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 - District II

2. DATES OF PROJECT

a. DATE FIRST ACTUAL WEATHER MODIFICATION ACTIVITY IS TO BE UNDERTAKEN: 06/01/2020

b. EXPECTED TERMINATION DATE OF WEATHER MODIFICATION ACTIVITIES: 08/31/2020

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

4. (a) SPONSOR

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

4. (b) OPERATOR

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

5. TARGET AND CONTROL AREAS (See Instructions)

TARGET AREA		CONTROL AREA	
LOCATION: McKenzie/Mountrail/Ward/Williams Counties, ND	SIZE OF AREA: 9007 SQ.MI	LOCATION:	SIZE OF AREA: 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: North Dakota Atmospheric Resource Board
PHONE NUMBER: 7013282788
STREET ADDRESS: 900 E Boulevard Ave Dept 770
CITY: Bismarck
STATE: ND
ZIP CODE: 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.)* Please see remarks as there are potential changes to Location/Size of Area.

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

CERTIFICATION: I certify that the above statements are true, complete and correct to the best of my knowledge and belief.

SIGNATURE: Kelli Schroeder
OFFICIAL TITLE: Business Manager
DATE: 4/29/2020
PHONE NUMBER: 7013282788


RADAR SITE
SEEDING AIRCRAFT
TARGET AREA
OPERATIONS AREA
Kenmare
WILLIAMS
Stanley
Williston
MOUNTRAIL
WARD
Watford City
McKENZIE
NORTH DAKOTA
STANLEY RADAR COVERAGE
MONTANA
Dickinson
SLOPE
Bowman
BOWMAN
SOUTH DAKOTA
BOWMAN RADAR COVERAGE

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 Cessna 340 aircraft will carry generators, burn-in-place and droppable pyrotechnics, while 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.

Please note that District II will start the program with only McKenzie, Mountrail & Williams Counties in the program. Ward County will be putting their continued participation to a vote on June 9th. If the voters approve continuation, they will rejoin the program in middle July. If they do not approve, then no weather modification activities will occur in Ward County this summer.

Ward County is 2,056 square miles in size. If they rejoin the project, the listed size of area remains at 9,007, as listed. If they do not, the size of area will be 6,951.