Weather Modification Activity Reports

November 1, 1972, to December 31, 1973

By Mason T. Charak and Mary T. DiGiulian
Environmental Modification Office
Rockville, Maryland
March 1974

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / OFFICE OF ENVIRONMENTAL MONITORING AND PREDICTION

U. S. DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Office of Environmental Monitoring and Prediction

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ABSTRACT

All nonfederally sponsored weather modification activities in the United States and its territories must, by law, be reported to the Secretary of Commerce. Recent agreements with applicable Federal agencies also provide for reports of their weather modification activities. The same law also requires that summaries of the reported activities be published periodically. This summary, therefore, is an analysis of 67 activity reports submitted to the National Oceanic and Atmospheric Administration, which administers the weather modification reporting program on behalf of the Secretary. Reports received from November 1, 1972, to December 31, 1973, have been reviewed and grouped into categories covering project purpose, location, sponsors, operators, modification equipment, techniques, seeding agents, and related factors.

INTRODUCTION

The National Oceanic and Atmospheric Administration (NOAA) has administered, on behalf of the Secretary of Commerce, a weather modification reporting program authorized by Public Law 92-205. This law, a copy of which is given in appendix A, requires the reporting of all nonfederally sponsored weather modification activities in the United States and its territories. Rules for carrying out this legislation were published by NOAA in the Federal Register, with an effective date of November 1, 1972. A copy of the rules is provided in appendix B.

Amendments to these reporting rules were published in the Federal Register and were scheduled to go into effect on February 15, 1974. These amendments, shown in appendix C, include questions on operational safeguards and environmental impact as well as a statement covering interference with Federal weather modification research projects.

Federal agencies with weather modification projects also began to report their experimental activities to NOAA on November 1, 1973. This was the result of an agreement obtained by the Secretary of Commerce from appropriate agencies at the request of the Interdepartmental Committee for Atmospheric Sciences and the Office of Management and Budget. With the reporting of both Federally and nonfederally sponsored activities, a central source of information currently exists on all weather modification projects being conducted in the United States. The reporting procedures for Federal agencies are presented in appendix D.

In accordance with Public Law 92-205, summaries of records on reported weather modification activities that take place in the United States shall be published from time to time. The first summary of activity reports, covering the reporting period from November 1, 1972, to March 22, 1973, was published in March 1973 (Charak and DiGiulian 1973). The present publication is a summary of 67 reports received from November 1, 1972, through December 31, 1973. It includes analyses of data on project purpose, sponsors, operators, phenomena to be modified, target locations, target areas, and modification techniques, apparatus, agents, and dispersing rates. Additional information is provided on modification days, missions, duration of seeding activities, and amounts of seeding agents.

Background

In 1966, the National Science Foundation (NSF) began collecting reports on weather modification activities under Public Law 85-510. Two years later, Congress enacted Public Law 90-407, part of which repealed the powers of the Foundation to require persons to report. During those two years, NSF published summaries of the reported activities covering fiscal years 1967 and 1968. These summaries were included in the NSF annual reports on weather modification that were submitted to the President and the Congress (National Science Foundation 1968, 1969).

From 1968 until passage of Public Law 92-205 in 1971, no Federal department or agency was authorized to collect activity reports. However, pertinent activities of this period are described in the NOAA summary of weather modification research and operational activiites during FY 1969-71 (National Oceanic and Atmospheric Administration 1973a). A similar report covering FY 1972 has also been published (National Oceanic and Atmospheric Administration 1973b). These NOAA summary reports continue the type of annual report formerly prepared by the NSF for fiscal years 1959-68. However, more timely information on the weather modification reporting program is summarized in this series of reports, initiated by Charak and DiGiulian (1973).

Reporting Forms

The current formats for the reports required by the reporting regulations are shown in appendices E and F. An initial report (appendix E) is to be submitted in advance of a planned activity. The information requested includes project operational or experimental dates, purpose, target and control areas, as well as details on weather modification equipment, agents, and techniques. Also included are questions on project safeguards and environmental effects.

The combined interim and final report form is shown in appendix F. Any person engaged in a weather modification project or activity on October 1 of any year must submit an interim report containing information for prior months on such items as number of days that actual modification activities took place, number of modification days per atmospheric phenomenon, number of modification missions, hours of operation for apparatus, and type and amount of agent used. For the final report at the end of a project, the totals of these categories are to be reported.

A daily log (appendix G) for each item of weather modification apparatus is not submitted to NOAA, but is maintained by the operator and made available for inspection by NOAA upon request. Information to be recorded consists of the date apparatus is used; its position or location; time when modification activity began and ended; type, rate, and amount of agent used; and type of phenomena modified. The reporting rules also require that certain other records be maintained by the operators.

SUMMARY OF DATA

A listing of the 68 initial reports of weather modification activities, submitted to NOAA between November 1, 1972, and December 31, 1973, is given in appendix H. According to newspaper articles, the activity proposed in file number 73-030 (appendix H) was cancelled prior to any operations. Thus, only 67 reports will be summarized herein. The data from these reports as well as from the available interim and final reports have been reviewed and grouped into various categories of interest. These categories are discussed in the following sections.

Number of Activities

Of the 67 reports received during the specified period, 65 described nonfederally sponsored weather modification activities, and 2 others covered Federally sponsored projects (61F and 68F in appendix H). The low number of Federally sponsored activities reflects the fact that Federal reporting began on November 1, 1973, a year after initiation of the reporting program for nonfederally sponsored activities. Appendix H shows the proposed and actual dates for the operational or experimental periods. It should be noted that 37 of the activities have been completed, that 29 are still listed as active, and that 1 project has not sent information on dates of operations. Seven of these active projects are new starts at previously reported locations. Since operators have up to 90 days to report that a project has been terminated, some of the 29 active projects may have ended before December 31, 1973.

Operators

Table 1 shows the number of activities sponsored by various types of operators. One commercial weather modification concern carried out 16 of the 67 modification projects. Another firm undertook six projects, and a third company was responsible for five projects during the reporting period.

Table 1. -- Weather modification activity operators

Type	Operators	Activities
Commercial weather modifiers	20	55
Municipal districts	4	6
Individuals	2	2
Universities	1	2
Power companies	1	1
Community associations	1	1
Total	29	67

Sponsors

Table 2 is a listing of reported activities by sponsor. Often, a project or activity has several sponsors, particularly where the airlines and the airport authorities were concerned with fog dispersal. Also, some activities and their sponsors were seasonal repeaters. Of the 60 different sponsors identified from the initial reports for these projects, the largest segment consists of 14 community groups, each sponsoring a project. In the private sector are one paper company, a rancher, three resort owners, and a laboratory. The sponsors of the two Federal projects are the Bureau of Reclamation (Department of the Interior) and the Bonneville Power Administration.

Table 2. -- Weather modification activity sponsors

Type	Sponsors	Activities
Community associations	14	14
Airlines	8	11
Municipal districts	8	10
Counties	10	6
Private sector	6	6
Airport authorities	3	5
Power companies	5	5
States	1	5
Cities	2	2
Federal	2	2
Universities	1	1
Total	60	67

Purpose and Phenomena

A review of the reported data shows that there were five purposes for the activities: precipitation increase (rainfall and snowfall), fog dispersal, hail decrease, weather modification research, and "radiation" removal. Table 3 shows the number of activities devoted to these purposes. The total number is greater than the 67 reported projects because some projects have two purposes.

Also shown on table 3 are the types of phenomena on which modification attempts were to be made. Of the 83 activities specified, 63 were devoted to modification of clouds. Warm fog conditions account for 5 activities and cold fog for 14.

Table 3. -- Weather modification purpose and phenomena to be modified

Activities	Reported Purpose	Phenomena
24	Precipitation	Clouds
19	(Rainfall)	Clouds
6	(Snowfall)	Clouds
19	Fog dispersal	Warm or cold fog
13	Hail decrease	Clouds
1	"Radiation" removal	Atmospheric
1	Research	Clouds
83		

Location by State

For the reporting period, 19 States are represented in the 67 weather modification activities. The geographical distribution of these projects is shown in figure 1 at their approximate target area locations. Table 4 shows the number of activities for the various States. Oklahoma has the greatest concentration with 12 projects; California follows with 11. It should be emphasized that all these activities do not occur at the same time. For example, many projects are seasonal.

Total Areas

Also presented in table 4 are the target areas summarized for each State. The total target area for the reported activities is about 134,000 square miles for the 19 States; this total is less than 4 percent of the area of the United States. In those cases where an activity has been repeated in the following year at the same location, the target area has not been included for the second time. South Dakota and Utah have the largest target areas; several States have small target areas where fog modification is planned at airport locations.

Techniques and Apparatus

Examination of the information in appendix H shows that ground-based or airborne dispensers of various types are used for introducing seeding materials into the clouds or fogs. Two of the activities use a ground-based technique that proposes to manipulate "orgone" energy or "radiation" in order to modify weather conditions (Eden 1972). Thirty-seven methods are ground-based; 32 operations involve aircraft as the carrier for the seeding agent. Two projects use aircraft and ground-based generators.

The commonest type of equipment for the weather modification activities is the ground-based, arc-type AgI burner. Nine other types of weather modification apparatus are used: propane burners or generators; pyrotechnic flares; a ground-based mobile spray system; dispensers for ejecting dry ice from aircraft that include electric hoppers, spreaders, metered hoppers and blowers, suction tubes, and funnels; and "cloud busters" consisting of pipes grounded into a water supply.

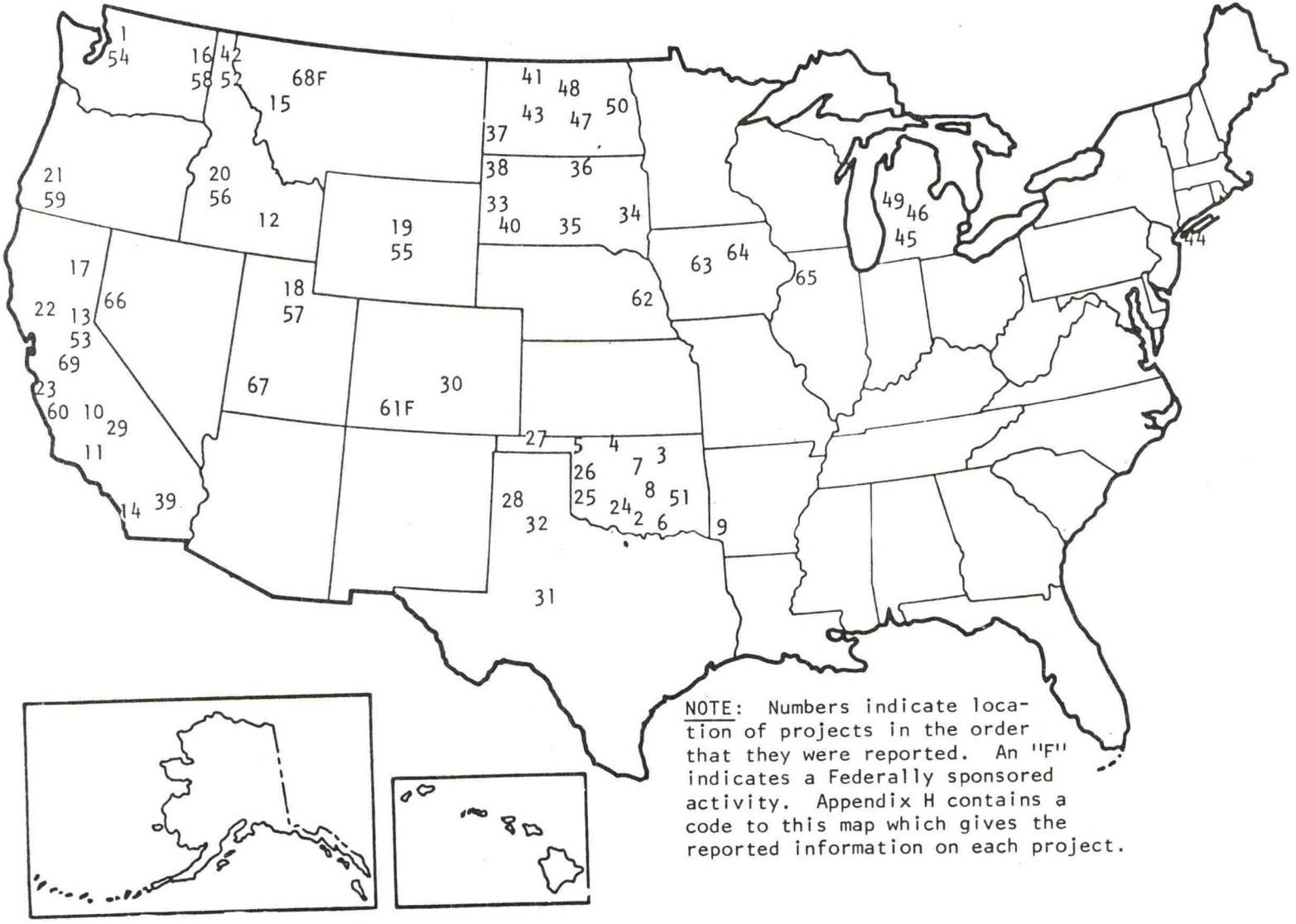

Figure 1. -- Reported Federally and nonfederally sponsored weather modification activities - November 1, 1972, to December 31, 1973.

Table 4. -- Target areas and activities for each State

State	Activities	Target area (mi^2)
Arkansas	1	900
California	11	5,678
Colorado	1	1,300
Idaho	5	3,874
Illinois	1	2
Iowa	2	4
Michigan	3	1,951
Montana	2	1,656
Nebraska	1	2
Nevada	1	5
New York	1	-
North Dakota	6	16,172
Oklahoma	12	12,840
Oregon	2	2
South Dakota	6	44,516
Texas	3	4,900
Utah	3	40,010
Washington	4	8
Wyoming	2	180
Total	67	134,000

Agents

Inspection of the data in appendix H shows that the nucleating agents used for the reported activities are pure silver iodide, crushed carbon dioxide (dry ice), water droplets, polyelectrolytes, propane, and combinations of silver iodide with other ingredients in solids or solutions. A polyelectrolyte can be defined as a polymeric material having an electrical charge.

Silver iodide, by itself or in combined form, is the agent in 50 projects. Dry ice is used in 14 activities, and polyelectrolytes are specified in 5 projects. More than one agent is used in some activities.

Dispensing Rates

The data indicate that the aircraft dispensing rates for a unit of modification apparatus are appreciably higher than the rates for ground-based burners or generators (although the length of dispensing time in aircraft operations is usually shorter). Silver iodide dispensing rates range from 0.5 grams per hour (burner) to 320 grams per hour (pyrotechnic); an individual flare (pyrotechnic) burns for less than a minute. The approximate dispensing rates for dry ice and polyelectrolytes range from 11 to 1,300 kilograms per hour.

Information from Interim and Final Reports

Twenty-four operators filed the required interim reports for projects considered active on October 1, 1973. The data from 14 of these interim reports and from the 37 final reports submitted by December 31, 1973, have been examined and summarized. Interim reports were used if a final report had not been submitted. One interim report and three final reports were incomplete; replies to requests for the missing data had not yet been received from the operators.

Because some data are lacking, any summary of the available interim and final reports would be less than complete at this time. However, the data were reviewed, and the results are shown in table 5. The entries cover the initial 11 months of the reporting program and provide a good estimate of nonfederally sponsored weather modification activity for the period.

Table 5. -- Summary of interim and final report data
(Nov. 1, 1972 - Sept. 30, 1973)

(a)	Modification days (cumulative)	1,989
(b)	Modification days (stratiform clouds)	474
(c)	Modification days (isolated clouds)	933
(d)	Modification days (organized clouds)	522
(e)	Modification days (fog)	67
(f)	Modification missions	2,732
(g)	Airborne apparatus operation, hours	1,780
(h)	Ground-based apparatus operation, hours	38,912
(i)	Dry ice used, kilograms	9,298
(j)	Polyelectrolyte used, kilograms	544
(k)	Silver iodide used, kilograms	1,061

The modification days noted in table 5, item (a) are days on which actual weather modification activities took place. Items (b) through (e) show the number of days on which modification activities were conducted, segregated by each of the predominant types of weather phenomena involved in the operations. Normally, the total of entries in (a) would equal the total of (b) through (e). The discrepancy can be explained by the lack of reported data and the likelihood that more than one cloud system was involved in a day's operations.

Estimates of the amounts of seeding agent used in the initial 11 months can be taken a step further. The amount of silver iodide dispensed in airborne operations was 552 kilograms. The remainder of the silver iodide (509 kilograms) was used in ground-based seeding activities. Dry ice and polyelectrolytes were used in other airborne activities to disperse fog.

CONCLUDING REMARKS

The initial, interim, and final reports of weather modification activities in the United States for the period November 1, 1972, to December 31, 1973,

have been summarized in this publication. In four cases where the reports were incomplete, the operator was requested to provide the missing information. Analysis of the reports for 65 nonfederally sponsored projects and for the 2 Federally sponsored projects revealed several types of information. The 67 projects reported to NOAA show that about one-fourth were carried out by one commercial operator; nearly one-fourth were sponsored by local community associations; nearly half the activities were to increase precipitation; about one-sixth of the activities to decrease hail; and about one-fourth to disperse fog. Nineteen States had some activity; Oklahoma and California led in total numbers of activities. The total target area for all the reported activities was about 134,000 square miles; South Dakota and Utah had the largest target areas. Further examination of the reports indicated that most of the activities were ground-based; that the arc-type silver iodide burner was the commonest type of ground-based equipment; and that silver iodide was the most popular seeding agent inasmuch as it was used in 50 projects.

For the first 11 months of the reporting program, the total number of modification days (cumulative) was estimated at nearly 2,000 during the reporting period of 334 days. Ground-based weather modification apparatus operated for about 39,000 hours; airborne apparatus, for about 1,800 hours. The amount of silver iodide consumed was about 1,100 kilograms; the amount of dry ice dispensed to modify fog was about 9,300 kilograms.

REFERENCES

Charak, M. T., and DiGiulian, M. T., Weather Modification Activity Reports - November 1, 1972, to March 22, 1973, National Oceanic and Atmospheric Administration, Rockville, Md., March 1973, 23 pp.

Eden, J., "Drought Relief in the Northwest," Journal of Orgonomy, Vol. 6, No. 1, May 1972, pp. 98-103.

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National Science Foundation, Weather Modification - Ninth Annual Report, 1967, Government Printing Office, Washington, D.C., 1968, pp. 75-77.

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Public Law 92-205
92nd Congress, H. R. 6893
December 18, 1971

An Act

To provide for the reporting of weather modification activities to the Federal Government.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, as used in this Act— Weather modification reporting.

(1) The term "Secretary" means the Secretary of Commerce.

(2) The term "person" means any individual, corporation, company, association, firm, partnership, society, joint stock company, any State or local government or any agency thereof, or any other organization, whether commercial or nonprofit, who is performing weather modification activities, except where acting solely as an employee, agent, or independent contractor of the Federal Government.

(3) The term "weather modification" means any activity performed with the intention of producing artificial changes in the composition, behavior, or dynamics of the atmosphere. 85 STAT. 735

(4) The term "United States" includes the several States, the District of Columbia, the Commonwealth of Puerto Rico, and any territory or insular possession of the United States. 85 STAT. 736

SEC. 2. No person may engage, or attempt to engage, in any weather modification activity in the United States unless he submits to the Secretary such reports with respect thereto, in such form and containing such information, as the Secretary may by rule prescribe. The Secretary may require that such reports be submitted to him before, during, and after any such activity or attempt. Report requirement.

SEC. 3. (a) The Secretary shall maintain a record of weather modification activities, including attempts, which take place in the United States and shall publish summaries thereof from time to time as he determines. Records, publication.

(b) All reports, documents, and other information received by the Secretary under the provisions of this Act shall be made available to the public to the fullest practicable extent.

(c) In carrying out the provisions of this section, the Secretary shall not disclose any information referred to in section 1905 of title 18, United States Code, and is otherwise unavailable to the public, except that such information shall be disclosed— Confidential information. 62 Stat. 791.

(1) to other Federal Government departments, agencies, and officials for official use upon request;

(2) in any judicial proceeding under a court order formulated to preserve the confidentiality of such information without impairing the proceeding; and

(3) to the public if necessary to protect their health and safety.

SEC. 4. (a) The Secretary may obtain from any person whose activities relate to weather modification by rule, subpena, or otherwise such information in the form of testimony, books, records, or other writings, may require the keeping and furnishing of such reports and records, and may make such inspection of the books, records, and other writings and premises and property of any person as may be deemed necessary or appropriate by him to carry out the provisions of this Act, but this authority shall not be exercised to obtain any information with respect to which adequate and authoritative data are available from any Federal agency. Authority of Secretary.

Noncompliance.

(b) In case of contumacy by, or refusal to obey a subpena served upon any person pursuant to this section, the district court of the United States for any district in which such person is found or resides or transacts business, upon application by the Attorney General, shall have jurisdiction to issue an order requiring such person to appear and give testimony or to appear and produce documents, or both; and any failure to obey such order of the court may be punished by such court as a contempt thereof.

Penalty.

SEC. 5. Any person who knowingly and willfully violates section 2 of this Act, or any rule issued thereunder, shall upon conviction thereof be fined not more than $10,000.

Appropriations.

SEC. 6. There are authorized to be appropriated $150,000 for the fiscal year ending June 30, 1972, and $200,000 each for the fiscal years ending June 30, 1973, and June 30, 1974, to carry out the provisions of this Act.

Approved December 18, 1971.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 92-458 (Comm. on Interstate and Foreign Commerce).
SENATE REPORT No. 92-537 (Comm. on Commerce).
CONGRESSIONAL RECORD, Vol. 117 (1971):
Sept. 28, considered and passed House.
Dec. 6, considered and passed Senate, amended.
Dec. 9, House concurred in Senate amendments.

GPO 69-139

Title 15—COMMERCE AND FOREIGN TRADE

Chapter IX—National Oceanic and Atmospheric Administration, Department of Commerce

SUBCHAPTER A—GENERAL REGULATIONS

PART 908—MAINTAINING RECORDS AND SUBMITTING REPORTS ON WEATHER MODIFICATION ACTIVITIES

On June 10, 1972, a notice of proposed rule making on maintaining and submitting records regarding weather modification activities was published in the FEDERAL REGISTER (37 F.R. 11679). Interested persons were given until September 11, 1972, to submit written views, objections, recommendations, or suggestions in connection with the proposed rules. The comments received in response to the notice have been considered and revisions have been made in the rules for clarity, simplicity, and utility.

The purpose of these rules is to provide for the reporting to the Secretary of Commerce of weather modification activities taking place within the United States. The Secretary is charged under law to assemble and retain records of such weather modification activities, to make these records publicly available to the fullest extent practicable, and to publish summaries thereof from time to time. By so doing, among other things, expertise in the field of weather modification will be increased, and scientists and other concerned persons will have access to information about past and ongoing efforts at weather modification, can determine whether their activities will be necessary or duplicative, can check both desirable and undesirable atmospheric changes against records of weather modification, and can be alert to possible territorial overlappings of weather modification operations.

Therefore, pursuant to the authority contained in Public Law 92–205, 85 Stat. 735, December 18, 1971, the National Oceanic and Atmospheric Administration (NOAA) amends Title 15, Code of Federal Regulations, by the addition of Part 908, adopting the rules set forth below. These rules will be administered by the Administrator, National Oceanic and Atmospheric Administration, on behalf of the Secretary of Commerce, pursuant to the Secretary's delegation of authority in section 3, subparagraph .01t of the Department of Commerce Organization Order 25–5A.

HOWARD W. POLLOCK,
Acting Administrator.

OCTOBER 18, 1972.

The rules are as follows:

Sec.

AUTHORITY: The provisions of this Part 908 issued pursuant to the authority contained in Public Law 92–205, 85 Stat. 735, December 18, 1971.

§ 908.1 Definitions.

As used in this part, terms shall have the meaning ascribed in this section.

(a) *Administrator.* The Administrator of the National Oceanic and Atmospheric Administration.

(b) *Person.* Any individual, corporation, company, association, firm, partnership, society, joint stock company, any State or local government or any agency thereof, or any other organization, whether commercial or nonprofit, except where acting solely as an employee, agent, or independent contractor of the Federal Government.

(c) *Weather modification activity.* Any activity performed with the intention of producing artificial changes in the composition, behavior, or dynamics of the atmosphere.

(d) *United States.* The several States, the District of Columbia, the Commonwealth of Puerto Rico, and any territory or insular possession of the United States.

(e) *Persons whose activities relate to weather modification.* Persons engaged in weather modification activities or engaged in the distribution or sale of weather modification apparatus or materials known by them to be destined for use in weather modification activities.

(f) *Project.* A related series of weather modification activities having a common objective.

(g) *Modification mission.* One or more airborne weather modification activities intended to affect the same target area, or one or more weather modification activities carried out by items of ground-based weather modification apparatus intended to affect the same target area. For purposes of these rules, activities that extend beyond 1 calendar day shall constitute a separate mission for each day that they continue.

(h) *Target area.* The ground area within which the effects of the weather modification activity are expected to be found.

(i) *Control area.* A preselected, untreated ground area used for comparison with a target area.

(j) *Weather modification apparatus.* Any apparatus used with the intention of producing artificial changes in the composition, behavior, or dynamics of the atmosphere. For example: Seeding generators, propane devices, flares, rockets, artillery projectiles, jet engines, etc.

§ 908.2 Persons subject to reporting.

Any person engaged or intending to engage in any weather modification activity in the United States shall be subject to the reporting provisions of this part.

§ 908.3 Activities subject to reporting.

(a) The following, when conducted as weather modification activities, shall be subject to reporting:

(1) Seeding or dispersing of any substance into clouds or fog, to alter drop size distribution, produce ice crystals or coagulation of droplets, alter the development of hail or lightning, or influence in any way the natural development cycle of clouds or their environment;

(2) Using fires or heat sources to influence convective circulation or to evaporate fog;

(3) Modifying the solar radiation exchange of the earth or clouds, through the release of gases, dusts, liquids, or aerosols into the atmosphere;

(4) Modifying the characteristics of land or water surfaces by dusting or treating with powders, liquid sprays, dyes, or other materials;

(5) Releasing electrically charged or radioactive particles, or ions, into the atmosphere;

(6) Applying shock waves, sonic energy sources, or other explosive or acoustic sources to the atmosphere;

(7) Using aircraft propeller downwash, jet wash, or other sources of artificial wind generation; or

(8) Using lasers or other sources of electromagnetic radiation.

(b) In addition to the activities listed above, other similar activities falling within the definition of weather modification as set forth in § 908.1 are also subject to reporting.

(c) The requirement for reporting shall not apply to activities of a purely local nature that can reasonably be expected not to modify the weather outside of the area of operation. This exception is presently restricted to the use of lightning deflection or static discharge devices in aircraft, boats, or buildings, and to the use of small heat sources, fans, fogging devices, aircraft downwash, or sprays to prevent the occurrence of frost in tracts or fields planted with crops susceptible to frost or freeze damage. Other exceptions may be made in the future by rule of the Administrator.

§ 908.4 Initial report.

(a) Any person intending to engage in any weather modification project or activity in the United States shall provide a report of his intention, to be received by the Administrator at least 10 days before the commencement of such project or activity. This report shall contain at least the following:

(1) The designation, if any, used by the operator for the project or activity;

(2) The following dates for weather modification activities:

(i) The date the first actual weather modification activity is to be undertaken;

(ii) The date on which the final modification activity is expected to occur;

(3) The name and address of the person for whom the project or activity is to be performed;

(4) The purpose of the project or activity;

(5) A map showing the approximate size and location of the target and control areas, and the location of each item of ground-based weather modification apparatus, precipitation measuring device, and, for airborne operations, the airport;

(6) A description of the weather modification apparatus, modification agents, and the techniques to be employed;

(7) The name and address of the responsible individual from whom log books or other records of the project or activity may be obtained; and

(8) Optional remarks, to include any additional items which the person deems significant or of interest and such other information as the Administrator may request the person to submit.

(b) If circumstances prevent the signing of a contract or agreement to perform, or receipt of an authorization to proceed with, a weather modification activity at a date early enough to comply with paragraph (a) of this section, the initial report shall be provided so as to be received by the Administrator within 10 days of the date of signing of the contract or agreement, or receipt of authorization to proceed. In such cases, the report shall be accompanied by an explanation as to why it was not submitted at least 10 days prior to the commencement of the activity.

(c) In the event that circumstances beyond the control of the person liable to report under these regulations prevent the submission of the initial report in a timely manner as described above, the report shall be forwarded as early as possible, accompanied by an explanation as to why a timely report has not been provided. If such explanation is deemed adequate, the Administrator will consider the notice as timely filed.

§ 908.5 Interim reports.

(a) Any person engaged in a weather modification project or activity in the United States on October 1 in any year shall submit to the Administrator, not later than 90 days thereafter, an interim report setting forth as of such date the information required below with respect to any such continuing project or activity not previously furnished to the Administrator in a prior interim report; provided that the October 1 date shall not apply if other arrangements have previously been made with the written approval of the Administrator.

(b) The interim report shall include the file number assigned by the Administrator and shall provide a summary of the project or activity containing at least the following information for each month:

(1) Number of days on which actual modification activities took place;

(2) Number of days on which weather modification activities were conducted, segregated by each of the predominant types of weather phenomena;

(3) Number of modification missions that were carried out;

(4) Total number of hours of operation of each type of weather modification apparatus (i.e., net hours of agent release);

(5) Total amount of agent used. If more than one agent was used, each should be totaled separately (e.g., carbon dioxide, sodium chloride, urea, silver iodide).

(c) The totals for the items in paragraph (b) of this section shall be provided for the period covered by the interim report.

§ 908.6 Final report.

Upon completion of a weather modification project or activity the person who performed the same shall submit a report to the Administrator not later than 90 days after completion of the project or activity. The report shall include the file number assigned by the Administrator and the following items:

(a) Information required for the interim reports (to the extent not previously reported).

(b) The total number of days on which actual modification activities took place during the project or activity.

(c) The total number of days during the project or activity on which weather modification activities were conducted, segregated by each of the predominant types of weather phenomena.

(d) The total number of modification missions that were carried out under the project or activity.

(e) The total number of hours of operation of each type of weather modification apparatus during the project or activity (i.e., net hours of agent release).

(f) The total amount of modification agent(s) dispensed during the project or activity. If more than one agent was used, each should be totaled separately (e.g., carbon dioxide, sodium chloride, urea, silver iodide).

(g) The date on which the final weather modification activity occurred.

§ 908.7 Supplemental reports.

Notwithstanding other regulations, a supplemental report in letter form referring to the appropriate NOAA file number, if assigned, must be made to the Administrator immediately if any report of weather modification activities submitted under § 908.4, § 908.5, or § 908.6 is found to contain any material inaccuracies, misstatements, and omissions. A supplemental report must also be made if there are changes in plans for the project or activity.

§ 908.8 Maintenance of records.

(a) Any person engaging in a weather modification activity in the United States shall maintain a record of such activity. This record shall contain at least the following, when applicable:

(1) A chronological record of activities carried on, preferably in the form of a daily log, which shall include the NOAA file number assigned to the project, the designation of each unit of weather modification apparatus, and at least the following information for each unit:

(i) Date of the weather modification activity.

(ii) Position of each aircraft or location of each item of weather modification apparatus during each modification mission. Maps may be used.

(iii) Time when weather modification activity began and ended.

(iv) Total duration of operation of each unit of weather modification apparatus (i.e., net hours of agent release).

(v) Type of each modification agent used.

(vi) Rate of dispersal of each agent during the period of actual operation of weather modification apparatus.

(vii) Total amount of agent used. If more than one agent was used, report total for each type separately.

(viii) Number of days on which weather modification activities were conducted, segregated by the predominant types of weather phenomena.

(2) The monthly totals of hours of modification activity, the amount of modification agent used, and the number of days on which weather modification activities were conducted, segregated by each of the predominant types of weather phenomena, shall be shown on the daily log sheet for the last day of each month.[1]

(b) When the activity involves ground-based weather modification apparatus, records of the following shall also be maintained, when applicable, but need not be made part of the daily log:

(1) The location of each item of weather modification apparatus in use and its identification such as type and manufacturer's model number. If the apparatus is not commercially available, a brief description of the apparatus and the method of operation should be recorded.

(2) The name and address of the person responsible for operating each weather modification apparatus;

(3) The altitude and type of weather phenomenon subjected to weather modification activity during each operational period (e.g., cumulus clouds between 10,000 and 30,000 feet m.s.l.; ground fog).

(c) When the activity involves airborne weather modification apparatus, records of the following shall also be maintained, when applicable, but need not be made a part of the daily log:

For each airborne weather modification apparatus run: altitude, air speed; release points of modification agents, method of modification and characteristics of flares, rockets, or other delivery systems employed; temperature at release altitude; and, for aircraft: the type of aircraft, its identification number, the airport or airports used, and the names and addresses of crew members and the person responsible for operating the weather modification apparatus; and the altitude and type of weather phenomenon subjected to weather modification activity during each operational period (e.g., cumulus clouds between 10,000 and 30,000 feet m.s.l.; ground fog).

(d) The following records shall also be maintained, whenever applicable, but need not be made a part of the daily log. Only data specifically collected for the reported activity need be retained; data available from other sources need not be included.

(1) Any descriptions that were recorded of meteorological conditions in target and control areas during the periods of operation; for example: percent of cloud cover, temperature, humidity, the presence of lightning, hail, funnel clouds, heavy rain or snow, and unusual radar patterns.

(2) All measurements made of precipitation in target and control areas.

(3) Any unusual results.

§ 908.9 Retention of records.

Records required under § 908.8 shall be retained and available for inspection by the Administrator or his designated representatives for 5 years after completion of the activity to which they relate. Such records shall be required to be produced for inspection only at the place where normally kept. The Administrator shall have the right to make copies of such records, if he deems necessary.

§ 908.10 Penalties.

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.

§ 908.11 Maintenance of records of related activities.

(a) Persons whose activities relate to weather modification activities, other than persons engaged in weather modification activities, shall maintain records concerning the identities of purchasers or users of weather modification apparatus or materials, the quantities or numbers of items purchased, and the times of such purchases. Such information shall be retained for at least 5 years.

(b) In addition, persons whose activities relate to weather modification shall be required, under the authority of section 4 of Public Law 92–205, to provide the Administrator, on his request, with information he deems necessary to carry out the purposes of this act.

§ 908.12 Public disclosure of information.

(a) Any records or other information obtained by the Administrator under these rules or otherwise under the authority of Public Law 92–205 shall be made publicly available to the fullest practicable extent. Such records or information may be inspected on written request to the Administrator. However, the Administrator will not disclose any information referred to in section 1905 of title 18, United States Code, and that is otherwise unavailable to the public, except that such information shall be disclosed—

(1) To other Federal Government departments, agencies, and officials for official use upon request;

(2) In any judicial proceeding under a court order formulated to preserve the confidentiality of such information without impairing the proceeding; and

(3) To the public, if necessary to protect their health and safety.

(b) Certified copies of such reports and information, to the extent publicly disclosable, may be obtained from the Administrator at cost in accordance with the Department of Commerce implementation of the Freedom of Information Act.

(c) Persons reporting on weather modification projects or related activities shall specifically identify all information that they consider not to be subject to public disclosure under the terms of Public Law 92–205 and provide reasons in support thereof. A determination

[1] Filed as part of the original document.

as to whether or not reported information is subject to public dissemination shall be made by the Administrator.

§ 908.13 Address of letters.

Letters and other communications intended for the Administrator, in connection with weather modification reporting or activities, shall be addressed to: The Administrator, National Oceanic and Atmospheric Administration, Office of Environmental Modification, Rockville, Md. 20852.

§ 908.14 Business to be transacted in writing.

All business transacted with the National Oceanic and Atmospheric Administration with regard to reports of weather modification activities should be transacted in writing. Actions of the National Oceanic and Atmospheric Administration will be based exclusively on the written record.

§ 908.15 Times for taking action; expiration on Saturday, Sunday, or holiday.

Whenever periods of time are specified in these rules in days, calendar days are intended. When the day, or the last day, fixed under these rules for taking any action falls on a Saturday, Sunday, or on a Federal holiday, the action may be taken on the next succeeding day which is not a Saturday, Sunday, or Federal holiday.

§ 908.16 Signature.

All reports filed with the National Oceanic and Atmospheric Administration must be dated and signed by or on behalf of the person conducting or intending to conduct the weather modification activities referred to therein by such person, individually or, in the case of a person other than an individual, by a partner, officer, or other person having corresponding functions and authority. For this purpose "officer" means a president, vice president, treasurer, secretary, or comptroller. Notwithstanding the foregoing, such reports may also be signed by the duly authorized agent or attorney of the person whose activities are being reported. Proof of such authorization shall be furnished to the Administrator when filing a report, unless previously furnished.

§ 908.17 Suspension or waiver of rules.

In an extraordinary situation, any requirement of these rules may be suspended or waived by the Administrator on request of the interested party, to the extent such waiver is consistent with the provisions of Public Law 92-205 and subject to such other requirements as may be imposed.

§ 908.18 Matters not specifically provided for in rules.

All matters not specifically provided for or situations not specifically addressed in these rules will be decided in accordance with the merits of each case by or under the authority of the Administrator, and such decision will be communicated in writing to all parties involved in the case.

§ 908.19 Publication of notice of proposed amendments.

Whenever required by law, and in other cases whenever practicable, notice of proposed amendments to these rules will be published in the FEDERAL REGISTER. If not published with the notice, copies of the text of proposed amendments will be furnished to any person requesting the same. All comments, suggestions, and briefs received within the time specified in the notice will be considered before adoption of the proposed amendments, which may be modified in the light thereof. Informal hearings may be held at the discretion of the Administrator.

§ 908.20 Effective date.

These rules are effective November 1, 1972.

(a) Any person engaged in a weather modification activity on the effective date shall furnish the initial report required under § 908.4 within 30 days from the effective date, appropriately modified as circumstances may require.

(b) Any person intending to engage in a weather modification activity scheduled to commence less than 40 days from the effective date of these rules may furnish the required report under § 908.4 as late as 30 days following such effective date.

(c) The explanatory statement required by § 908.4(c), pertaining to late reports, need not be submitted with the initial reports in the above cases.

§ 908.21 Report form.

Public Law 92-205 and these rules should be studied carefully prior to reporting. Reports required by these rules shall be submitted on forms obtainable on request from the Administrator, or on an equivalent format.[1] In special situations, such alterations to the forms as the circumstances thereto may render necessary may be made, provided they do not depart from the requirements of these rules or of Public Law 92-205.

[FR Doc.72-18279 Filed 10-26-72;8:45 am]

[1] Filed as part of the original document.

Title 15—Commerce and Foreign Trade

CHAPTER IX—NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, DEPARTMENT OF COMMERCE

SUBCHAPTER A—GENERAL REGULATIONS

PART 908—MAINTAINING RECORDS AND SUBMITTING REPORTS ON WEATHER MODIFICATION ACTIVITIES

Provisions for Reporting Additional Information

In a notice published in the FEDERAL REGISTER of November 6, 1973 (38 FR 30563), the Administrator of the National Oceanic and Atmospheric Administration proposed to amend the rules on maintaining records and submitting reports on weather modification activities (37 FR 22974). Interested persons were given until December 6, 1973 to submit written views, objections, recommendations, or suggestions in connection with the proposed amendments. The few comments received in response to the notice have been considered in detail, but they did not provide any basis for revision of the proposed additions to the rules.

The purpose of these amendments to 15 CFR Part 908, is to provide for the reporting of the additional information required by NOAA to carry out the intent of the President's Directive to the Secretary of Commerce:

> • • • to expand his regulations to provide for Federal notification, including recommendations where appropriate, to operators and State officials in cases where a report disclosed that a proposed project may endanger persons, property, or the environment or the success of Federal research projects. Notifications will be available to the public.

Over the past 27 years, weather modification activities have been undertaken to secure benefits for man, and the results have been encouraging. Although there has been no evidence in this period that these activities have significantly endangered persons, property, or the environment, the President's Message recognizes that such activities may have the potential to cause adverse effects, if carried out without appropriate safeguards.

It is almost impossible to predetermine with certainty all of the effects of a given weather modification operation. For that reason, to minimize the possibility of harmful results, planning for weather modification operations usually includes project safeguards and consideration of environmental impact which will eliminate hazards that might be reasonably foreseen. The amendments, which require the reporting of current safety practices and environmental considerations, will provide a single source of information on the safety and environmental precautions used in weather modification activities in the United States. Compilations of these practices may form the basis for later publication of techniques generally used in the industry to avoid potential danger. The reported information will also help operators to anticipate, and hopefully avoid, possible interference of one experiment or operation by another.

Appropriate Federal agencies have agreed to report their weather modification activities to the Secretary of Commerce. This Federal reporting complements the reporting of non-Federal sponsored projects and provides for a central source of information on all weather modification activities in the United States.

The actions of the Department of Commerce under these amendments are not intended as, nor do they constitute, approval, disapproval, or regulation of weather modification operations. Any notification that may be made to operators and State officials on the basis of information received will be advisory only.

Therefore, pursuant to the authority contained in 15 U.S.C. 330–330e and 15 U.S.C. 313, and pursuant to a Directive to the Secretary of Commerce reflected in the President's February 15, 1973 State of the Union Message on Natural Resources and Environment, and the Fact Sheet accompanying the Message, the National Oceanic and Atmospheric Administration (NOAA) amends 15 CFR by additions to Part 908, adopting the rules set forth below. These rules will be administered by the Administrator, National Oceanic and Atmospheric Administration, on behalf of the Secretary of Commerce, pursuant to the Secretary's delegation of authority in section 3, subparagraph .01t of the Department of Commerce Organization Order 25–5A.

The amendments are as follows:

1. Change § 908.4(a)(7) by deleting the word "and" after the semi-colon.

2. Change § 908.4(a)(8) to § 908.4(a)(9).

3. Add § 908.4(a)(8) as follows:

§ 908.4 Initial report.

(a) • • •

(8) Answers to the following questions on project safeguards:

(i) Has an Environmental Impact Statement, Federal or State, been filed: Yes ____ No ____. If Yes, please furnish a copy as applicable.

(ii) 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? Yes ____ No ____. If Yes, please specify on a separate sheet.

(iii) 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? Yes ____ No ____. If Yes, please furnish copies or a description of the specific procedures and guidelines.

4. Add § 908.12(d) to read as follows:

§ 908.12 Public disclosure of information.

• • • • •

(d) When consideration of a weather modification activity report and related information indicates that a proposed project may significantly depart from the practices or procedures generally employed in similar circumstances to avoid danger to persons, property, or the environment, or indicates that the success of Federal research projects may be adversely affected if the proposed project is carried out as described, the Administrator will notify the operator(s) and State officials of such possibility and make recommendations where appropriate. The purpose of such notification shall be to inform those notified of existing practices and procedures or Federal research projects known to NOAA. Notification or recommendation, or failure to notify or recommend, shall not be construed as approval or disapproval of a proposed project or as an indication that, if carried out as proposed or recommended it may, in any way, protect or endanger persons, property, or the environment or affect the success of any Federal research project. Any advisory notification issued by the Administrator shall be available to the public and be included in the pertinent activity report file.

Effective date. These amendments shall be effective on February 15, 1974.

ROBERT M. WHITE,
Administrator.

[FR Doc.74-1077 Filed 1-14-74;8:45 am]

APPENDIX D. Federal Reporting Rules

Ground Rules for the Reporting of Federal Weather Modification Activities

Background. In 1958, the National Science Foundation began collecting reports on weather modification activities under Public Law 85-510. Ten years later in 1968, Congres enacted Public Law 90-407, which repealed the powers of the Foundation to require persons to report. Until 1971, no Federal department or agency had been authorized to collect activity reports. On December 18, 1971, Public Law 92-205 was enacted; it requires that nonfederally sponsored weather modification activities be reported to the Secretary of Commerce. Rules for implementing this legislation were published by the National Oceanic and Atmospheric Administration, Department of Commerce, in the Federal Register, Vol. 37, No. 208, October 27, 1972, with an effective date of November 1, 1972. The ground rules that follow for the reporting of Federal weather modification activities complement the current reporting requirement for nonfederal activities.

Agency responsibilities. Each agency or department of the Federal Government engaged in, or actively planning to engage in, a weather modification activity which affects or may affect weather over the United States, whether carried out on its behalf by employees, agents, independent contractors or otherwise, shall assure that records thereof be kept and that reports of such activities be submitted to the Secretary of Commerce. In a weather modification project where more than one agency is involved in a project, only the lead agency shall have the responsibility for reporting. However, the lead agency shall identify all the agencies involved in the project.

International aspects. The National Security Council's Under Secretaries' Committee will continue to be responsible for the review of the international aspects of weather modification generally and for the review of all civil weather modification activities of each agency or department of the Federal Government affecting other countries or conducted outside U.S. territory.

Definitions and reporting rules.. Except as herein otherwise defined or provided, the definitions and rules adopted by the Secretary of Commerce pursuant to Public Law 92-205, 85 Stat. 735 (December 18, 1971), to cover the reporting of nonfederally sponsored weather modification activities, shall apply to any weather modification activity in which an agency or department of the Federal Government is engaged, or plans to engage.

Penalty exemption. No criminal penalty, as provided for in such rules or in Public Law 92-205, shall apply to an agency or department of the Federal Government, its employees, agents, independent contractors, or others, in regard to a weather modification activity carried out by or for the account of such agency or department.

Public disclosure of information. Reports of weather modification activities of agencies or departments of the Federal Government shall be preserved by the Secretary of Commerce who shall act upon such reports in a similar manner and under similar conditions as other records of weather modification activities reported pursuant to Public Law 92-205 and the reporting rules cited above.

Records of weather modification activities of an agency or department which are retained by that agency or department, shall be made publicly available to the extent provided for under the Freedom of Information Act (5 U.S.C. 552).

No agency or department of the Federal Government shall be required to furnish any information or material to the Secretary of Commerce or make the same publicly available when such information or material requires protection in the interest of national security.

APPENDIX E. Initial Report

FORM APPROVED: O.M.B. NO. 41-R2664
APPROVAL EXPIRES 12-31-77

Complete in accordance with instructions on on reverse and forward copy:

TO: Environmental Modification Office
National Oceanic and Atmospheric Admin.
Rockville, Maryland 20852

NOAA FORM 17-4 (12-73)
U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

INITIAL REPORT ON WEATHER MODIFICATION ACTIVITIES

PUBLIC LAW 205, 92ND. CONGRESS

1. PROJECT OR ACTIVITY DESIGNATION, IF ANY

2. DATES OF PROJECT

a. DATE OF FIRST ACTUAL WEATHER MODIFICATION ACTIVITY

3. PERSON FOR WHOM PROJECT OR ACTIVITY IS PERFORMED

NAME AND AFFILIATION OF SPONSOR	PHONE NUMBER

STREET ADDRESS

CITY	STATE	ZIP CODE

b. EXPECTED TERMINATION DATE OF WEATHER MODIFICATION ACTIVITIES

4. PURPOSE OF PROJECT OR ACTIVITY

5. TARGET AND CONTROL AREAS *(See Instructions)*

TARGET AREA		CONTROL AREA	
LOCATION	SIZE OF AREA 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)*

7. LOG BOOKS:

Enter name, address, and telephone number of responsible individual from whom log books or other records may be obtained.

NAME AND AFFILIATION	PHONE NUMBER

STREET ADDRESS

CITY	STATE	ZIP CODE

8. SAFETY AND ENVIRONMENT

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

☐ YES ☐ NO Have provisions been made to acquire the latest forecasts, advisories, warnings, etc. ot the National Weather Service, Forest Service, or others when issued prior to and during operations? If yes, please specify on a separate sheet.

☐ 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 REMARK. *(See Instructions)*

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

NAME OF REPORTING PERSON AND AFFILIATION			SIGNATURE	
STREET ADDRESS			OFFICIAL TITLE	
CITY	STATE	ZIP CODE	DATE	PHONE NUMBER

NOAA FORM 17-4 (12-73)

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 name, affiliation, and address of the person for whom the project is to be performed (sponsor).

Item 4. Enter the purpose of the project or activity: e.g., rainfall increase, hail suppression, cold fog dispersal, etc.

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, affiliation, and address of the responsible individual from whom log books or other records may be obtained. Phone number should be included if possible.

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.

FORM APPROVED: O.M.B. NO. 41-R2664
APPROVAL EXPIRES 12-31-77

NOAA FORM 17-4A (11-72)

U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NOAA FILE NUMBER

INTERIM ACTIVITY REPORTS AND FINAL REPORT

☐ INTERIM REPORT
☐ FINAL REPORT

Complete in accordance with instructions on reverse and forward one copy:

TO: Office of Environmental Modification
National Oceanic and Atmospheric Administration
Rockville, Maryland 20852

REPORTING PERIOD

FROM	TO

MONTH	(a) NUMBER OF MODIFICATION DAYS	(b) NUMBER OF MODIFICATION DAYS PER PHENOMENON				(c) NUMBER OF MODIFICATION MISSIONS	(d) HOURS OF APPARATUS OPERATION BY TYPE		(e) TYPE AND AMOUNT OF AGENT USED				
		CLOUDS			OTHER		AIR-BORNE	GROUND	SILVER IODIDE	CARBON DIOXIDE	UREA	SODIUM CHLO-RIDE	OTHER
		STRATIFORM	CUMULIFORM ISO-LATED	CUMULIFORM ORGA-NIZED									
OCTOBER													
NOVEMBER													
DECEMBER													
JANUARY													
FEBRUARY													
MARCH													
APRIL													
MAY													
JUNE													
JULY													
AUGUST													
SEPTEMBER													
TOTAL													
TOTALS FOR FINAL REPORT													

DATE ON WHICH FINAL WEATHER MODIFICATION ACTIVITY OCCURRED *(For Final Report Only)*

CERTIFICATION: 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			SIGNATURE
STREET ADDRESS			OFFICIAL TITLE
CITY	STATE	ZIP CODE	DATE

INSTRUCTIONS FOR INTERIM AND FINAL REPORTS

Any person engaged in any weather modification project or activity in the United States on October 1 in any year shall submit one copy of this form setting forth as of such date the information required with respect to each such continuing project or activity not previously furnished in a prior interim report. The box indicating "Interim Report" should be checked. The October 1 date shall not apply if other arrangements have previously been made with the written approval of the Administrator of NOAA. The report shall be received by NOAA not later than 90 days following the end of the reported period.

Upon completion of a project or activity one copy of this report shall be submitted and the box checked indicating "Final Report." The final report shall be received by NOAA not later than 90 days after the completion of the project or activity.

The NOAA File Number should be filled in for any project for which the Administrator has assigned a file number.

A supplemental report in letter form referring to the appropriate NOAA file number must be made to the Administrator if the "Interim" or "Final" reports are found to contain any material inaccuracies, misstatements, and omissions.

INTERIM REPORT

The information in Items (a) through (e) on the report form should be provided as prescribed below for the months to which the report pertains. If no data are applicable for any given item in any month, enter zero.

Item (a). Enter number of days on which actual weather modification activities took place.

Item (b). Enter in the appropriate column number of days on which modification activities were conducted, segregated by each of the predominant types of weather phenomena. Normally, the total of entries in (b) would equal total in (a).

Item (c). Enter number of modification missions that were carried out.

Item (d). Enter in the appropriate column total number of hours of operation of each type of weather modification apparatus, (i.e., net hours of agent release). If the form does not contain sufficient space, report additional types on a separate sheet.

Item (e). Enter in the appropriate column total amount of agent used, by type. If the form does not contain sufficient space, report additional types on a separate sheet.

The totals for these items shall be provided for the period covered by the interim report.

FINAL REPORT

The final report shall contain the information required for interim reports, to the extent not previously reported. In addition, the items designated as "Totals for Final Report" should be reported. This information should pertain to the entire project or activity period, rather than only the period since the last interim report. At the space at the end of the form, enter the date on which final weather modification activity occurred.

FORM APPROVED: O.M.B. NO. 41-R2664
APPROVAL EXPIRES 12-31-77

NOAA FORM 17-4B
(11-72)

U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

DAILY LOG DURING WEATHER MODIFICATION ACTIVITIES

MONTH AND YEAR

NOAA FILE NUMBER

DESIGNATION OF APPARATUS

NAME OF OPERATOR

CAREFULLY READ INSTRUCTIONS ON REVERSE BEFORE ENTERING DATA ON FORM

DATE	POSITION OR LOCATION	LOCAL TIME			MODIFICATION AGENT			TYPE OF PHENOMENA MODIFIED			
								CLOUDS			OTHER (fog, etc.)
									CUMULIFORM		
		START	STOP	TOTAL	TYPE	RATE	AMOUNT	STRATI-FORM	ISO-LATED	ORGA-NIZED	
1	2	3	4	5	6	7	8	9	10	11	12
MONTHLY TOTAL											

INSTRUCTIONS FOR COMPLETING DAILY LOG FORM

DAILY LOG OF ACTIVITIES

This is a suggested form to be used in recording the information required to be kept by Section 908.8, Part 908 of Title 15, Code of Federal Regulations. Other logs may be used, providing they contain the information required. A tabular form is provided on which to report a daily log of activities for each unit of weather modification apparatus. The form is suitable for recording operation of individual items of ground or airborne apparatus. In the spaces provided above the columns, write the designation of the weather modification apparatus, coded to refer to the description required by Sections 908.8 (b) (1) and 908.8 (c). Part 908 of Title 15, Code of Federal Regulations, the month and year of daily record, the name of the operator, and the NOAA file number.

Explanation of columns follows:

Col. (1) State date of the weather modification activity.

Col. (2) Give each aircraft position or location of each item of weather modification apparatus during each modification mission. Maps may be used.

Col. (3) and (4) State local time when modification activity began and ended. Use 24-hour clock time (e.g., 0100 signifies 1:00 A.M. and 2300 signifies 11:00 P.M.). For intermittent operations, the start and end of the total sequence are acceptable.

Col. (5) Give duration of operation of each unit of weather modification apparatus, in hours and minutes. (Col. 5 = Col. 4 - Col. 3).

Col. (6) Describe type of modification agent used.

Col. (7) Give rate of dispersal of agent during the period of actual operation of weather modification apparatus, by hour or other appropriate time period.

Col. (8) Give total amount of modification agent used. If more than one agent was used, report total for each type separately.

Col. (9), (10), (11), & (12) Check once for each day on which modification activities were conducted, segregated by each of the predominant types of weather phenomena.

On the daily log sheet for the last day of each month, give monthly totals, for Columns (5), (8), (9), (10), (11), and (12).

Weather Modification Activity Reports, November 1, 1972, to December 31, 1973

Map Code	Report	Operator and address	Sponsor and address	Purpose and proposed operation dates	Actual operation dates	Target location	Target area (mi^2)	Technique	Apparatus	Agent	Dispensing rate (g/hr/unit)
1	73-001	Aero-Dyne Corp. 300-400 Airport Way Renton, WA 98055	Port of Seattle P.O. Box 6206 Seattle, WA 98188	Warm fog dispersal 10/2/72-3/1/73	11/1/72-2/28/73	Seattle-Tacoma Airport, WA	Less than 1	Aircraft dispensers	Metered hoppers and blowers	Polyelectrolyte	22,813.5
2	73-002	Irving P. Krick, Inc. of Texas 611 South Palm Canyon Dr. Suite 216 Palm Springs, CA 92262	City of Lawton c/o Mayor Dan Whitaker City Hall Lawton, OK 73501	Precipitation increase 11/1/72-7/3/74	11/72-	Lakes Lawtonka and Ellsworth, OK	400	Ground-based dispensers	Arc-type burners	AgI	0.5
3	73-003	"	Okla. State U. Stillwater, OK 74074	Precipitation increase 11/1/72-5/15/77	11/72-	Lake Blackwell, OK	225	"	"	"	"
4	73-004	"	Harper County Weather, Inc. c/o Max Barth, President P.O. Box 241 Buffalo, OK 73834	Precipitation increase 11/1/72-11/31/73	11/1/72-10/31/73	Harper County, OK	1,034	"	"	"	"
5	73-005	"	Beaver County Weather, Inc. c/o John Little, President Knowles, OK 73847	Precipitation increase 11/1/72-11/31/73	11/1/72-10/27/73	Beaver County, OK	1,793	"	"	"	"
6	73-006	"	Cotton County Service, Inc. c/o James W. Kinder, Sr. Route 1 Randlett, OK 73562	Precipitation increase 11/1/72-10/30/73	7/1/72-11/15/73	Cotton County, OK	629	"	"	"	"

Weather Modification Activity Reports, November 1, 1972, to December 31, 1973 (Con.)

Map Code	Report	Operator and address	Sponsor and address	Purpose and proposed operation dates	Actual operation dates	Target location	Target area (mi^2)	Technique	Apparatus	Agent	Dispensing rate (g/hr/unit)
7	73-007	Irving P. Krick, Inc. of Texas 611 South Palm Canyon Drive Suite 216 Palm Springs, CA 92262	Custer County Weather Assoc. c/o Don Sappington P.O. Box 570 Clinton, OK 73601	Precipitation increase 11/1/72-11/11/73	11/1/72-11/11/73	Custer County, OK	999	Ground-based dispensers	Arc-type burners	AgI	0.5
8	73-008	"	Washita County Weather Assoc. c/o Wayne Boothe Box 344 Cordell, OK 73632	Precipitation increase 12/1/72-12/1/73	3/1/73-10/25/73	Washita County, OK	1,009	"	"	"	"
9	73-009	"	International Paper Co. c/o John Cox Springhill, LA 71075	Precipitation increase 11/1/72-2/28/73	11/1/72-2/28/73	SW. Corner of AR	900	"	"	"	"
10	73-010	North American Weather Consultants Santa Barbara Municipal Airport Goleta, CA 93017	S. Calif. Edison Co. P.O. Box 800 Rosemead, CA 91770	Precipitation increase 11/1/72-continuing	11/72-	Upper San Joaquin River, CA	1,200	" Airborne dispenser	Propane generators (12) ($AgNH_4I$) Pyrotechnics	" "	6 135
11	73-011	"	Monterey County Flood Control and Water Conservation District P.O. Box 930 Salinas, CA 93901	Rainfall increase 11/1/72-6/1/73	10/1/72-3/15/73	Parts of Monterey and San Luis Obispo Counties, CA	400	Ground-based dispensers	Propane generators (8) ($AgNH_4I$)	"	6

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Map Code	Report	Operator and address	Sponsor and address	Purpose and proposed operation dates	Actual operation dates	Target location	Target area (mi^2)	Technique	Apparatus	Agent	Dispensing rate (g/hr/unit)
12	73-012	Sierra Research Corp. P.O. Box 3007 Boulder, CO 80303	Sun Valley Co. Sun Valley, ID 83353	Snowpack increase 11/19/72-12/19/72	11/19/72-12/28/72	Bald Mt., ID	27	Ground-based dispensers	Flare (1) attached to 6' pole	AgI	300
13	73-013	Sacramento Municipal Utility District 6201 South Street Box 15830 Sacramento, CA 95813	Sacramento Municipal Utility District 6201 South Street Box 15830 Sacramento, CA 95813	Snowpack increase 11/17/68-continuing	11/10/72-5/10/73	Lake Areas SW. of Lake Tahoe, CA	236	"	Propane burners (6)	"	25 at each burner
14	73-014	L.A. County Flood Control District P.O. Box 2418 Terminal Annex L.A., CA 90051	L.A. County Flood Control District P.O. Box 2418 Terminal Annex L.A., CA 90051	Precipitation increase 12/5/72-continuing	12/72-	Areas N. of Pasadena and Glendora, CA	407	"	" (16)	"	6 at each generator
15	73-015	Johnson Flying Service P.O. Box 1366 Missoula, MT 59801	Northwest Airlines Johnson-Bell Airport Missoula, MT 59801	Cold fog dispersal 1/1/73-12/1/73	10/72-	Missoula County Airport, MT	2	Aircraft dispensers	Dispensed by hand from tray mounted on aircraft floor	CO_2 (Dry ice)	107,144
16	73-016	Weather-To-Order, Inc. P.O. Box 19025 International Airport Spokane, WA 99219	Northwest Airlines United Airlines Hughes Air West The Spokane Airport Board International Airport Spokane, WA 99219	Cold/warm fog dispersal 11/22/72-4/73	11/22/72-3/14/73	Spokane International Airport, WA	2	"		CO_2, propane, polyelectrolytes	

Map Code	Report	Operator and address	Sponsor and address	Purpose and proposed operation dates	Actual operation dates	Target location	Target area (mi^2)	Technique	Apparatus	Agent	Dispensing rate (g/hr/unit)
17	73-017	Pacific Gas and Electric Co. 245 Market St. San Francisco, CA 94106	Pacific Gas and Electric Co. 77 Beale St. San Francisco, CA 94106	Snowpack increase 11/1/72-continuing	11/72-	Lake Almanor, CA	500	Ground-based dispensers	Generators (8)	AgI	25
18	73-018	H. W. Bement Interwest Aviation, Inc. AMF63 Salt Lake International Airport Salt Lake City, UT 84101	United, Western, American, Frontier, Texas International, and Hughes Air West Airlines International Airport Salt Lake City, UT 84101	Cold fog dispersal 12/13/72-3/31/73	12/72-3/73	International Airport, Salt Lake City, UT	10	Aircraft dispensers	Spreader	Dry ice	8,172 to 11,350 each two min. run
19	73-019	U. of Wyoming Dept. of Atmos. Resources P.O. Box 3038 Univ. Station Laramie, WY 82070	Eden Farson Irrigation District Farson, WY 82932	Precipitation increase 12/15/72-4/15/73	11/26/72-4/15/73	Big Sandy River Drainage, WY	180	Ground-based dispensers	Propane dispensers	AgI-NH_4I	10-15
20	73-020	Capital Flying Service, Inc. Boise Municipal Airport 3033 Airport Way Boise, ID 83705	City of Boise Boise Municipal Airport Boise, ID 83705	Cold fog dispersal 11/20/72-4/30/73	10/1/72-9/31/73	Boise Municipal Airport, ID	3	Aircraft dispensers	1/4" ice chunks dispensed through a hole in the plane	Dry ice	82,219.4
21	73-021	Logan and Reavis Air, Inc. Airport Road Medford, OR 97501	Air West and United Airlines c/o United Airlines P.O. Box 66100 Chicago, IL 60666	Cold fog dispersal 11/1/72-2/28/73	11/1/72-2/28/73	Medford-Jackson City Airport, OR	2 (approx.)	"	Suction tube	"	74,356

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22	73-022	World Weather, Inc. 6151 Freeport Blvd. Sacramento, CA 95822	United and Continental Airlines Elk Grove, IL/ Los Angeles, CA	Warm fog dispersal 2/10/73-2/28/73		Sacramento Metro Airport, CA	10	Ground-based dispensers	Gasoline engine mobile pressure system	H_2O and polyelectrolytes	
23	73-023	Santa Clara County Flood Control Water District 5750 Almaden Expressway San Jose, CA 95118	Santa Clara County Flood Control Water District 5750 Almaden Expressway San Jose, CA 95118	Rainfall increase 11/1/72-4/15/73	11/1/72-4/15/73	Part of Santa Clara County, CA	700	"	Skyfire modified generator	AgI	25
24	73-024	Irving P. Krick Assoc. 611 South Palm Canyon Drive Suite 216 Palm Springs, CA 92262	Kiowa County Weather Modification Assoc. Hobart, OK 73651	Precipitation increase 3/1/73-2/28/74	2/28/73-10/31/73	Kiowa County, OK	1,032	"	Arc-type burners	"	0.5
25	73-025	"	Ellis County Weather, Inc. Harmon, OK 73845	Precipitation increase 3/1/73-11/1/73	11/1/72-9/31/73	Ellis County, OK	1,222	"	"	"	"
26	73-026	"	Woodward County Cloudseeding Assoc. Sharon, OK 73857	Precipitation increase 3/1/73-11/30/73	11/1/72-9/30/73	Woodward County, OK	1,235	"	"	"	"
27	73-027	"	H.C. Hitch, Jr. P.O. Box 1308 Guymon, OK 73942	Precipitation increase 3/15/73-10/31/73	3/15/73-10/31/73	S. Central Texas County, OK	90	"	"	"	"

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28	73-028	Atmospherics, Inc. 5652 East Dayton Fresno, CA 93727	Better Weather, Inc. Springlake, TX 79082	Hail decrease and rainfall increase 5/1/73-10/31/73	5/73-	NW. Texas - SW. of Amarillo	950	Aircraft dispensers (3)	Pyrotechnics and liquid fuel generators	AgI smoke particles	120 to 600
29	73-029	"	Kings River Conservation District 4886 East Jensen Fresno, CA 93727	Rainfall and snowpack increase 10/1/73-9/30/74	11/1/72-	East of Fresno, CA	1,600	" (1) and ground-based generators (15)	"	"	14 to 240
30	73-030	"	Valley Growers, Inc. Monte Vista, CO 81144	Hail decrease 7/1/73-9/10/73	News clippings state project cancelled	Area surrounding Monte Vista, CO	1,060	Aircraft dispensers (3)	"	"	120 to 600
31	73-031	"	Colorado River Municipal Water District P. O. Box 869 Big Spring, TX 79720	Rainfall increase 4/15/73-11/15/73	11/1/72-	Area surrounding Colorado City, TX	3,000	" (1)	Pyrotechnics	AgI	120 to 240
32	73-032	Plains Weather Improvement Assoc., Inc. P. O. Box 1627 Plainview, TX 79072	Plains Weather Improvement Assoc., Inc. P. O. Box 1627 Plainview, TX 79072	Hail decrease 4/5/73-11/30/73	4/1/73-12/1/73	Texas high-plains	950	"	Pyrotechnics end burning flares mounted on racks	"	1,020 to 3,000

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33	73-033	Lawrence County Winter Sports, Inc. Box 392 Deadwood, SD 57732	Lawrence County Winter Sports, Inc. Box 392 Deadwood, SD 57732	Snowpack Increase 2/73-3/73	2/5/73-3/5/73	3 mi. SW. of Lead, SD	2	Ground-based dispensers	Generators (3)	1%-2% AgI in acetone	5
34	73-034	Atmospherics, Inc. 5652 East Dayton Fresno, CA 93727	South Dakota Weather Control Commission 104 South Pierre Pierre, SD 57501	Hail decrease and rainfall decrease 5/1/73-8/31/73	5/73-	SE. SD	10,660	Aircraft dispensers (4)	Pyrotechnics and liquid fuel generators	AgI AgI-NH_4I	120 600
35	73-035	"	"	"	5/73-	South Central SD	7,850	" (3)	" "	" "	" "
36	73-036	"	"	"	5/73-	North Central SD	7,020	" (3)	" "	" "	" "
37	73-037	Weather Modification, Inc. 301 1st St. West Bowman, ND 58623	Four County Weather Modification Assoc. c/o Bill Keller New England, ND 58647	Hail decrease and rainfall increase 5/1/73-8/31/73	5/1/73-8/31/73	SW. ND	5,000	" (4)	" "	AgI	65 to 130
38	73-038	"	South Dakota Weather Control Commission 104 South Pierre Pierre, SD 57501	Hail decrease and rainfall increase 5/1/73-8/31/73	5/1/73-9/1/73	NE. and NW. SD	13,384	" (5)	" (24) "	" 2% AgI solution	range from 65 for rain to 4930 for hail

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39	73-039	San Bernardino Valley Municipal Water District 1350 South E St. San Bernardino, CA 92412	San Bernardino Valley Municipal Water District and Mojave Desert Resources Conservation District 1350 South E St. San Bernardino, CA 92412	Precipitation increase 11/13/72-4/1/73	10/1/72-4/1/73	San Bernardino County, CA	625	Ground-based dispensers	Propane-fired generators	AgI in an ammonium iodide-acetone solution	300
40	73-040	Weather Science, Inc. P.O. Box FF Norman, OK 73067	South Dakota Weather Control Commission 104 South Pierre Pierre, SD 57501	Hail decrease and rainfall increase 5/15/73-8/31/73	5/73-9/73	Rapid City, SD area	5,600	Aircraft dispensers (2)	Brewer-Lonse acetone generators (2) Pyrotechnics "	2% silver iodide-ammonium iodide solution	290
41	73-041	Edwin I. Boyd 211 Ray Ann Ct. Rapid City, SD 57701	Walter K. Yuly (ND Tri-County Project) 417 NW 25 Minot, ND 58701	Hail decrease and rainfall increase 6/1/73-8/31/73	6/1/73-8/31/73	McKenzie, Mountrail and Ward Counties, ND	6,600	" (4)	Generators (2 in each aircraft)	3% AgI in acetone solution with ammonium iodide as the carrier	For rain: 10 to 20 For hail: 150
42	73-042	Jerome Eden Box 34 Careywood, ID 83809	Jay Volkman Rusty Scupper Inn and Marina Bayview, ID 83803	Rainfall increase 6/8/73-11/30/73	6/8/73-10/14/73	Southern tip of Lake Pend Oreille, ID (Bayview) and possibly also in Careywood, ID (approx. 3 mi apart)	(approx.) 144	"Cloud-buster"	2 to 10 hollow steel pipes 10' by 2" grounded into water by box cables	-	-

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Map Code	Report	Operator and address	Sponsor and address	Purpose and proposed operation dates	Actual operation dates	Target location	Target area (mi^2)	Technique	Apparatus	Agent	Dispensing rate (g/hr/unit)
43	73-043	Weather Modification, Inc. 301 1st St. West Bowman, ND 58623	Central Burleigh County Weather Assoc. Dakota National Bank Bismarck, SD 58501	Hail decrease and rainfall increase 5/21/73-8/15/73	5/17/73-8/31/73	Central Burleigh County, ND (North of Bismarck)	720	Aircraft dispensers	Liquid fuel generators (2)	AgI in 4% solution	240
44	73-044	Edward W. Pell 301 Stenton Ave. Plymouth Meeting, PA 19462	Oranur Research Laboratories Ottsville, PA 18942	Removal of "deadly orgone radiation (DOR)" from the atmosphere 6/13/73-6/17/73	6/13/73-6/17/73	New York City and environs	Indeterminate	"Cloudbuster"	10 aluminum tubes and 10 lengths of cable connecting tubes to pool of water	-	-
45	73-045	Irving P. Krick, Inc. of Texas 611 South Palm Canyon Drive Suite 216 Palm Springs, CA 92262	South Central Michigan Weather Modification Assoc. 16300 13 Mile Rd. Battle Creek, MI 49017	Precipitation increase 6/15/73-8/31/73	6/15/73-8/31/73	Most of Calhoun County and part of Jackson City, MI	709	Ground-based dispensers	Arc-type burners	AgI	0.5
46	73-046	"	Gratiot County Weather Modification LTD County Courthouse Ithaca, MI 48847	Precipitation increase 6/15/73-8/31/73	6/15/73-8/31/73	Most of Gratiot County, MI	530	"	"	"	"

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47	73-047	Jamestown Aviation, Inc. Box 1128 Jamestown, ND 58401	Stutsman County, ND	Hail decrease and rainfall increase 6/14/73-8/31/73	6/14/73-9/3/73	Stutsman County, ND	2,304	Aircraft dispensers	Pyrotechnic end burning flare rack (16 units) and cartridge photoflash unit (26 units)	AgI	320 24 each
48	73-048	"	Eddy County, ND	Hail decrease and rainfall increase 6/16/73-7/30/73	6/16/73-7/29/73	Eddy County, ND	648	"	Pyrotechnic end burning flare rack (32)	"	320
49	73-049	Irving P. Krick, Inc. of Texas 611 South Palm Canyon Drive Suite 216 Palm Springs, CA 92262	Montcalm County c/o James L. Crosby County Extension Director 617 North State Rd. Stanton, MI 48888	Precipitation increase 7/1/73-8/31/73	7/1/73-8/31/73	Montcalm County, MI	712	Ground-based dispensers	Arc-type burners	"	0.5
50	73-050	Weather Modification, Inc. Box 1017 Bowman, ND 58623	Barnes County Commissioners Barnes County Auditor Valley City, ND 58072	Hail decrease and rainfall increase 7/19/73-9/15/73	7/3/73-9/20/73	Barnes County, ND	900 (approx.)	Aircraft dispensers (1)	Generators (2)	4% AgI solution	110
51	73-051	Irving P. Krick, Inc. of Texas 611 South Palm Canyon Drive Suite 216 Palm Springs, CA 92262	Carter, Murray, Johnston, Love & Jefferson Counties c/o Robert T. Scott 926 SW. Manor Mall Ardmore, OK 73401	Precipitation increase 8/15/73-12/31/74	8/73-	Carter, Murray, Johnston, Love and Jefferson Counties, OK	3,172	Ground-based dispensers	Arc-type burners	AgI	0.5

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52	73-052	North American Weather Consultants Santa Barbara Municipal Airport Goleta, CA 93017	The Washington Water Power Co. P.O. Box 1445 Spokane, WA 99210	Precipitation increase 9/1/73-4/30/74	9/7/73-12/1/73	Coeur d'Alene Watershed, ID	3,700	Ground-based dispensers	Propane generators	AgI	6
53	73-053 (Con. of 73-013)	Sacramento Municipal Utility District 6201 South St. Sacramento, CA 95813	Sacramento Municipal Utility District 6201 South St. Sacramento, CA 95813	Snowpack increase 10/15/73-5/15/74		SW. of Lake Tahoe, CA	236	"	Propane burners (6)	AgI suspended in mixture of NH_4I and acetone	25
54	73-054 (Con. of 73-001)	Aero-Dyne Corp. 300-400 Airport Way Renton, WA 98055	Port of Seattle Seattle-Tacoma International Airport Seattle, WA	Warm fog dispersal 10/1/73-2/29/74	10/73-	Seattle-Tacoma Airport Runways, WA	Less than 1	Aircraft dispensers	Metered hoppers and blowers	Polyelectrolyte	136,200
55	74-055 (Con. of 73-019)	U. of Wyoming Dept. of Atmospheric Resources P.O. Box 3038 Univ. Station Laramie, WY 82070	Eden Farson Irrigation District Farson, WY 82932	Precipitation increase 12/1/73-4/15/74		Big Sandy River Drainage, WY	180	Ground-based dispensers	Propane dispensers	AgI-NH_4I	10-15
56	74-056	Capital Flying Service, Inc. Boise Municipal Airport 3033 Airport Way Boise, ID 83705	Boise Municipal Airport 3000 Airport Way Boise, ID 83705	Disperse supercooled fog 11/10/73-4/1/74		Boise Air Terminal, ID	2	Aircraft dispensers	Dispensing funnel	Dry Ice	56,750

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57	*74-057 (Con. of 73-018)	Interwest Aviation Inc. AMF63 Salt Lake International Airport Salt Lake City, UT 84101	United, Western, American, Frontier, Texas International, and Hughes Air West Airlines International Airport Salt Lake City, UT 84101	Cold fog dispersal (approx.) 11/20/73-3/21/74		International Airport, Salt Lake City, UT	10 (approx.)	Aircraft dispensers	Modified spreader	Dry ice	8,172 to 11,350 g/2 min. run
58	*74-058	Executive Air Corporation P.O. Box 19187 Spokane, WA 99219	Spokane Airports Board P.O. Box 19186 Spokane, WA 99219	Cold/warm fog dispersal 11/8/73-4/15/74		Spokane International Airport, WA	4.7	"	Dispensing hopper	Dry ice and Skylite polyelectrolyte	22,700 g/min. 907 g/min.
59	*74-059 (Con. of 73-021)	Logan and Reavis Air, Inc. Airport Road Medford, OR 97501	Air West and United Airlines c/o United Airlines P.O. Box 66100 Chicago, IL 60666	Cold fog dispersal 11/19/73-2/28/74		Medford-Jackson County Airport, OR	1	" (2)	Suction tube	Dry ice	454,000
60	*74-060 (Con. of 73-023)	Santa Clara County Flood Control Water District 5750 Almaden Expressway San Jose, CA 95118	Santa Clara County Flood Control Water District 5750 Almaden Expressway San Jose, CA 95118	Rainfall increase 11/17/73-4/74		Part of Santa Clara County, CA	700	Ground-based dispenser	Generators	Silver Iodide	25
61F	*74-061F	EG&G, Inc. Environmental Services Operation P.O. Box 58 Durango, CO 81301	Bureau of Reclamation Bldg. 67 Denver Federal Center Denver, CO 80225	Weather modification research and precipitation increase 11/22/73-5/15/74		SE San Juan Mountains, CO	1,300	"	Generators (15 remotely and 20 manually controlled)	Acetone solution of 4% AgI and 1.25% NaI	20 to 140 each generator

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62	*74-062	Des Moines Flying Service, Inc. Municipal Airport Des Moines, IA 50315	United Airlines P.O. Box 8800 O'Hare International Airport Chicago, IL 60666	Cold fog dispersal continuing		Eppley Field Omaha, NE	2	Aircraft dispensers	Electric operated, reverse auger dispenser equipped w/ a 100-lb capacity hopper	Dry ice	22,700 g/min.
63	*74-063	"	"	"		Des Moines Municipal Airport Des Moines, IA	"	"	"	"	"
64	*74-064	"	"	"		Cedar Rapids Municipal Airport Cedar Rapids, IA	"	"	"	"	"
65	*74-065	"	"	"		Quad-City Airport, Moline, IL	"	"	"	"	"
66	*74-066	Aviation Service, Inc. c/o Norman R. Sahm 1880 Gentry Way Reno, NV 89502	City of Reno Reno International Airport Reno, NV 89502	Cold fog dispersal 12/10/73-"Unknown"		Reno International Airport Reno, NV	4 - 6	"		"	

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67	*74-067	North American Weather Consultants Santa Barbara Municipal Airport Goleta, CA 93017	Southern Utah Water Development Corp. Centerfield, UT 84622	Rainfall increase 1/1/74-5/30/74		Beaver, Emery, Garfield, Iron, Juab, Kane, Millard, Piute, Sanpete, Sevier, Washington, and Wayne Counties in SW. UT	40,000	Ground-based dispensers	Propane generators	AgI	6
68F	*74-068F	"	Bonneville Power Administration P.O. Box 3621 Portland, OR 97208	Precipitation increase 1/1/74-4/30/74		South Fork of Flathead River above Hungry Horse Dam, MT	1,654	"	"	"	"

* A report number beginning with 74 indicates an activity reported after November 1, 1973