






Complete in accordance with instructions on reverse and forward copy:				Form Approved: OMB No. 0648-0025 Expires 01/31/2018			
TO: National Oceanic and Atmospheric Administration Office of Oceanic and Atmospheric Research 1315 East-West Highway SSM C-3 Room 11554 Silver Spring, MD 20910				NOAA FORM 17-4 U.S. DEPARTMENT OF COMMERCE (4-81) NAT'L OCEANIC AND ATMOSPHERIC ADM. <b>INITIAL REPORT ON WEATHER MODIFICATION ACTIVITIES</b> (P.L. 205, 92 <sup>ND</sup> . CONGRESS)			
1. PROJECT OR ACTIVITY DESIGNATION, IF ANY North Dakota Cloud Modification Project				2. DATES OF PROJECT			
3. PURPOSE OF PROJECT OR ACTIVITY rainfall increase and hail damage mitigation				a. DATE FIRST ACTUAL WEATHER MODIFICATION ACTIVITY IS TO BE UNDERTAKEN 06/01/2023			
				b. EXPECTED TERMINATION DATE OF WEATHER MODIFICATION ACTIVITIES 08/31/2023			
4. (a) SPONSOR				4. (b) OPERATOR			
NAME North Dakota Atmospheric Resource Board				NAME Weather Modification LLC			
AFFILIATION state government		PHONE NUMBER 7013282788		AFFILIATION contractor		PHONE NUMBER 7012355500	
STREET ADDRESS 1200 Memorial Hwy				STREET ADDRESS 3802 20th St N			
CITY Bismarck		STATE ND	ZIP CODE 58504-5262	CITY Fargo		STATE ND	ZIP CODE 58102
5. TARGET AND CONTROL AREAS (See Instructions)							
TARGET AREA				CONTROL AREA			
LOCATION Please see attached.		SIZE OF AREA 8370 SQ.MI		LOCATION none		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				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.			
AFFILIATION North Dakota Atmospheric Resource Board		PHONE NUMBER 7013282788					
STREET ADDRESS 1200 Memorial Hwy							
CITY Bismarck		STATE ND	ZIP CODE 58504-5262				
8. SAFETY AND ENVIRONMENT							
<input type="checkbox"/> YES		<input checked="" type="checkbox"/> NO		Has an Environmental Impact Statement, Federal or State been filed? If yes, please furnish a copy as applicable.			
<input checked="" type="checkbox"/> YES		<input type="checkbox"/> 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.			
<input checked="" type="checkbox"/> YES		<input type="checkbox"/> 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 Kelli Schroeder				CERTIFICATION: I certify that the above statements are true, complete and correct to the best of my knowledge and belief.			
AFFILIATION North Dakota Atmospheric Resource Board				SIGNATURE 			
STREET ADDRESS 1200 Memorial Hwy				OFFICIAL TITLE Program Manager			
CITY Bismarck		STATE ND	ZIP CODE 58504-5262	DATE 4/19/2023		PHONE NUMBER 7013282788	

-  RADAR SITE
-  SEEDING AIRCRAFT
-  TARGET AREA
-  OPERATIONS AREA

**WILLIAMS**

Williston

Stanley

**MOUNTRAIL**

Watford City

**McKENZIE**

**NORTH DAKOTA**

**MONTANA**

STANLEY RADAR COVERAGE

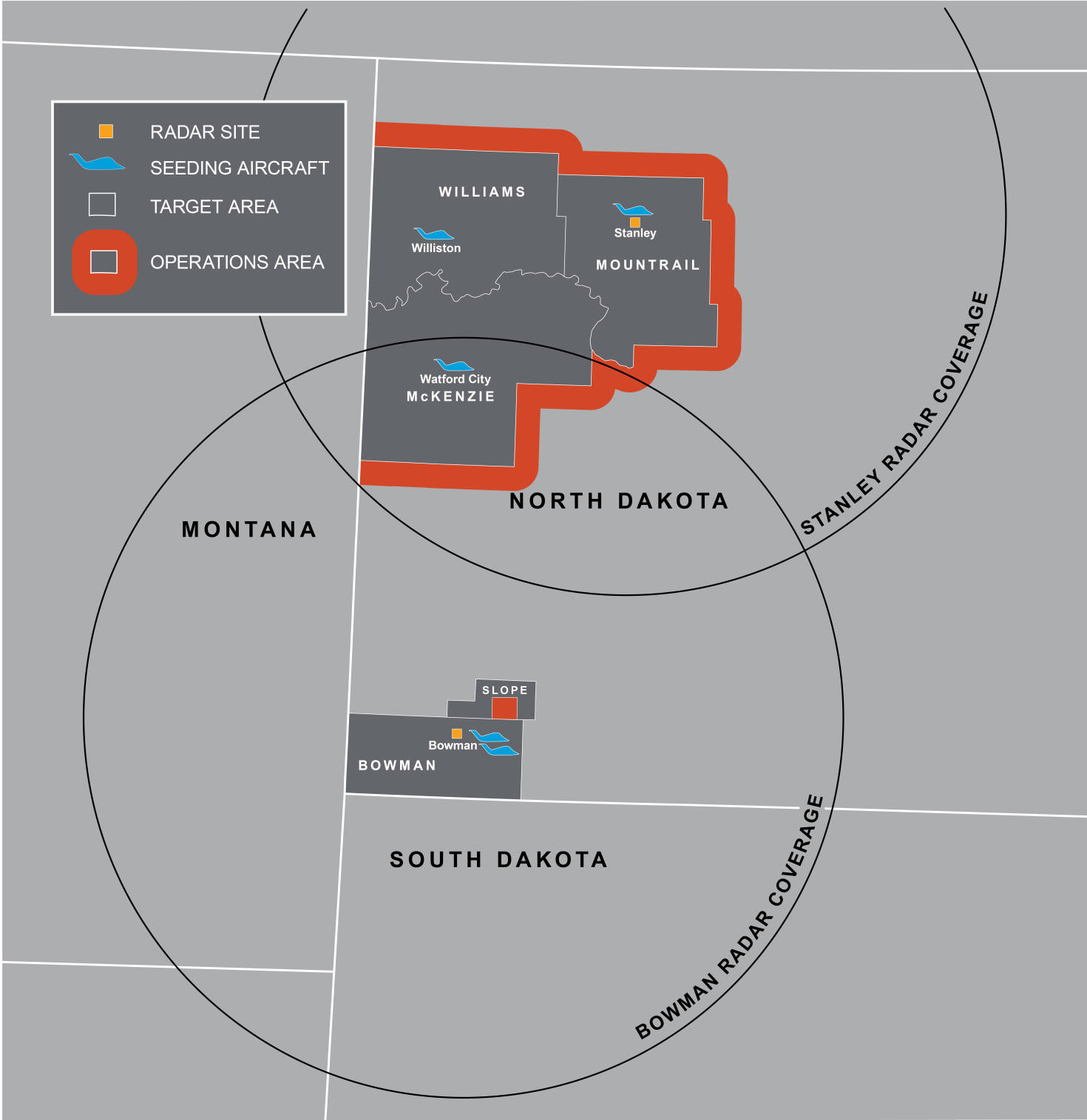
**SLOPE**

Bowman

**BOWMAN**

**SOUTH DAKOTA**

BOWMAN RADAR COVERAGE



## **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  $\text{AgI}_{0.8}\text{Cl}_{0.2}\text{-NaCl}$  aerosol, through the combustion of AgI pyrotechnics, or the use of pelletized dry ice ( $\text{CO}_2$ ). 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  $-2^\circ\text{C}$  to  $-12.5^\circ\text{C}$ . 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.