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 11554
Silver Spring, MD 20910

Form Approved: OMB No. 0648-0025 Expires 01/31/2018

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
North Dakota Cloud Modification Project

2. DATES OF PROJECT

a. DATE FIRST ACTUAL WEATHER MODIFICATION ACTIVITY IS TO BE UNDERTAKEN: 06/01/2022

b. EXPECTED TERMINATION DATE OF WEATHER MODIFICATION ACTIVITIES: 08/31/2022

3. PURPOSE OF PROJECT OR ACTIVITY
rainfall increase and hail damage mitigation

4. (a) SPONSOR

NAME			
North Dakota Atmospheric Resource Board			
AFFILIATION	PHONE NUMBER		
state government	7013282788		
STREET ADDRESS			
900 E Boulevard Ave Dept 770			
CITY	STATE	ZIP CODE	
Bismarck	ND	58505	

4. (b) OPERATOR

NAME			
Weather Modification LLC			
AFFILIATION	PHONE NUMBER		
contractor	7012355500		
STREET ADDRESS			
3802 20th St N			
CITY	STATE	ZIP CODE	
Fargo	ND	58102	

5. TARGET AND CONTROL AREAS (See Instructions)

TARGET AREA		CONTROL AREA	
LOCATION	SIZE OF AREA	LOCATION	SIZE OF AREA
Please see attached.	8370 SQ.MI	none	SQ.MI.

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

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

NAME			
Kelli Schroeder			
AFFILIATION	PHONE NUMBER		
North Dakota Atmospheric Resource Board	7013282788		
STREET ADDRESS			
900 E Boulevard Ave Dept 770			
CITY	STATE	ZIP CODE	
Bismarck	ND	58505	

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	CERTIFICATION: I certify that the above statements are true, complete and correct to the best of my knowledge and belief.		
Kelli Schroeder			
AFFILIATION	SIGNATURE		
North Dakota Atmospheric Resource Board	Kelli Schroeder		
STREET ADDRESS	OFFICIAL TITLE		
900 E Boulevard Ave Dept 770	Program Manager		
CITY / STATE / ZIP CODE	DATE	PHONE NUMBER	
Bismarck / ND / 58505	3/28/2022	7013282788	

TARGET AREA LOCATION
Bowman, McKenzie, Mountrail, Williams and part of Slope Counties, North Dakota

6. DESCRIPTION

Cloud seeding will be conducted through the combustion of a liquid solution producing $AgI_{0.8}Cl_{0.2}$-NaCl aerosol, through the combustion of AgI pyrotechnics, or the use of pelletized dry ice (CO_2). The generators and flares will be placed on twin-engine turbo aircraft (PA-34 or equivalent type). A high-performance turbine aircraft (C90 or equivalent) will carry dry ice and ejectable and burn-in-place pyrotechnics.

Seeding agent will be released at or near cloud base or in cloud between -2°C to -12.5°C. Cloud candidates for seeding will be selected on the basis of a comprehensive weather forecast, WSR-74C Doppler radar with TITAN, and aircraft tracking, radar measurements and cloud parameters measured by aircraft.

Seeding rates will be selected according to modification purpose, cloud characteristics, and existing atmospheric conditions. In general, seeding shall be conducted to obtain at least one artificial nucleus per liter for rain increase. In hail suppression, 10 to 100 artificial nuclei are desired per liter or until effect has been observed.

8. SAFETY AND ENVIRONMENT

Each field office will be assisted in operations by the forecast office of the North Dakota Atmospheric Resource Board located in Bismarck, ND in acquiring the latest information pertaining to weather advisories and warnings.

Safety procedures and environmental guidelines have been included in the operational program by use of NWS data pertaining to flood forecasts, local weather conditions, etc. Each county weather modification authority has been empowered with the ability to stop operations for any given period of time as determined by that authority. The director also has the power to enjoin seeding activities if it is determined that the public or environmental health is in jeopardy.

9. OPTIONAL REMARKS

The North Dakota Atmospheric Resource Board Operations Manual will govern the project.

RADAR SITE

SEEDING AIRCRAFT

TARGET AREA

OPERATIONS AREA

WILLIAMS

Williston

Stanley

MOUNTRAIL

Watford City

McKENZIE

NORTH DAKOTA

MONTANA

STANLEY RADAR COVERAGE

SLOPE

Bowman

BOWMAN

SOUTH DAKOTA

BOWMAN RADAR COVERAGE