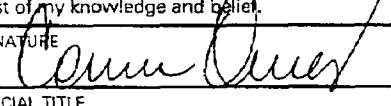


10-1498 ✓

Complete in accordance with instructions on reverse and forward copy:				Form Approved: OMB No. 0648-0025 Expires 12/31/2007			
TO: National Oceanic and Atmospheric Administration Office of Oceanic and Atmospheric Research 1315 East-West Highway SSMC-3 Room 11216 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)			
<b>1. PROJECT OR ACTIVITY DESIGNATION, IF ANY</b> Eastern Idaho Counties				<b>2. DATES OF PROJECT</b>			
<b>3. PURPOSE OF PROJECT OR ACTIVITY</b> Augment Snowpack				a. DATE FIRST ACTUAL WEATHER MODIFICATION ACTIVITY IS TO BE UNDERTAKEN 11/01/2010			
				b. EXPECTED TERMINATION DATE OF WEATHER MODIFICATION ACTIVITIES 04/30/2010			
<b>4. (a) SPONSOR</b>				<b>4. (b) OPERATOR</b>			
NAME Clark County				NAME Marty & Conni Owen			
AFFILIATION Conni Owen		PHONE NUMBER (208) 374-5560		AFFILIATION Clark County		PHONE NUMBER (208) 374-5560	
STREET ADDRESS P.O. Box 205				STREET ADDRESS P.O. Box 53			
CITY Dubois	STATE ID	ZIP CODE 83423		CITY Dubois	STATE ID	ZIP CODE 83423	
<b>5. TARGET AND CONTROL AREAS (See Instructions)</b>							
TARGET AREA				CONTROL AREA			
LOCATION Eastern Idaho Counties		SIZE OF AREA 2850 SQ.MI		LOCATION		SIZE OF AREA SQ.MI	
<b>6. DESCRIPTION OF WEATHER MODIFICATION APPARATUS, MODIFICATION AGENTS AND THEIR DISPERSAL RATES, THE TECHNIQUES EMPLOYED, ETC. (See Instructions)</b> Ground based cloud nuclei generators and a propane gas supply. Agents used-silver iodide, ammonium iodide, ammonium perchlorate, sodium perchlorate and acetone. Application rate of silver iodide 7-20 grams per hour.							
<b>7. LOG BOOKS:</b> Enter name, affiliation, address, and telephone number of responsible individual from whom log books or other records may be obtained.							
NAME Conni & Marty Owen				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 Clark County		PHONE NUMBER (208) 374-5560					
STREET ADDRESS P.O. Box 53							
CITY Dubois	STATE ID	ZIP CODE 83423					
<b>8. SAFETY AND ENVIRONMENT</b>							
<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.			
<b>9. OPTIONAL REMARKS (See Instructions. Use Separate Sheet.)</b>							
NAME Conni Owen				<b>CERTIFICATION:</b> I certify that the above statements are true, complete and correct to the best of my knowledge and belief.			
AFFILIATION Clark County				SIGNATURE 			
STREET ADDRESS P.O. Box 53				OFFICIAL TITLE Cloud Seeding Operations			
CITY Dubois	STATE ID	ZIP CODE 83423		DATE 10/18/2010	PHONE NUMBER (208) 374-5560		



NOAA FORM 17-4A (4-81)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION				Form Approved OMB No. 0648-0025 Expires 12/31/2007						
<b>INTERIM ACTIVITY REPORTS AND FINAL REPORT</b>						NOAA FILE NUMBER 10-1498						
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.						<input checked="" type="checkbox"/> INTERIM REPORT		<input type="checkbox"/> FINAL REPORT				
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 SSMC-3 Room 11216 Silver Spring, MD 20910						REPORTING PERIOD						
						FROM 11/01/2010		TO 12/31/2010				
MONTH	(a) NUMBER OF MODIFICATION DAYS	(b) NUMBER OF MODIFICATION DAYS PER MAJOR PURPOSE				(c) HOURS OF APPARATUS OPERATION BY TYPE		(d) TYPE AND AMOUNT OF AGENT USED				
		INCREASE PRECIPITATION	ALLEVIATE		OTHER	AIRBORNE	GROUND	SILVER IODIDE	CARBON DIOXIDE	UREA	SODIUM CHLORIDE	OTHER
			HAIL	FCG								
JANUARY												
FEBRUARY												
MARCH												
APRIL												
MAY												
JUNE												
JULY												
AUGUST												
SEPTEMBER												
OCTOBER												
NOVEMBER	15	15					822	11,575				
DECEMBER	22	22					1,092	15,492				
TOTAL	37	37	0	0	0	0	1,915	27,067	0	0	0	0
TOTALS FOR FINAL REPORT												
DATE ON WHICH FINAL WEATHER MODIFICATION ACTIVITY OCCURRED (For Final Report only.)												
<b>CERTIFICATION:</b> 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 Conni Owen						
AFFILIATION Clark County						SIGNATURE 						
STREET ADDRESS P.O. Box 53						OFFICIAL TITLE Cloud Seeding Operations						
CITY Dubois			STATE ID	ZIP CODE 83423		DATE 01/17/2010						



NOAA FORM 17-4A (4-81)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION				Form Approved OMB No. 0648-0025 Expires 12/31/2007						
<b>INTERIM ACTIVITY REPORTS AND FINAL REPORT</b>										NOAA FILE NUMBER <b>10-1498</b>		
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.										<input type="checkbox"/> INTERIM REPORT	<input checked="" type="checkbox"/> FINAL REPORT	
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 SSMC-3 Room 11216 Silver Spring, MD 20910										REPORTING PERIOD		
										FROM 01/01/2011	TO 03/31/2011	
MONTH	(a) NUMBER OF MODIFICATION DAYS	(b) NUMBER OF MODIFICATION DAYS PER MAJOR PURPOSE			(c) HOURS OF APPARATUS OPERATION BY TYPE		(d) TYPE AND AMOUNT OF AGENT USED					
		INCREASE PRECIPITATION	ALLEVIATE HAIL      FOG		OTHER	AIRBORNE	GROUND	SILVER IODIDE	CARBON DIOXIDE	UREA	SODIUM CHLORIDE	OTHER
JANUARY	14	14					530	7,179				
FEBRUARY	12	12					427	6,545				
MARCH	22	22					876	12,431				
APRIL												
MAY												
JUNE												
JULY												
AUGUST												
SEPTEMBER												
OCTOBER												
NOVEMBER												
DECEMBER												
TOTAL	48	48	0	0	0	0	1,833	26,155	0	0	0	0
TOTALS FOR FINAL REPORT	85	85					3,748	53,222				
DATE ON WHICH FINAL WEATHER MODIFICATION ACTIVITY OCCURRED (For Final Report only.)										03/31/2011		
<b>CERTIFICATION:</b> 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 Conni Owen							
AFFILIATION Clark County					SIGNATURE 							
STREET ADDRESS P.O. Box 53					OFFICIAL TITLE Cloud Seeding Operations							
CITY Dubois			STATE ID	ZIP CODE 83423	DATE 05/09/2011							

### Initial Report on Weather Modification Supplemental Sheet

8. We have subscribed to a vendor for National Weather Service advisories and forecast information, which will be downloaded to our computer, several times daily.

A licensed applicator will mix and distribute chemicals. MSDS sheets have been acquired, and used for guidelines in handling chemicals. Individual operators will be trained in proper operation of the generators.

### **Suspension Criteria for Upper Snake Project**

Any well-designed and responsibly conducted weather modification program includes guidelines for temporary suspension or complete curtailment of cloud seeding operations under certain conditions. The fact that suspension criteria may be required by law, as it is in Idaho, is essentially superfluous for a responsible program. These program safeguards are intended to avoid contributing to, or giving even the perception of contributing to, runoff or reservoir levels beyond manageable limits, whether it be a real or perceived hazardous situation. These include, but may not be limited to, such events as flooding, excessive erosion and sedimentation buildup, or avalanches resulting from natural meteorological or hydrological phenomena. The parameters used to trigger suspension of cloud seeding operations include consideration of:

- Total snow pack status;
- Potential flood situations (including rain-on-snow);
- Severe weather threats (tornadoes, locally heavy precipitation, strong or damaging winds, hail, or lightning); and
- Special Circumstances.

Consideration of these four parameters is a routine facet of ongoing forecasting and operational activities conducted as part of responsibly conducted cloud-seeding operations. The time frame for decision-making and action on these parameters is far shorter than commonly used in periodic or routine assessments. These factors are monitored on a storm-by-storm and moment-to-moment basis during rapidly changing weather conditions. National Weather Service Flash Flood or Severe Weather Warnings pertinent to the target area, its drainage area, or even adjacent watersheds can trigger curtailment of cloud-seeding operations. While curtailment relative to a severe weather threat is typically infrequent and short-lived, suspensions during potential flood situations might span several days or lead to termination of the project for the remainder of the season. Special circumstances such as search and rescue missions, avalanche threats, or other emergencies within or near the target area may result in temporary curtailment of seeding operations as deemed prudent.

#### ***I Total Snowpack Status***

Snowpack development in the Upper Snake can begin as early as October and continues through April, and frequently into May. Analysis has shown that the hazard potential from snowmelt will be of concern only during excessive snow accumulations that create unmanageable runoff due to melting or when runoff is anticipated to reach flood stage. Therefore, certain percentages of April 1 basin-wide average water content are used as cutoff criteria for seeding operations. Total snowpack status is evaluated from data gathered by other agencies such as the Natural Resources Conservation System (NRCS) and snow survey and snow pillow data. Table 1 lists these percentages. Once suspended, the program may resume operational seeding if subsequent snow survey or snow pillow data indicate the accumulation has fallen below the percentages listed.

Table 1. Critical snowpack values requiring suspension of seeding operations.

Date	Cutoff value (% of April 1 average)
January 1	95%
February 1	110%
March 1	125%

April 1	140%
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## 2 *Rain Induced Winter Floods*

Although rare, there is a potential for wintertime flooding from excessive rainfall in the Upper Snake. The project will take every precaution to ensure the timely suspension of operations during a rain on snow event because of the potential for flooding. Suspension of operations under these conditions is intended to limit the effect of seeding when any increase in precipitation might contribute to the potential flood hazard or be perceived to do so. Seeding will be suspended when any of the criteria listed in Table 2 are met or forecast to occur within 24 hours.

River flow and encroachment forecasts are based upon information and predictions supplied by the NWS, Northwest River Forecast Center (NWRFC), USGS, and IPC. Both NWRFC and IPC use a stream flow model that predicts the inflow into multiple upper Snake River locations, as well as tributaries of the system. Primary input to the model includes existing basin wetness and a Quantitative Precipitation Forecast (QPF). These forecasts are extremely sensitive to predicted condensate supply rates and temperatures. Suspension of seeding will occur whenever the NWS, NWRFC, or the IPC forecast exceeds these criteria.

Table 2. Critical river stages and discharge values requiring suspension of seeding operations.

Location	USGS Gauge Identification	Flood Stage (GH - feet)	Flood Discharge (cfs)
Snake River near Heise	13037500	8	25,300
Snake River at Blackfoot	13069500	10	21,600
Henry's Fork near St Antoney	13050500	7	9,100
Teton River near St. Anthony	13055000	6	4,900
Henry's Fork near Rexburg	13056500	9.5	7,600

In order to provide an added level of caution for suspension during possible flood situations, seeding can be suspended at the discretion of an IPC Meteorologist whenever the QPF indicates a need for prudence. This can occur even if these criteria are not explicitly met.

## 3 *Severe Weather*

Seeding operations will be suspended whenever the NWS issues a severe weather warning for the Upper Snake. This will include warnings for adjacent areas if the activity prompting the warning is likely to move into the Upper Snake. These warnings are usually issued when strong convective activity is expected. The official criteria are locally heavy rainfall, damaging winds (50 knots (60 mph)) or higher or producing observed damage), large hail (hailstones  $\frac{3}{4}$  inches in diameter or larger), tornadoes, or funnel clouds.

#### **4      *Other Special Circumstances***

At their discretion, the senior project staff has the authority to suspend or terminate seeding activities under any special or unusual circumstances that may be deemed hazardous or might be perceived to be so by the public. Examples of special circumstances are extreme avalanche hazard as reported in USFS avalanche status bulletins, very strong winds, unusually warm temperatures, heavy snow at low elevations, or other unforeseen circumstances.

**If suspension criteria are met during an operational seeding period, seeding will be stopped immediately and a notification call made to the senior project staff. A documenting e-mail will then be sent to all project personal.**



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
Silver Spring, MD 20910

OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH

October 19, 2010

Ms. Connie Owen  
Clark County  
P.O. Box 53  
Dubois, ID 83423

Dear Ms. Owen,

Thank you for your Initial Report for the Eastern Idaho Counties Project. This project was assigned NOAA File Number 10-1498.

As a reminder, please submit a Final Report within 45 days after the project has terminated. This is mandated under Public Law 92-205.

Sincerely,

Karen Williams, Manager  
Weather Modification Activities  
Reporting Program



Printed on Recycled Paper

