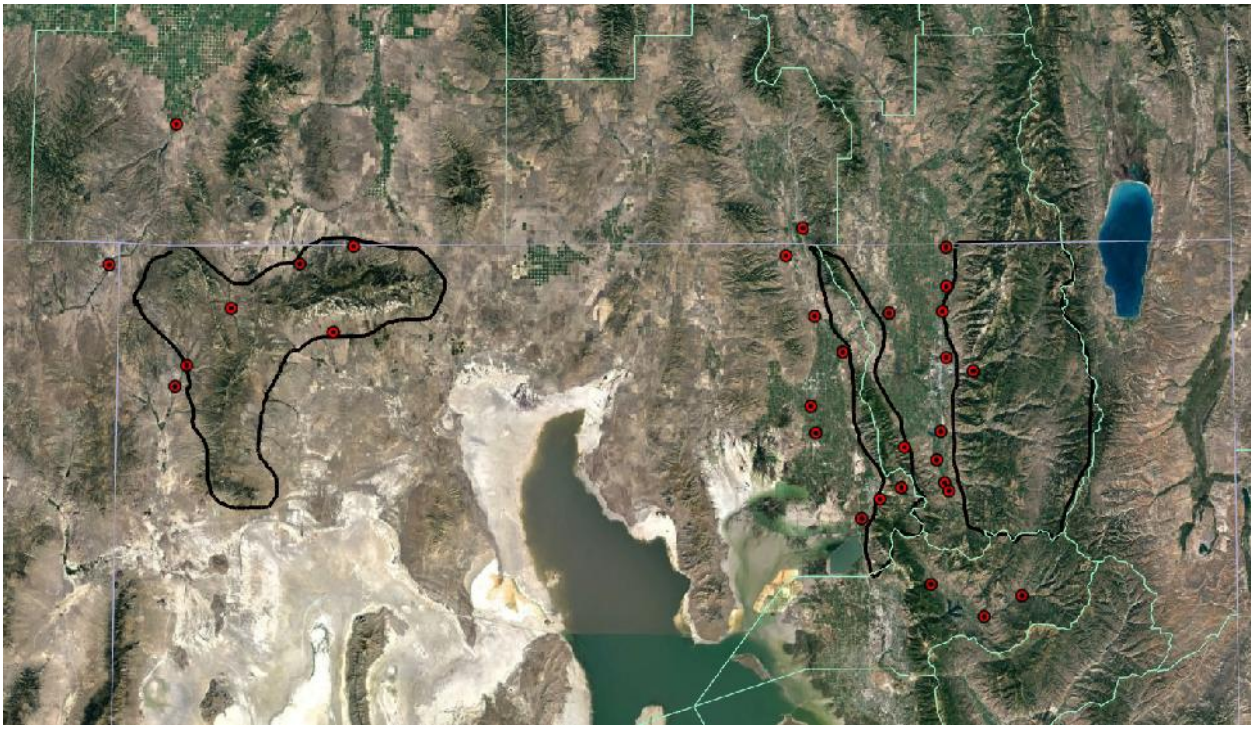
- **Snow Advisory** - This product is issued by the NWS when four to twelve inches of snow in 12 hours, or six to eighteen inches in 24 hours, are forecast to accumulate in mountainous regions above 7000 feet. Lower threshold criteria (in terms of the number of inches of snow) are issued for valleys and mountain valleys below 7000 feet.
- **Heavy Snow Warning** - This is issued by the NWS when it expects snow accumulations of twelve inches or more per 12-hour period or eighteen inches or more per 24-hour period in mountainous areas above 7000 feet. Lower criteria are used for valleys and mountain valleys below 7000 feet.

- **Winter Storm Warning** - This is 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** - This is issued by the NWS when flash flooding is imminent or in progress. In the Inter-mountain West, these warnings are generally issued relative to, but are not limited to, fall or spring convective systems.

Seeding operations may be suspended whenever the NWS issues a weather warning for or adjacent to any target area. Since the objective of the cloud seeding program is to increase winter snowfall in the mountainous areas of the state, operations will typically not be suspended when Heavy Snow or Winter Storm Warnings are issued, unless there are special considerations (e.g., a heavy storm that impacts Christmas Eve travel).

Flash Flood Warnings are usually issued when intense convective activity causing heavy rainfall is expected. Although the probability of this situation occurring during our operational seeding periods is low, the potential does exist, especially over southern sections of the state during late March and early April. The type of storm that may cause problems is one that has the potential of producing 1-2 inches (or greater) of rainfall in approximately a 24 hour period, with high freezing levels (e.g., > 8,000 feet MSL). Seeding operations will be suspended for the duration of the warning period in the affected areas.



Northern Utah target areas and generator sites