A PRACTICUM EXERCISE
FOR
THE EXPERT WITNESS
TRAINING ACADEMY
(EWTA)

WILLIAM MITCHELL COLLEGE OF LAW*

05-15-13

Advocacy Training Options

- **Trial (Court / Jury)**
- **Negotiation/Mediation**
- **Motions / Oral Argument**
- **Depositions**
- **Expert Witnesses**

City of Shields Falls, et al.,** Plaintiffs
v.
State of Midstate, Midstate Department of Natural Resources–Water Conservation, Weather Modification Board, and its individual members, Rain Makers, Inc. and Hugh Fitzpatrick, Defendants

****Funded by the National Science Foundation Paleoclimate Program***
***Includes the estates of deceased, injured parties and businesses. (See Complaint.)*

City of Shields Falls, et al.
v.
State of Midstate, Midstate Department of Natural Resources–Water Conservation, Weather Modification Board, and its individual members, Rain Makers, Inc. and Hugh Fitzpatrick

By: Dr. Linda Thorstad, John Sonsteng, Dr. David Verardo,
Eileen Scallen, Jim Hilbert and Jennifer Miller

THE PRACTICUM EXERCISE

The **PRACTICUM EXERCISE** is an effective tool for assisting attorneys and students in developing and improving effective **Advocacy Skills**.

The **PRACTICUM EXERCISE** is self contained and has all necessary information. No outside research is required.

Advocacy Training Options
The **PRACTICUM EXERCISE** may be used in the following **Advocacy** Training Programs:

• Trial (Court/Jury) • Negotiation • Mediation • Depositions
• Motions/Oral Argument • Expert Witnesses

The **PRACTICUM EXERCISE** contains the following:

- ***Party and Witness Statements/Depositions***
  The statements/depositions of the parties and witnesses are included in the exercise materials.

- ***Procedural and Factual History***
  The Procedural and Factual History provides an introduction and the legal and factual background of the exercise.

- ***The Facts***
  The facts are complete.

- ***Applicable Law***
  This section contains applicable law.

- ***The Pleadings***
  The pleadings are complete and accurate.

- ***Case and Strategic Analysis***
  The case and strategic analysis is a preliminary guide. It provides the basis for a more sophisticated analysis, preparation and performance.

Supplemental Learning and Teaching Materials

The Supplemental Learning and Teaching Materials are located on the CD.

- ***Planning Guide and Check List***
  The Planning Guide and Check List is an outline that assists in the preparation of legal substance and presentation. It provides the basis for more detailed planning.

- ***Learning Objectives***
  The Learning Objectives provide a method to measure achievement.
  Oral – the oral learning objectives assist in planning and delivering the assigned oral skill.
  Written – the written learning objectives assist in developing and presenting both written and oral skills.

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INTRODUCTION

William Mitchell College of Law in cooperation with the National Science Foundation is hosting the Expert Witness Training Academy (EWTA) to train expert witnesses to effectively communicate expert witness knowledge, research, testing methodology and experience.

During the Academy workshop, expert witnesses will work with experienced advocacy teachers to train and discuss how best to provide technical scientific data in a court of law and other advocacy venues. The Academy will incorporate legal theory and practice, consistent with William Mitchell's interactive and collaborative teaching methodology.

Expert witnesses in the Expert Witness Training Academy will engage in the following:

- Media interview,
- A Legislative hearing (with members of the Midstate State Senate and House of Representatives),
- Depositions,
- Non-binding arbitration, and a
- Jury trial.

PROCEDURAL AND FACTUAL HISTORY

ASSUME THE DAYS AND DATES IN THIS EXERCISE ARE ACCURATE.

The following facts and procedures are agreed to by the parties and must be accepted by them. These facts may be considered as agreed evidence and may be used in the opening statement and closing argument.

BRIEF BACKGROUND HISTORY

On June 13, 2005, after five years of severe drought in the eastern half of the State of Midstate, the city of Shields Falls in Falls County suffered a severe flood following torrential rains. Preceding the torrential rains was a cloud seeding operation with permits granted by and under the laws of Midstate. The catastrophic flooding caused the deaths of fourteen people and injured hundreds, nearly destroying the city of 7,800 citizens. Many businesses were lost, causing a disastrous economic impact on the surrounding community. The Falls River and Shields Falls Creek have never flooded in historical record nor has there been flood damage or rainfall of this magnitude in Shields Falls prior to the flood of June 13, 2005.

Following the disaster, members of the media interviewed both parties. In September, a joint panel of the Midstate House of Representatives and Senate conducted a hearing during which Jan Wiegard, Ph.D. and D.J. Hillstone, Ph.D., J.D., were asked to testify.

On February 4, 2008, a class action lawsuit was filed on behalf of Shields Falls' individuals who were injured, business owners of Shields Falls whose livelihoods were destroyed by the flood, the city of Shields Falls and Falls County against Midstate, the Midstate Department of Natural Resources--Water Conservation, the Weather Modification Board and its members (who granted the permit), Rain Makers, Inc. and Hugh Fitzpatrick (the company and individuals who conducted the cloud seeding operation).

Under the terms of the Weather Modification Permit the parties participated in a non-binding arbitration.

PARTY AND EXPERT WITNESS REPORTS, EMAILS AND STATEMENTS

The reports, emails and statements are comprised of information provided by witnesses, and have been adopted by them as true and correct. Accordingly, they may be used as is appropriate under the Rules of Evidence. When testifying, each witness may only add non-substantial facts which are consistent with the case file. Significant substantive facts may not be added.

EXHIBITS AND DOCUMENTS

The exhibits and documents are all authentic. Witness testimony provides both legal and persuasive foundation for exhibits. The exhibits may be marked separately (e.g., Exhibit 1, Exhibit 2, etc.) or, the page number at the bottom of page can serve as the exhibit number. If the exhibit has more than one page, the first page of the exhibit can serve as the exhibit number and the number of pages contained in the exhibit can be found at the top of the page.

DETAILED TIME LINE OF SIGNIFICANT DATES

See Syllabus for Assignments

2004

Monday, March 1

- Rain Makers, Inc. applies for license to conduct weather modification in Midstate.

Thursday, April 1

- Rain Makers, Inc. receives approved license to conduct weather modification in Midstate for a period of 4 years – Thursday, April 1, 2004, to Thursday, April 2, 2008.

2005

MAY

Monday, May 2

- Rain Makers, Inc. applies for Weather Modification Permit.

Monday, May 16

- Hearing before the three Member Weather Modification Board.
  - Executive Director - Parker Shaw (in favor of weather modification)
  - Board Member #2 - Richard Greenwald (neutral)
  - Board Member #3 - J.C. Hallberg (against weather modification)
- Testimony by scientific experts.
  - Jan Wiegard, Ph.D. (Rain Makers, Inc.) (in favor of weather modification)
  - D. J. Hillstone, Ph.D., J.D. (Earth's Natural Circle, citizens and business owners of Midstate) (against weather modification)
  - During the hearing Director Shaw expresses favorable position for proposal. Board Member Hallberg expresses opposition. Board Member Greenwald is undecided. Oral testimony taken.
- NO VOTE TAKEN. OUTCOME = NO DECISION IS MADE.

May 17 - June 23

- Emails exchanged between board members.

Monday, May 23 [ONE WEEK AFTER BOARD HEARING]

- Executive Director writes memorandum and approves permit for Rain Makers, Inc. on his own decision under emergency Statute 36-66-107(3) which grants permits in cases of fire, frost, hail, sleet, smog, fog, drought or other emergencies.
- Newspaper article where Director has given approval.

DETAILED TIME LINE OF SIGNIFICANT DATES (continued)

2005

Monday, May 30 [ONE WEEK AFTER HEARING]

- Rain Makers, Inc. publishes first Notice of Intent (NOI) in Metropolitan News for project of rain enhancement over Prairie County. Rain Makers, Inc. fails to publish any further NOI.

JUNE

Friday, June 3 [FOUR DAYS AFTER PUBLISHING FIRST NOI]

- Rain Makers, Inc. emails Director and says weather will be perfect for seeding over the next 10 days due to predicted favorable weather forecast. (Rain Makers, Inc. receives NO exception for not publishing second NOI.)

Monday, June 13

RAIN MAKERS, INC. SEEDS THE CLOUDS. RAIN AND FLOODING OCCURS IN SHIELDS FALLS.

- Major flooding in Shields Falls occurs due to severe storms following weather modification and cloud seeding causing severe damages in Shields Falls.
- Fatalities, buildings destroyed, businesses lost, infrastructure destroyed.

SEPTEMBER

Wednesday, September 7

- **Legislative Hearing** (State Senate / House). All parties participate in hearing.
  - Weather Modification Board:
    - Parker Shaw, Executive Director (in favor of weather modification)
    - Richard Greenwald (neutral)
    - J.C. Hallberg (against weather modification)
  - D. J. Hillstone, Ph.D., J.D. (Earth's Natural Circle, citizens and business owners of Midstate) expert witness in weather modification gives initial report and follow-up report. Testified against weather modification at initial board hearing.
  - Jan Wiegard, Ph.D. (Rain Makers, Inc.) expert in weather modification gives initial report and follow-up report. Testified in favor weather modification at initial board meeting.

DETAILED TIME LINE OF SIGNIFICANT DATES (continued)

2008

FEBRUARY

Monday, February 4 - COMPLAINT FILED - CIVIL CLASS ACTION LAWSUIT

- Under Midstate statute with a three year statute of limitations, a class action lawsuit was filed by individuals, businesses and government agencies of Shields Falls, Falls County (people, businesses ruined, relatives of deceased, farming community) alleging significant damages caused by the negligence of Midstate, Midstate Department of Natural Resources–Water Conservation, Weather Modification Board and its members individually, Rain Makers, Inc. and Hugh Fitzpatrick.
- Plaintiffs - Citizens of Shields Falls, et al.* sue:
  - Midstate Department of Natural Resources–Water Conservation, Weather Modification Board and its members individually (Board is gone–new board members)
  - State of Midstate
  - Rain Makers, Inc. and CEO, Hugh Fitzpatrick (company now out of business)

Thursday, February 14

- Answer (response from the Defendant)
- Denial of Negligence

2009-2010

NOVEMBER 2009 TO MAY 2010

Depositions of witnesses are taken.

**Includes the estates of deceased, injured parties and businesses. (See Complaint.)*

DETAILED TIME LINE OF SIGNIFICANT DATES (continued)

2010

SEPTEMBER

Friday, September 10 - NON-BINDING ARBITRATION HELD (Liability only) - Pursuant to Article 36-66-117(b) for Non-Binding Arbitration

Expert witnesses in arbitration.

Witnesses are:

- For Plaintiffs
    - D. J. Hillstone, Ph.D., J.D. (Earth's Natural Circle, citizens and business owners of Midstate)
- For Defense
    - Jan Wiegard, Ph.D. (Rain Makers, Inc.)

Reports are all public record.

2011

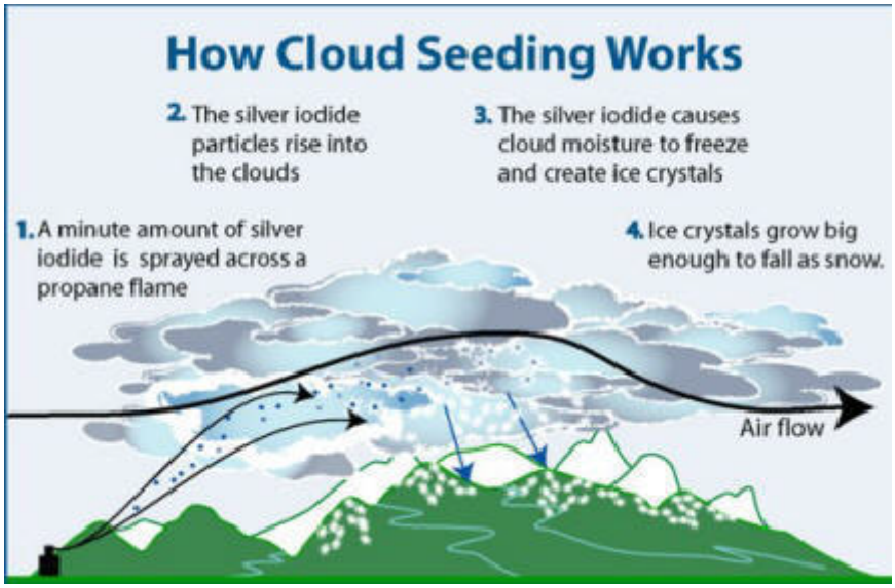
AUGUST

Friday, August 12 - JURY TRIAL (Liability only)

WEATHER MODIFICATION BACKGROUND

Weather modification activities have taken place in the United States for many decades. In 1946 Vincent Schaefer scattered dry ice onto the top of an upper cooled stratified cloud over the mountains of Schenectady, New York. Within minutes, the seeded portion of the clouds was transformed into a mass of snow crystals. This type of seeding is called glaciogenic seeding and uses silver iodide or dry ice as seeding agents.[1] There are many types of weather modification: ground and airplane based snowpack augmentation, airplane and ground rain augmentation, hail and fog suppression and acoustical hail suppression that uses sound cannons to disrupt cloud processes (e.g. hail cannons).[2]

In 1989, thirteen states were involved in weather modification activities covering about 56,000 square miles.[3] By 2009, The American Meteorological Society indicates seventeen states and one Canadian Province had weather modification programs.[4]



[5]

[1] http://cwcb.state.co.us/water-management/water-projects-programs/Documents/WeatherModification/CloudSeeding.pdf

[2] *Ibid.*

[3] Orville, "A Report on the Conference on the Science and Technology of Cloud Seeding in the Black Hills," 71 BULL. AM. METEOR. SOC'Y (1990).

[4] North American Interstate Weather Modification Council at: http://www.naiwmc.org/.

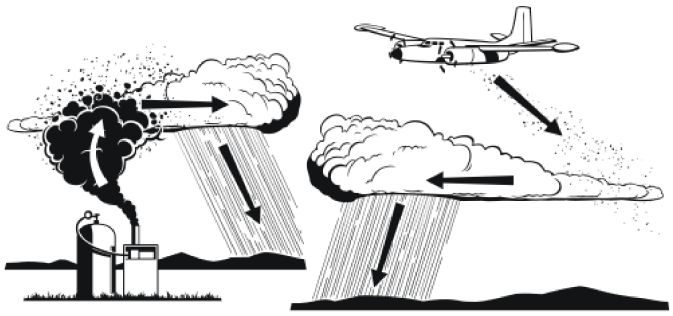
[5] Orville, "A Report on the Conference on the Science and Technology of Cloud Seeding in the Black Hills," 71 BULL. AM. METEOR. SOC'Y (1990).

Primary Cloud Seeding Methods

There are two primary methods employed to stimulate precipitation. One, hygroscopic seeding, affects warm clouds. The other, glaciogenic seeding, initiates cold cloud processes.

Though occasionally both techniques may be helpful, in most cases one can be utilized more effectively than the other. In addition, either technology can be applied from the surface (ground-based) or from an aircraft.[6]

Seeding from ground Seeding from aircraft



Enhancing Rainfall

Efforts to increase rainfall during the warm seasons are typically aimed at convective clouds. While it is theoretically possible to seed such clouds using ground-based equipment, targeting from aircraft is much more efficient and accurate. It is usually possible to affect the clouds through releases of a seeding agent in sub-cloud updrafts, or by dropping the seeding agents directly into the upper regions of the clouds.

Warm season glaciogenic seeding is typically applied to treat supercooled cumulus congestus clouds, either by releasing the ice-forming (nucleating) seeding agent in the updrafts beneath the actively-growing cumulus, or by dropping the nucleating agent directly into the supercooled cloud tops. The seeding agents can produce ice at significantly warmer temperatures than the natural process. This is how glaciogenic seeding gives treated clouds a head start in producing precipitation.

When clouds do not grow tall and cold enough to produce precipitation through the Bergeron process (also known as the cold rain or ice crystal process and is the formation of precipitation in the cold clouds of the mid and upper latitudes by ice crystal growth), it may be possible to stimulate precipitation growth by seeding these warm clouds with hygroscopic seeding (the treatment of a cloud with the intention of stimulating the development of larger cloud droplets), which can lead to the activation of the warm clouds or collision-coalescence precipitation process. This approach can be quite successful. Hygroscopic seeding is normally done from aircraft flying in the sub-cloud updrafts, in order to affect the initial cloud droplet development which occurs in this zone.

[6] Guidelines for Cloud Seeding to Augment Precipitation, 2nd ed. American Society of Civil Engineers. ASCE Manuals and Reports on Engineering Practice No. 81, 2006.

Liability for Weather Modification Operations[7]

Changes in weather due to weather modification can bring unwanted rainfall, snowfall, droughts, or floods.[8]

Weather modification can adversely affect:

- Social environment
- Psychological environment
- Loss of life
- Property loss
- Environment, causing:
  - Wildlife – big game loss or extermination
  - Changes in migratory patterns
  - Increased population of weeds and pests
  - Property loss

Causation

Causation is difficult, if not impossible, to prove even with satellites, computers and technical equipment. In order to establish causation, plaintiffs must convince the court that:

1. weather modification attempt in question actually altered the weather,
2. weather modification was the cause of plaintiffs' damages, and
3. damage would not have occurred otherwise.

Problems of Proof

Plaintiffs must use expert witnesses, scientific data and statistics, however, each source can be problematic.

1. Expert witnesses are reluctant to testify because they fear their testimony may retard growth in the field of weather modification and generate professional animosity. It is difficult to establish the expert's credibility and often experiences and opinions lead to conflicting testimony.
2. Scientific data is often incomplete or inaccurate and is limited due to variability of clouds and storm systems, but is useful in long-range patterns for an area.
3. Statistics are generally not admissible in evidence as they are essentially evidence of out-of-court experiments.

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[7] Information contained in and summarized from articles written by: Jones, Gregory N., "Weather Modification: The Continuing Search for Rights and Liabilities," BRIGHAM YOUNG UNIV. L. REV., Vol. 1991, pp. 1163-1199, 1991; Standler, Ronald B., "Weather Modification Law in the USA," 2006, http://www.rbs2.com/weather.pdf

[8] Ray J. Davis, "Strategies for State Regulation of Weather Modification," in Controlling the Weather: A Study of Law and Regulatory Procedures. Edited by Howard J. Taubenfeld. Published by the Dunellen Company, Inc., New York, 1970, *supra* note 11, p.181.

Weather Modification Legal Case History

Dodd v. McLeod (late 1800s). Because of severe drought conditions, Minister Duncan McLeod organized a collective prayer. One hour later, a storm system moved in. The severe thunderstorm drenched the town with two inches of rain. The town's bridge washed out and lightning struck Phinneas Dodd's hay barn which burned to the ground. Dodd sued, claiming loss of his barn was the result of prayers. The court dismissed on grounds McLeod prayed for rain, and said lightning was a gratuitous gift from God. Dodd failed to prove prayers caused damage to his barn.

In 1916 the *City of San Diego* hired Charles Hatfield. Hatfield claimed he could make rain by using chemicals. There was a bad rainstorm after he began work. Rain washed out a dam causing loss of life and property. One million dollars in claims were filed against the city. Court determined Hatfield did not cause injuries–storm was an act of God.

Slutsky v. City of New York (1950). City faced a water emergency and wanted to conduct experiments on rainmaking. Plaintiffs, owners of a vacation resort near New York City, sought a temporary injunction. Court said "plaintiffs clearly have no vested property rights in clouds or the moisture therein." The court also held plaintiffs failed to prove weather modification would result in irreparable injury to plaintiffs. Held for city because weather modification would promote general welfare and public good, while a danger plaintiffs were exposed to was purely speculative.

Samples v. Irving P. Krick, Inc. (1954). First weather modification case sent to a jury. Oklahoma City sponsored Krick, Inc. to seed clouds on river watershed. While seeding, a cloudburst and flood occurred. Landowner suffered harm from flood and sued Krick for negligence to seed clouds under existing conditions. Jury's verdict was for defendant.

Auvil Orchard Co. v. Weather Modification, Inc. (1956). Plaintiff alleged defendant's hail suppression caused flash flooding which damaged plaintiff's property. Plaintiff was granted a temporary restraining order, which court later refused to make permanent. Court relied on expert testimony that hail prevention had not been responsible for flash flood. Plaintiff failed to establish causation.

Adams v. California (1964). Plaintiffs claimed operation of silver iodine generators in snowpack augmentation project increased flow of river. River broke through levees, claimed lives and resulted in millions of dollars in damage. Case went to court, but sponsor and seeder were dropped from case. Plaintiffs failed to prove that cloud seeding produced significant increase in rainfall or snowfall. Plaintiffs recovered from state for mismanagement of the flood.

Pennsylvania Natural Weather Association v. Blue Ridge Weather Modification Association (1968). Defendants carried on a hail mitigation program in Fulton County. Fulton County had experienced severe drought conditions for two years. Plaintiffs sought injunction against hail suppression effort, claiming it caused drought. Court said "weather in its natural form is a natural incident of land ownership." Injunction was denied because there had been no proof of "more than the *possibility* of future harm."

Southwest Weather Research, Inc. v. Duncan (1959). Plaintiff succeeded in proving losses resulted from a cloud seeding effort. Expert witnesses were used by both plaintiff and defendant and disagreed about causation. Trial judge relied upon testimony of eyewitness ranchers and granted a temporary restraining order against hail suppression program.

Legal Issues and Weather Modification
COMMON LAW

a. Trespass – weather modification involves dissemination of seeding materials into the atmosphere by aircraft or ground-based generators. Aircraft flight is not trespassing unless it is in immediate reaches of air space. Rain, hail, snow or seeding materials could be trespassing if they fall on lands owned by others.

b. Nuisance – invasion of another's interest in the private use and enjoyment of land, if the invasion is intentional and unreasonable. Nuisance is determined by balancing gravity of harm against utility of the conduct. Nuisance is a "catch-all" in law of torts.[9]

Slutsky case – the court balanced conflicting interests between a remote possibility of inconvenience to plaintiff's resort and guests against the problem of maintaining and supplying New York City inhabitants and surrounding area with adequate supply of pure and wholesome water. Court held for defendant. Facts were not compelling for plaintiff–only speculated as to future harms. The defendant was promoting the public good.

A model Weather Modification Control Law takes a broader approach. It provides dissemination of weather modification agents into the atmosphere and shall not in itself give rise to any cause of action.

c. Negligence

The plaintiffs have the burden of proving that:

1. defendants had a duty to conform to the standard of care for the protection of plaintiffs,
2. the defendants breached that duty,
3. such breach is a legal cause of the harm suffered by plaintiffs, and
4. the plaintiffs have suffered harm of a kind legally compensable by damages.[10]

Expert testimony often is used in defining the standard of care which a weather modifier uses. The Restatement (Second) of Torts helps somewhat in determining the standard of care.[11]

The standard of conduct of a reasonable man may be:

(1) established by a legislative enactment or administrative regulation which so provides, or
(2) adopted by the court from a legislative enactment or an administrative regulation which does not so provide, or
(3) established by judicial decision, or
(4) applied to the facts of the case by the trial judge or the jury, if there is no such enactment, regulation, or decision.[12]

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[9] State statutes were enacted for nuisance liability in two states. Both rejected notion of liability if nuisance could be predicated on dissemination of weather modification agents into the atmosphere. Colorado – COLO. REV. STATE § 36-20-123(1) (1973) and Utah – UTAH CODE ANN. § 73-15-7 (1989) (1973).

[10] RESTATEMENT (SECOND) OF TORTS § 328 A (1965).

[11] RESTATEMENT (SECOND) OF TORTS § 285 (1965).

[12] Some states mention negligence in weather modification statutes. They reaffirm the right to impose liability based on negligence of intentional torts. Courts can impose liability based on negligence without being empowered by legislature to do so. Illinois (ILL. ANN. STATE. Ch. 111 § 7339(c)); North Dakota (N.D. CENT. CODE § 61-04.1-37.3

d. Negligence per se

Some states have adopted statues which make failure to comply with state weather modification regulations, negligence per se.[13]

e. Strict liability for abnormally dangerous activities

One who engages in abnormally dangerous activities is subject to strict liability for harm to person or property, despite exercising the utmost care to prevent such harm.[14]

Court considers the following factors:

1. high degree of risk of harm,
2. likelihood that harm will be great,
3. inability to eliminate the risk by exercise of reasonable care,
4. extent to which the activity is not a matter of common usage,
5. inappropriateness of the activity to place where it is carried out, and
6. extent to which its value to the community is outweighed by its dangerous attributes.[15]

If strict liability applies, it minimizes the problems of proof. Claimant need not establish modifier intended to do any harm, or fell below standard of care, but must establish that she/he was injured, there was casual relationship between activity and injury, and weather modification activity was the sort that gives rise to liability without fault.

The Task Group on the Legal Implications of Weather Modification

The Task Group considered if weather modification was an abnormally dangerous activity. Their findings were: while it is always argued creation of standard of no fault liability tends to hamper the development of an industry or technology, there seems no immutable reason to favor the development of the industry and technology at the expense of those who lose therefrom. The Task Group took the position that strict liability is appropriate for weather modification activities.[16]

f. Surface water law

When surface water is channeled onto neighboring property, disputes between landowners develop and disputes are settled in court. Some states resolve disputes by:

(1985)); and Wisconsin (WISC. STAT. ANN. § 93.35(14)(c) (West 1990)).

[13] Colorado (COLO. REV. STAT. § 36-20-123(2)(a) (1973)); Illinois (ILL. ANN. STATE. Ch. 111 § 7339(d)); and Wisconsin (WISC. STAT. ANN. § 93.35(14)(d) (West 1990)). Adopted statues which make failure to comply with state weather modification regulations, negligence per se. Colorado statute states: "Failure to obtain a license or permit before conducting an operation, or any actions which knowingly constitute a violation of the conditions of a permit, shall constitute negligence per se." Michigan adopted provision giving private parties the right to sue for violation of weather modification act. Provides for exemplary damages, actual damages, and attorneys' fees. Michigan (MICH. COMP. LAWS ANN. § 295.127 (West 1984)).

[14] RESTATEMENT (SECOND) OF TORTS § 519 (1965).

[15] RESTATEMENT (SECOND) OF TORTS § 520 (1965).

[16] Illinois, North Dakota and Wisconsin have modification statutes which explicitly declare that weather modification activities are not abnormally dangerous and modifiers are not subject to strict liability. The model Weather Modification Control Law also has similar provisions.

a. "Common enemy" doctrine excuses an actor from any responsibility.
b. "Civil law" rule imposes liability without regard to whether the person acting is at fault.
c. "Reasonable man" rule balances reasonableness of landowner's conduct in seeking protection against the severity of the harm caused by other landowners.

AFFIRMATIVE DEFENSES

1. Consent – by an agreement entered into prior to weather modification activities (this is an important defense).
2. Public necessity – right to protect public from imminent disaster by performing acts which might otherwise be tortuous. As in when fighting a fire, drought, or hail. Weather modification which attempts to protect public or relieve an emergency situation could give rise to the public necessity defense.

REMEDIES

1. Injunctions,
2. Damages, and
3. Permanent damages.

Weather-modifiers should purchase insurance. However, many insurance companies refuse to insure these activities because of uncertainty of risks.

STATE IMMUNITY[17]

1. Political opposition to cloud seeding.
2. Constitutional limits on state's ability to immunize itself.
3. Property damage caused by state weather modification could result in unconstitutional "taking."

WHO OWNS THE CLOUDS? LANDOWNER'S RIGHTS.

Three past cases had inconsistent conclusions to these questions.

1. *Slutsky v. City of New York*, 197 Misc. 730, 97 N.Y.S.2d 238 (1950). Court concluded property owners clearly have no vested property rights in the clouds or the moisture therein.

2. *Southwest Weather Research, Inc. v. Rounsaville,* 320 S.W.2d 211 (Tex. Civ. App. 1958), *aff'd sub nom. Southwest Weather Research, Inc. v. Jones*, 160 Tex. 104, 327 S.W.2d 417 (1959). Court stated that a landowner is entitled to such precipitation as Nature designs to bestow. Landowner is entitled to such rainfall as may come from clouds over his own property that Nature, in her caprice, may provide. But the court does not imply landowner has right to prevent or control weather modification over land not his own.

3. *Pennsylvania Natural Weather Association v. Blue Ridge Weather Modification Association.* 44 Pa. D. & C2d (1968). Court considered above cases (*Slutsky, Rounsaville and Jones*) and reasoned inherent in ownership of land is the right to use it; and that the right to use land, without the right to use it in its natural condition, is valueless. Court concluded that a landowner has some "right" in the clouds, or more specifically, in the moisture in the clouds.

[17] Colorado is the only state declaring that the state and its agents and officers are immune from liability for weather modification operations approved or conducted by them. COLO. REV. STAT. § 36-20-122 (Supp. 1989). Illinois, Michigan, North Dakota, Washington, Wisconsin and Wyoming have statutes which state that nothing in the acts should be construed to impose or except liability for certain groups.

RIGHTS OF WEATHER MODIFIERS TO "NEW WATER" THEY PRODUCE

Modifiers **may** claim:

1. If weather modification results in "new water" not previously part of river system, it is known as "developed water."
2. "Developed water" rights go to the developer to use or store.

Ownership questioners **may** answer the claim:

1. How do you know you increased snowfall that would have occurred naturally without your efforts?
2. If increased snowfall occurred, can you demonstrate that it was as great as you claim from you inducing it?
3. How much water will flow into streams and be available for diversion, as opposed to being evaporated or lost by transpiration, or become part of the groundwater?
4. How can one know that water which does reach the stream is available in time and in amount for the proposed diversion or impoundment?

States assert sovereign ownership of atmospheric waters (for regulatory powers).

1. Montana claims ownership of atmospheric resources through its constitution.
2. California and Utah declare that waters developed through weather modification are distributed as if natural precipitation.

ADMINISTRATIVE SOLUTION[18]

The limitations of the judicial system regarding weather modification lead to the creation of administrative agencies in some states (Nebraska and Utah). These agencies carry out some functions that courts find impossible or impracticable to do. They are staffed with experts in the field of weather modification and are more flexible than legislators. Staffing might include meteorologists, ecologists, hydrologists and engineers.

Typical state weather modification statutes call for:

1. Licensing of operator of project.
2. Showing operator is scientifically qualified.
3. Showing that principal parties are financially able to pay damages for potential liability.
4. An evaluation of their operations filed with appropriate state agency.

[18] See state statutes on weather modification and license/permit system for: Arizona, California, Colorado, Florida, Illinois, Indiana, Louisiana, Michigan, Minnesota, Montana, New Mexico, North Dakota, Oklahoma, Oregon, Pennsylvania, South Dakota, Washington, West Virginia, Wisconsin and Wyoming.

WITNESSES (The Witnesses May Be Male or Female.)

Weather Modification Board Hearing - 2 Expert Witnesses and their Initial Reports

IN FAVOR:

- Rain Makers, Inc.'s expert, Jan Wiegard, Ph.D., gives oral testimony based on initial written report that cloud seeding is safe, prevailing winds are good, the science is well known and perfectly safe.

AGAINST:

- Expert D.J. Hillstone, Ph.D., J.D., gives oral testimony based on initial written report on behalf of environmentalists against weather modification. Cloud seeding is not safe, never has been proven effective, and very dangerous.

Legislative Hearing - 2 Expert Witnesses - Initial Reports and Follow-Up Reports

IN FAVOR:

- Rain Makers, Inc.'s expert, Jan Wiegard, Ph.D., gives oral testimony based on written follow-up report which indicates it was an act of God and the cloud seeding itself did not have any bearing on the torrential rains.

AGAINST:

- Expert D.J. Hillstone, Ph.D., J.D., gives oral testimony based on written follow-up report which blames flooding on cloud seeing operation and carelessness of process.

Arbitration and Trial - 4 Expert Witnesses

IN FAVOR:

- Rain Makers, Inc.'s expert, Jan Wiegard, Ph.D., gives oral testimony based on initial and follow-up reports. Same person who testified in favor of weather modification at initial board hearing and Legislative hearing.
- R.J. Scott, Ph.D. of Geoengineering Consultants, LLC, gives oral testimony based on all reports saying weather modification is scientifically proven and beneficial. No causation.

AGAINST:

- Expert D.J. Hillstone, Ph.D., J.D., gives oral testimony based on initial and follow-up reports. Same person who testified on behalf of environmentalists against weather modification at initial board hearing and Legislative hearing.
- Jordan Gale, Ph.D. of Global Commons Environmental Consulting, Ltd., gives oral testimony based on all reports blaming the flood on Rain Makers, Inc.'s weather modification operation and the imprecise science of weather modification. Finds causation.

PLAINTIFFS

City of Shields Falls, et al.

Background Information

Shields Falls, with a population of 7,800, is located in Falls County, Midstate. It is situated in a corridor of growing, free-standing, north-south oriented cities to the east of the Midstate Mountains - Front Range and Pass. Shields Falls is approximately five miles from the base of the mountains and pass. To the city's east there is farm land, prairie and plains. The city is approximately equal distance between two larger metropolitan areas–one regional retail-focused metropolitan area 50 miles to the north and a smaller health/medical metropolitan area 45 miles to the south.

Shields Falls is a free-standing service center that has traditionally served the surrounding agricultural area to the south and east. It also has seen a growing industrial and tourism economic base. Increasingly, Shields Falls has seen growth in housing/residential demands by people working and commuting to the two metropolitan areas–north and south of the city.

The city of Shields Falls and its adjacent townships have experienced an increase in population faster than surrounding counties and towns. It has a traditional downtown main street with several historic buildings. The Falls River and Shields Creek run through the city. The downtown is surrounded by compact neighborhoods on the east, north and south sides of the Falls River. This part of town also accommodates the older agricultural services such as the grain mills and new industrial park. It is the area where the railroad passes through town. The south side of town has attracted highway-oriented businesses.

Within the Shields Falls downtown city limits there are:

- municipal buildings including: a fire station, city hall, water and electric department buildings, hospital and clinic, liquor store, county historical museum, city senior center and 20-unit senior housing complex
- an elementary school, junior high school and high school
- a bank and savings and loan
- four churches
- two parks and playgrounds with recreational facilities including soccer and ball fields, tennis courts and walking paths
- a privately owned golf course and sporting goods store
- one major grocery franchise and two independent small grocery stores
- two hardware franchises
- three locally-owned restaurants, a pizza franchise and two fast food establishments
- a tavern and home cooking eatery
- four gas stations and automobile repair shops
- one major automobile dealership
- two art galleries, a musical instrument shop and yarn store
- six beauty salons, a spa and clothing boutique
- lumber yard, construction and landscaping businesses
- ten-twelve small retail and private service sector offices

The Shields Falls City Mayor and City Council Members [*for background information only*]

Shields Falls Mayor Isenberg:	Cornelius "Kerney" Isenberg. Retired baker, age 65 (in 2005). Mayor of Shields Falls for 24 years.
Shields Falls City Manager:	Marie Swenson. Age 34 (in 2005). Shields Falls City Manager for 4 years. B.S. in Public Administration, Midstate University, 2002, M.S.A. in Public Administration, Midstate University, 2000. Assistant City Manager, Minneapolis, MN, 2000 to 2001. Shields Falls City Manager, 2001 to present.
Council Member Boulette:	Carol Boulette. President of Shields Falls League of Women Voters, age 32 (in 2005), Suzuki piano teacher in her home, homemaker and "proud of it."
Council Member Anderson:	Gloria Anderson, age 47 (in 2005)–with her husband, Arlen Anderson, own Anderson Turkey Farms that is within city limits. Their land is zoned as agricultural.
Council Member Miller:	Bernard "Bud" Miller. Real estate salesman, age 55 (in 2005). He's been in the real estate business for 35 years.
Council Member Calder:	Charles "Chip" Calder. Teacher, age 45 (in 2005), teaches high school biology and chemistry at Shields Falls High School.

ADDITIONAL PLAINTIFFS:
See Complaint for information on listing of estates of deceased, injured parties and businesses.

- Julie Jordan on behalf of Jim Jordan (deceased)
- Conrad and Barbara Dayton on behalf of Chris Dayton (deceased)
- Maureen Pedersen on behalf of Bill, Lorna, Mark and MaryAnn Pedersen (deceased)
- J.J. Morton on behalf of Danny Francios (deceased)
- Greg Swanson on behalf of Margaret and Jeremy Swanson (deceased)
- Tom and Sheila Banks on behalf of Shane Banks (deceased)
- John McRae on behalf of Lisa McCrae (deceased)
- Pete Wiese on behalf of LuVerna Wiese (deceased)
- Myron and Dolores Baumgartner on behalf of Ashley and Tyler Baumgartner (deceased)
- Jeff Crittenden (injuries)
- JoAnn Grayson (injuries)
- Lauren Spencer (business loss)
- Lisa Littlebird (business loss)
- Timothy Martin (business loss)

PLAINTIFF EXPERT WITNESSES FOR ARBITRATION AND TRIAL

D.J. Hillstone, Ph.D., J.D. (Earth's Natural Circle)
Age: 45 (in 2005).
Married: One grown son, Mario.
Education:

- B.S. in Ecology / Environmental Studies, University of California, 1988.
- M.S. in Environmental Administration and Sustainability Policies, Columbia University, 1990.
- Ph.D. in Environmental Administration and Sustainability Policies, Columbia University, 1995.
- J.D., Environmental Law and Policy, University of Washington, 1999.

Employment:

- Founder, Earth's Natural Circle (environmental education and activism group) 2001 to present. Membership of 20,000 active members, 100,000 dues paying members in the U.S. Staff of 30. Budget composed of grants and contributions total $30 million dollars. Purpose is to take on lawsuits and research.
- Solo practitioner specializing in environmental law, 1999 to 2001.
- Assistant Director, Sierra Club - Midstate Chapter, 1995 to 1999.

Other:

- Activist for protection and preservation of natural waterways, ancient forests, national parks and preserves and Earth's environment in general.
- Promotes ecosystem-based forestry, sustainable fisheries-aquacultural.
- Member of "Citizens of Natural Weather."
- Investigating whether the U.S. Air Force is conducting weather modification practices over U.S. and Canada without public knowledge and causing major weather events through the High-frequency Active Aural Research Program [HAARP] that is part of the "Star Wars" Strategic Defense Initiative (SDI).

Jordan Gale, Ph.D. (Global Commons Environmental Consulting, Ltd.)
Age: 40 (in 2005).
Married: Two children, aged 10 and 6.
Education:

- B.S. in Civil Engineering, University of Iowa, 1987.
- M.S. in Urban and Environmental Policy & Planning, Louisiana State University, 1989.
- Ph.D. in Environmental Sciences and Civil Engineering, U.C.L.A., 1995.

Employment:

- Senior Consultant in environmental policy, health and safety issues, Global Commons Environmental Consulting, Ltd., 1997 to present.
- Consultant in urban and environmental policy, GeoIntegra Engineering & Consulting, Inc., 1995 to 1997.

Other:

- "Sustaining Global Resources Through Analysis and Planning," in Urban and Environmental Planning Journal.

DEFENDANTS

STATE OF MIDSTATE

Midstate became a state on July 4, 1877. It is the eighth largest state in the USA covering 105,000 square miles and divided into 64 counties. Its capital and largest city is Silver Springs. According to 2000 census records, there were 4,500,534 citizens living in Midstate. Major industries include agriculture (wheat, cattle, sheep), tourism (hiking, skiing, boating), mining (gold, silver, coal), oil, finance and manufacturing. Major rivers include the Falls and Trinity Rivers. Major Lakes include the Grand Isle, Mesa and Butte reservoirs. The Midstate Mountain Range runs north to south through the center of the state with the highest peak being Mt. Centennial with an elevation of 14,350 feet above sea level.

The political structure of the state includes offices, departments and agencies of: Governor, Lt. Governor, Attorney General, Secretary of State, Treasurer, the House of Representatives, State Senate; Departments of Agriculture, Corrections, Education, Finance, Health Care, Higher Education, Homeland Security, Human Services and Environment, Labor and Employment, Law, Local Affairs, Natural Resources, Military and Veterans Affairs, Personnel and Administration, Regulatory Agencies, Revenue, Transportation and Treasury.

Midstate is nearly evenly split between Republicans and Democrats. The majority in both houses of the legislature shifts at nearly each election. In 2005, the House had a Democratic majority of six, the Senate had a majority of three and the Governor was a Republican. In 2010, the Governor and the House have an eight person Republican majority and the Senate has a four person majority.

MIDSTATE DEPARTMENT OF NATURAL RESOURCES–WATER CONSERVATION, WEATHER MODIFICATION BOARD

BOARD MEMBER #1

Parker Shaw - Executive Director (Position is appointed by the Midstate Governor)

Age: 47 (in 2005).

Married: Three children.

Education:

- B.S. Journalism and Geography, Texas State University, 1986.
- M.S. Public Administration and Economics, Texas State University, 1988.

Employment:

- Lobbyist for National Association of Mining Contractors (NAMC), 2006 to present.
- Executive Director, Midstate Department of Natural Resources and Weather Modification Board (appointed by Governor), 2003 to 2006.
- Deputy Director, Midstate Department of Natural Resources, 2002 to 2003.
- Assistant Midstate Department of Parks and Land Resources, 1990 to 2002.
- T.V. News Reporter for KMSS, Silver Springs, Midstate, 1986 to 1990.

BOARD MEMBER #2

Richard Greenwald

Age: 67 (in 2005).

Married: Two grown children, three grandchildren.

Education:

- A.A. Degree, Business Administration, Midstate Technical College, 1977-1979.

Employment:

- Owner, Greenwald's Hardware Store, Silver Springs, Midstate, 1989 to present.
- Asst. Manager, Greenwald's Hardware Store, 1975 to 1989.
- U.S. Army, Fort Bragg, 1973-1975.

Other:

Greenwald worked in his father's hardware store through high school. He became an assistant manager after Technical College, and in 1989 he bought out his father and became owner of store.

Active in Silver Springs Chamber of Commerce.

Appointed to Weather Modification Board by the Senate Agriculture and Environment Committee in 2003.

No science background.

BOARD MEMBER #3

J.C. Hallberg

Age: 32 (in 2005).

Single:

Education:

- B.S. in Biology, University of Wyoming, 1995.
- M.S. in Bio Chemistry, University of Wisconsin, 1997.
- Ph.D. in Bio Chemistry, University of Wisconsin, 2001.

Employment:

- Associate Professor of Biology, Midstate University, 2009 to present.
- Assistant Professor of Biology, Midstate University, 2002 to 2009.
- Manager/Barista, Cuppa Joe Coffee Boutique, while Ph.D. candidate.
- Teaching Assistant while pursuing Master's Degree.
- Boy Scout Summer Camp Counselor at Lake Ojiketa, Black Forest, Midstate through high school and undergraduate years.

Other:

Dissertation Title: "Can We Be Happy with the Five-Legged Frog?"

Appointed to Weather Modification Board by House Environment Committee in the fall of 2004.

RAIN MAKERS, INC.

5500 Airport Tech Center Complex

Silver Springs, Midstate

Founded in 1986. Rain Makers, Inc. was a United States atmospheric sciences company specializing in the field of weather modification with over ten years of experience in several states in crop dusting, hail suppression, rainfall modification and augmentation. They were dedicated to providing sound, scientific atmospheric solutions for clients from small businesses to large operations. Rain Makers, Inc. had three twin-engine, Federal Aviation Administration (FAA) approved aircraft, configured for aerial cloud seeding as well as ground-based seeding equipment and training and seven single-engine crop dusting aircraft. The company's team of over 20 employees–expert witness, meteorologist, electronics technicians, pilots and maintenance engineers--had expertise in cloud physics and the micro scale study of processes that govern all cloud and precipitation processes. Rain Makers, Inc. was a member of the Weather Modification Association, American Meteorological Society, Midstate Chamber of Commerce and Silver Springs Chamber of Commerce.

Hugh Fitzpatrick - President and CEO

Age: 49 (in 2005).

Married: Two grown children, Bobbie Joe and Joe Bobby.

Education:

- B.S. Industrial Technology, Midstate University in 1978.

Employment, Certifications and Professional Affiliations:

- Retired, 2008 to present.
- Founder, President and CEO of Rain Makers, Inc. to 2008. Majority stockholder of Rain Makers, Inc.
- Commercial pilot instrument and multi-engine training.
- United States Navy specializing in radar technology.
- Majority stockholder of Rain Makers, Inc.
- Member of the Midstate Pilots Association and the Aircraft Owners and Pilots Association.
- Certified Weather Modification Manager designation from the Weather Modification Association

Cody Morris - Vice President of Operations

Age: 44 (in 2005).

Married: Four children, Troy, Loraine, Kyle and Virginia.

Education:

- B.S. Business Administration, majoring in Aviation Administration, Midstate University in 1983.

Employment, Certifications and Professional Affiliations:

- Independent Pilot, Flying Fish, Inc., 2008 to present.
- Vice President of Operations, Rain Makers, Inc., 1986 to 2008. Oversees the operation projects.
- Extensive experience in both operational and research flights in all seasons.
- Commercial airline pilot's license with single-/multi-engine and instrument ratings and is a multi-engine/instrument flight instructor, FAA airframe and powerplant mechanic, and an authorized maintenance inspector.
- Member of the Aircraft Owners and Pilots Association and the Professional Aviation Mechanics Association. He also holds a Certified Weather Modification Operator designation from the Weather Modification Association. In 2000, Morris was awarded the Distinguished Service Award from the Weather Modification Association.

Jan Wiegard, Ph.D. - Director of Meteorology and Senior Meteorologist.
(See Defense Expert Witnesses next page for complete Jan Wiegard bio)

B.J. Jaspers - Director of Electronics

Age: 42 (in 2005).

Married: Four children, Jonathan, Jennifer, Jake and Jada.

Education:

- B.S. Electronics from Midstate University, 1985.

Employment, Certifications and Professional Affiliations:

- Lead Electronics Sales Manager, Darngood Electronics, 2008 to present.
- Director of Electronics, Rain Makers, Inc., 1990 to 2008.
- Heads a team of technicians and engineers who have extensive knowledge and experience with electronics, specialized equipment installations, and data systems integration. Oversees all technical aspects regarding cloud physics equipment, ground based and airborne cloud seeding equipment, and aircraft tracking systems. Responsible for weather radar system development and manufacturing at Rain Makers, Inc.
- Avionics technician for Midstate Avionics prior to joining Rain Makers, Inc.

Lee Walker - Director of Maintenance

Age: 35 (in 2005).

Married: No children.

Education:

- A.A. Aviation Maintenance, Midstate Vocational, 1990.

Employment, Certifications and Professional Affiliations:

- Senior airframe and powerplant technician, Star Jets, Inc., 2008 to present.
- Director of Electronics, Rain Makers, Inc., 1995 to 2008. Responsible for all aircraft maintenance and modifications performed.
- Airframe and powerplant maintenance technician and a shop foreman for Star Jets, Inc., 1992-1995.
- Aero Tech Institute - Airframe and Powerplant Technician License, 1990-1992.
- Twelve years of aviation maintenance experience.

DEFENSE EXPERT WITNESSES FOR ARBITRATION AND TRIAL

Jan Wiegard, Ph.D. (Rain Makers, Inc.)

Age: 53 (in 2005).

Married: Three grown children, Michael, David and Molly.

Education:

- B.S. Earth Science and Climatology, Midstate University, 1974.
- M.S. Meteorology and Earth Science, University of British Columbia, 1978.
- Ph.D. Atmospheric Science, University of Montana, 1981.

Employment, Certifications and Professional Affiliations:

- Professor Meteorology, Midstate University, 2008 to present.
- Director of Meteorology and Senior Meteorologist, Rain Makers, Inc., 1990 to 2008.
- Vice President of Meteorology for Weather Modification, Inc. from 1996-2000.
- Worked for National and State Government research organizations, private companies, and has consulted for the World Meteorological Organization and United Nations.
- Logged hundreds of hours in aircraft studying thunderstorms and winter storms.
- Twenty years of experience and has published over 40 technical articles as a research scientist in radar meteorology, cloud physics, hail suppression, rainfall enhancement, and hydrologic processes and has presented papers at technical conferences.
- Member of the Technical Advisory Committee on Planned and Inadvertent Weather Modification for the American Meteorological Society, an Accredited Consultant of the Canadian Meteorological and Oceanographic Society, and a Certified Weather Modification Manager as designated by the Weather Modification Association.

R.J. Scott, Ph.D. (Geoengineering Consultants, LLC)

Age: 46 (in 2005).

Divorced: Son, age 22.

Education:

- B.S. in Earth Science, Geology/Hydrology Engineering, Illinois Institute of Technology, 1981.
- M.S. in Applied Geology/Hydrogeology Engineer, Berkeley, 1983.
- Ph.D. in Geo-Environmental Engineering, University of Wisconsin, 1989.

Employment:

- Co-Owner, Geoengineering Consultants, LLC from 1989 to present.

Other:

- Numerous papers presented at national forums. Most recent presentation: "Applying Earth Science & Technology to Improve, Harness and Manage Earth's Resources."

THE
FACTS

METROPOLITAN NEWS

L. Marie, Publisher; John Oliver, Editor

What's Inside:

Twins separated at birth discover they married each other.

APRIL 2, 2004

IS THERE AN END IN SIGHT FOR THE PROLONGED DROUGHT FACING EASTERN MIDSTATE FARMERS AND RANCHERS?

First Weather Modification License Granted Since 1999.

The mainstream media are starting to mention weather modification programs more frequently lately, linking these programs to possible relief from intensified weather phenomena due to climate change.

A spokesperson from the National Center for Atmospheric Research stated that clouds can be measured so well now that answers regarding the effects of human-made intervention versus what would happen naturally, can be obtained. The spokesman indicated that researchers are able to measure the effectiveness of weather modification programs.

According to reports, there are currently about 150 weather modification programs taking place in more than 40 countries. The most extensive weather modification is taking place in China under the guidance of China Meteorological Administration (CMA). Other countries with weather modification programs include U.S.A., Israel, South Africa, Switzerland and France. In the latter two countries, weather modification is promoted as a method of reducing damage caused by hail. Australia is using weather modification in its own fight against drought.

Here in Midstate, laws were enacted in 1975 regarding weather modification operations. The Midstate Weather Modification Act of 1975-Article 36 and the Midstate Weather Modification Rules and Regulations Administrative Procedures Act define practices for the state. It appears that few modification operations have been conducted during the past years, due to controversy and opposition to the practice and failed earlier attempts. That may soon change.

According to sources, the first license to practice weather modification since 1999 was granted by the Weather Modification board yesterday. Rain Makers, Inc., with offices in Silver Springs, was approved to carry out operations within the state.

In the United States cloud seeding has generated a number of lawsuits where downwind farmers have accused neighboring states of stealing their rain.

The Kansas Weather Modification Program covers an area of 8,000 miles and is used mostly for hail reduction. The progam funded by state and local sources, runs from April to September and was extended into northwest Kansas in the late 1990s. The program manager monitors the weather from a radar station. If a storm is developing that is likely to produce hail, the pilots are notified and attack the clouds with canisters of silver iodide. Interestingly, the program ceased after residents complained that cloud seeding reduced rainfall. A subsequent study found that the program may be useful in reducing hail but there was no evidence to support the claim that the program increased rainfall.

Many farmers, ranchers and environmental groups are concerned about environmental repercussions weather modification programs could create. They are worried these programs may be reducing rain and worsening droughts – or in reverse, creating catastrophic events that many feel caused the flood disaster in Black Hills and Rapid City, South Dakota in 1972.

In the United States, some groups are concerned about the technology apparently being perfected under the High-frequency Active Auroral Research Program (HAARP) that is part of the ("Star Wars") Strategic Defense Initiative (SDI). Established in 1993, this ionospheric research program with a stated purpose to analyze the ionosphere (the uppermost portion of the atmosphere) and investigate potential for developing ionospheric enhancement technology operates a major arctic facility near Gakona, Alaska. Recent scientific evidence suggests that HAARP will be fully operational in 2007 and some say it has the ability of potentially triggering floods, droughts, hurricanes and earthquakes.

MIDSTATE DEPARTMENT OF NATURAL RESOURCES -WATER CONSERVATION EMAIL

From: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]
To: Richard Greenwald [rgrnwld@msmail.net]; J.C. Hallberg [hallberg.jc@msmail.net]
Sent: **Friday 05/13/2005 2:00 PM**
Subject: Reminder - Weather Modification Board Hearing - Monday, 05/15/05, 10 AM

Dear Rich and J.C.,

I'm sending this email as a reminder of our scheduled board hearing to be held next Monday at 10 a.m. regarding the discussion and approval of a weather modification permit. The hearing will take place in the Natural Resources office conference room. Hugh Fitzpatrick, the President and CEO of Rain Makers, Inc. and the company's senior meteorologist, Jan Wiegard, will be at the meeting Also in attendance will be D. J. Hillstone on behalf of the group Earth's Natural Circle and concerned citizens and business owners of Midstate.

To refresh your memory, Rain Makers, Inc. applied for a weather modification license in March, 2004. The company's license was granted on April 1, 2004, and is valid for a period of four years – through April 2, 2008.

Rain Makers, Inc. has recently been hired by a group of farmers and ranchers in Prairie County to conduct a rain augmentation operation in that county and is now seeking the permit to do so.

Parker

EMAIL

From: J.C. Hallberg [hallberg.jc@msmail.net]
To: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]
Richard Greenwald [rgrnwld@msmail.net]
Sent: **Friday 05/13/2005 2:30 PM**
Subject: RE: Reminder - Weather Modification Board Hearing - Monday, 05/15/05, 10 AM

Dear Parker and Richard,

I'll be at the board hearing. I am glad to see that D.J. Hillstone will be in attendance to give an alternative perspective on weather modification. Hillstone is an expert on these things. You both know my concerns and we have all heard the negative consequences these operations can have.

I realize the farmers and ranchers in Prairie County are in dire straights from the prolonged drought. I understand that. That said, I still have doubts this is the right way to do things. Instead, maybe we should let Mother Nature take her course. We've had cyclical droughts in the eastern counties of Midstate in the past and it all worked out.

I wasn't a member of the board last year when Rain Makers' license was approved so I'm not familiar with the company and the personnel qualifications. I'll try to keep an open mind. Perhaps they can convince me they know what they are doing in this risky business.

J.C.

MIDSTATE DEPARTMENT OF NATURAL RESOURCES -WATER CONSERVATION EMAIL

From: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]
To: J.C. Hallberg [hallberg.jc@msmail.net]
CC: Richard Greenwald [rgrnwld@msmail.net]
Sent: **Friday 05/13/2005 3:00 PM**
Subject: RE: Reminder - Weather Modification Board Hearing - Monday, 05/15/05, 10 AM
Attachment: [Form WM1, Form WM1A (3 forms), Form WM2]

Thanks for your reply and confirmation, J.C..

I understand your concerns. In the past you have expressed your views on the subject of weather modification operations in general. It's good to have different perspectives–that's why there are three members on the board. It opens up debate which always leads to productive discussions.

I'm attaching a copy of Rain Makers, Inc.'s approved application for license (WM1), and the accompanying forms (WM1A) for the principals in the company. Also attached is the permit application form WM2 that Rain Makers submitted on Monday, May 2. If you haven't had a chance to review these documents, I urge you to do so over the weekend.

Richard just phoned and said he'd be there as well. See you both Monday!

Parker

MIDSTATE DEPARTMENT OF LICENSING AND REGULATION

P.O. BOX 11223 - SILVER SPRINGS, MIDSTATE - 1-800-555-5555

midstateweathermodification@licensebureau.state.ms.us

FORM WM1

APPLICATION FOR: **WEATHER MODIFICATION LICENSE**

PURSUANT TO: **MIDSTATE ADMINISTRATIVE PROCEDURES ACT, M.R.S. 36-68-100.**

CHECK ONE: **_____X____ LICENSE** **_____LICENSE RENEWAL**

RENEWALS: DATE OF ORIGINAL LICENSE: _____

RENEWALS OBTAINED FOR WHICH YEARS: _____

1. **Applicant's Full Name:**

FITZPATRICK	**HUGH**	**R.**
Last	*First*	*Middle*

RAIN MAKERS, INC.
Business Name

5500 AIRPORT TECH CENTER COMPLEX, SILVER SPRINGS, MIDSTATE
Business Address

555-555-5550	**PRESIDENT AND CEO**
Phone Number	*Title/Occupation*

2. List the name, business address, telephone number and occupation (if different from applicant's) of the technical and scientific people who will make the day-to-day decisions and carry out the proposed weather modification operation that is described in the Notice of Intention.

Applicant's Full Name:

MORRIS	**CODY**	**M.**
Last	*First*	*Middle*

RAIN MAKERS, INC.
Business Name

5500 AIRPORT TECH CENTER COMPLEX, SILVER SPRINGS, MIDSTATE
Business Address

555-555-5550	**V.P. OF OPERATIONS**
Phone Number	*Title/Occupation*

Applicant's Full Name:

WIEGARD	**JAN**	**A.**	**Ph.D.**
Last	*First*	*Middle*	*Title*

RAIN MAKERS, INC.
Business Name

5500 AIRPORT TECH CENTER COMPLEX, SILVER SPRINGS, MIDSTATE
Business Address

555-555-5550	**DIRECTOR METEOROLOGY/SENIOR METEOROLOGIST**
Phone Number	*Title/Occupation*

Form WM1 - Weather Modification License - Page 1

3. Has any person named above been denied a weather modification license, or had a license suspended or revoked in Midstate or elsewhere?

_____ Yes _____**X**___No If yes, please explain.

4. Complete and attach the Weather Modification License Qualifications Statement Form WM1A for each person named in item #2 and #3.

Attached (3)

I CERTIFY THAT I HAVE READ AND WILL ABIDE BY THE MIDSTATE WEATHER MODIFICATION ACT, AND THE MIDSTATE DEPARTMENT OF LICENSING AND REGULATION RULES. UPON REQUEST OF THE DEPARTMENT, I AGREE TO MAKE AVAILABLE ALL RECORDS MAINTAINED UNDER THE ACT AND THE RULES.

WITH KNOWLEDGE OF THE PENALTIES FOR FALSE STATEMENTS, I CERTIFY THAT ALL INFORMATION SUBMITTED ON THIS APPLICATION, AND ALL ATTACHED DOCUMENTS ARE TRUE AND CORRECT.

Hugh Fitzpatrick **Monday, March 1, 2004**

APPLICANT SIGNATURE DATE

THE AREA BELOW THIS LINE IS FOR DEPARTMENT USE ONLY.

This license has been approved by the Executive Director of Midstate Natural Resources -Water Conservation, Weather Modification Board for the period of FOUR years, beginning Thursday, April 1, 2004 through Thursday, April 2, 2008 .

License Number: 3668100-2004-01

Signed: *Parker Shaw*

Parker Shaw, Executive Director

Form WM1 - Weather Modification License - Page 2

MIDSTATE DEPARTMENT OF LICENSING AND REGULATION

P.O. BOX 11223 - SILVER SPRINGS, MIDSTATE - 1-800-555-5555

midstateweathermodification@licensebureau.state.ms.us

FORM WM1A

WEATHER MODIFICATION QUALIFICATIONS STATEMENT

PURSUANT TO: MIDSTATE ADMINISTRATIVE PROCEDURES ACT, M.R.S. 36-68-100.

Your Name: **HUGH FITZPATRICK**

Complete and submit this form for each technical or scientific person whose qualifications are to be considered for a Midstate Weather Modification License. This statement must be completed by the participant and each person who will assist the applicant in conducting day-to-day weather modification operations.

1. Identify the Highest Educational Institution from which you graduated or technical training school you completed and give the mailing address(es). Indicate the dates of graduation, type of degree(s) received and major course of study; or completion and/or description of training and certificate(s) received.

- **B.S. in Industrial Technology, 1978**
- **Midstate University, Silver Springs, Midstate**

2. Describe your employment history in meteorology and/or weather modification operations. Specify your duties and responsibilities for each position held.

- **Currently, President and CEO, Rain Makers, Inc.**

3. List certificates of professional, or vocational competence or licenses you have and the dates of issuance.

- **Commercial airline pilot instrument and multi-engine training.**
- **United States Navy - specialized in radar technology.**
- **Certified Weather Modification Operator designation from Weather Modification Association.**

4. Give membership status with professional or technical associations with effective dates.

- **Midstate Pilots Association (currently)**
- **Aircraft Owners and Pilots Association (currently)**
- **Weather Modification Association (currently)**

5. Attach a list of articles published, reports prepared or synopses made relative to meteorology and weather modification.

- **Attached**

All information given here is accurate to the best of my knowledge.

Hugh Fitzpatrick **Monday, March 1, 2004**

Signature Date

Form WM1A - Qualifications Statement - Page 1 of 1

MIDSTATE DEPARTMENT OF LICENSING AND REGULATION

MIDSTATE DEPARTMENT OF LICENSING AND REGULATION

P.O. BOX 11223 - SILVER SPRINGS, MIDSTATE - 1-800-555-5555

midstateweathermodification@licensebureau.state.ms.us

FORM WM1A

WEATHER MODIFICATION QUALIFICATIONS STATEMENT

PURSUANT TO: MIDSTATE ADMINISTRATIVE PROCEDURES ACT, M.R.S. 36-68-100.

Your Name: **CODY MORRIS**

Complete and submit this form for each technical or scientific person whose qualifications are to be considered for a Midstate Weather Modification License. This statement must be completed by the participant and each person who will assist the applicant in conducting day-to-day weather modification operations.

1. Identify the Highest Educational Institution from which you graduated or technical training school you completed and give the mailing address(es). Indicate the dates of graduation, type of degree(s) received and major course of study; or completion and/or description of training and certificate(s) received.

- **B.S. in Business Administration, 1983**
- **Midstate University, Silver Springs, Midstate**

2. Describe your employment history in meteorology and/or weather modification operations. Specify your duties and responsibilities for each position held.

- **Currently, Vice President of Operations, Rain Makers, Inc.**
- **Previously, Operations Manager, Weather Modification, Inc.**

3. List certificates of professional, or vocational competence or licenses you have and the dates of issuance.

- **Commercial airline pilot's license with single-/multi engine and instrument ratings.**
- **Multi-engine/instrument flight instructor.**
- **FAA airframe and power plant mechanic and authorized maintenance inspector.**
- **Certified Weather Modification Operator designation from Weather Modification Association.**

4. Give membership status with professional or technical associations with effective dates.

- **Professional Aviation Mechanics Association (currently)**
- **Aircraft Owners and Pilots Association (currently)**
- **Weather Modification Association (currently)**

5. Attach a list of articles published, reports prepared or synopses made relative to meteorology and weather modification.

- **Attached**

All information given here is accurate to the best of my knowledge.

Cody Morris **Monday, March 1, 2004**

Signature Date

Form WM1A - Qualifications Statement - Page 1 of 1

MIDSTATE DEPARTMENT OF LICENSING AND REGULATION

P.O. BOX 11223 - SILVER SPRINGS, MIDSTATE - 1-800-555-5555

midstateweathermodification@licensebureau.state.ms.us

FORM WM1A

WEATHER MODIFICATION QUALIFICATIONS STATEMENT

PURSUANT TO: MIDSTATE ADMINISTRATIVE PROCEDURES ACT, M.R.S. 36-68-100.

Your Name: **JAN WIEGARD, Ph.D.**

Complete and submit this form for each technical or scientific person whose qualifications are to be considered for a Midstate Weather Modification License. This statement must be completed by the participant and each person who will assist the applicant in conducting day-to-day weather modification operations.

1. Identify the Highest Educational Institution from which you graduated or technical training school you completed and give the mailing address(es). Indicate the dates of graduation, type of degree(s) received and major course of study; or completion and/or description of training and certificate(s) received.

- **Ph.D. in Atmospheric Science - 1981 (Atmospheric, Meteorology and Earth Science majors) University of Montana.**

2. Describe your employment history in meteorology and/or weather modification operations. Specify your duties and responsibilities for each position held.

- **Currently, Director of Meteorology and Senior Meteorologist for Rain Makers, Inc.**
- **Previously, Vice President of Meteorology Weather Modification, Inc.**
- **Twenty years of experience in meteorology field.**
- **Hundreds of hours in aircraft studying thunderstorms and winter storms.**
- **National and State Government research organizations, private companies, consulted for World Meteorological Organization and UN.**

3. List certificates of professional, or vocational competence or licenses you have and the dates of issuance.

- **Certified Weather Modification Manager as designated by the Weather Modification Association.**

4. Give membership status with professional or technical associations with effective dates.

- **Member of Technical Advisory Committee on Planned and Inadvertent Weather Modification for American Meteorological Society (currently).**
- **Consultant for Canadian Meteorological and Oceanographic Society (currently)**.

5. Attach a list of articles published, reports prepared or synopses made relative to meteorology and weather modification.

- **Attached**

All information given here is accurate to the best of my knowledge.

Jan Wiegard, Ph.D. **Monday, March 1, 2004**

Signature Date

Form WM1A - Qualifications Statement - Page 1 of 1

MIDSTATE DEPARTMENT OF LICENSING AND REGULATION

P.O. BOX 11223 - SILVER SPRINGS, MIDSTATE - 1-800-555-5555

midstateweathermodification@licensebureau.state.ms.us

FORM WM2

APPLICATION FOR: WEATHER MODIFICATION PERMIT – FEE $100.00

PURSUANT TO: MIDSTATE ADMINISTRATIVE PROCEDURES ACT, M.R.S. 36-68-100.

1. **Applicant's Full Name:**

FITZPATRICK	**HUGH**	**R.**
Last	*First*	*Middle*

RAIN MAKERS, INC.

Business Name

5500 AIRPORT TECH CENTER COMPLEX, SILVER SPRINGS, MIDSTATE

Business Address

555-555-5550	**PRESIDENT AND CEO**
Phone Number	*Title/Occupation*

2. Indicate whether the applicant has a valid Midstate Weather Modification License, by giving the number of the license; or if applicant has filed an application to obtain, or renew a license.

License Number: **3668100-2004-01**

Will weather modification application affect weather in another state? _____ Yes __**X**__ No

If intended to affect weather in another state, has a license or permit been obtained from that state?

_____ Yes _____No _____State

3. List the name, business address, telephone number and occupation (if different from applicant's) of the technical and scientific people who will make the day-to-day decisions and carry out the proposed weather modification operation that is described in the Notice of Intention.

Applicant's Full Name:

MORRIS	**CODY**	**M.**
Last	*First*	*Middle*

RAIN MAKERS, INC.

Business Name

5500 AIRPORT TECH CENTER COMPLEX, SILVER SPRINGS, MIDSTATE

Business Address

555-555-5550	**V.P. OF OPERATIONS**
Phone Number	*Title/Occupation*

Form WM2 - Weather Modification Permit - Page 1

Applicant's Full Name:

WIEGARD	**JAN**	**A.**	**Ph.D.**
Last	*First*	*Middle*	*Title*

RAIN MAKERS, INC.

Business Name

5500 AIRPORT TECH CENTER COMPLEX, SILVER SPRINGS, MIDSTATE

Business Address

555-555-5550	**DIRECTOR METEOROLOGY/SENIOR METEOROLOGIST**
Phone Number	*Title/Occupation*

4. Briefly describe the purpose of the proposed weather modification operation, e.g., rainfall augmentation, hail-suppression, fog dispersal; the objective, e.g., water resources, agriculture, airfield operation and the period of the permit; list the dates of each calendar year for which the operation is to be conducted, up to four years.

Rainfall Augmentation

Specific dates to be determined

5. Identify newspaper(s) within which the Notice of Intention is to be published.

Metropolitan News

I CERTIFY THAT I HAVE READ AND WILL ABIDE BY THE MIDSTATE WEATHER MODIFICATION ACT, AND THE MIDSTATE DEPARTMENT OF LICENSING AND REGULATION RULES. UPON REQUEST OF THE DEPARTMENT, I AGREE TO MAKE AVAILABLE ALL RECORDS MAINTAINED UNDER THE ACT AND THE RULES.

WITH KNOWLEDGE OF THE PENALTIES FOR FALSE STATEMENTS, I CERTIFY THAT ALL INFORMATION SUBMITTED ON THIS APPLICATION, AND ALL ATTACHED DOCUMENTS ARE TRUE AND CORRECT.

Hugh Fitzpatrick	**May 2, 2005**
APPLICANT SIGNATURE	DATE

THE AREA BELOW THIS LINE IS FOR DEPARTMENT USE ONLY.

Form WM2 - Weather Modification Permit - Page 2

EMAILS dated MAY 17 and 18, 2005 between Weather Modification Board Executive Director, Parker Shaw and board members, Richard Greenwald and J.C. Hallberg in regard to the permit hearing held on May 16th.

Midstate Department of Natural Resources - Water Conservation EMAIL

From: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]
To: Richard Greenwald [rgrnwld@msmail.net]; J.C. Hallberg [hallberg.jc@msmail.net]
Sent: **TUESDAY 05/17/2005, 9:00AM**
Subject: Permit Hearing for Rain Makers, Inc.

Dear Rich and J.C.,
I am very upset. Your failure to vote for the cloud seeding proposal yesterday is nuts. Rich, you are always so wishy-washy and J.C., it's time you got off your high horse. You know there is an emergency. Cloud seeding works. We have to get this done. Why in the world can't you see the light? You are causing the problem, not solving it.
Parker

_____

EMAIL

From: J.C. Hallberg [hallberg.jc@msmail.net]
To: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]
CC: Richard Greenwald [rgrnwld@msmail.net]
Sent: **TUESDAY 05/17/2005, 10:00 AM**
Subject: Re: Permit Hearing for Rain Makers, Inc.

Parker,
Your heavy handed approach to the drought is ridiculous. How can you forget the Rapid City Flood of 1972 that I discussed with you? Cloud seeding does **not** work and can cause severe problems. There has been drought in our area since time began. The eastern counties are an arid place. When people choose to farm, ranch and live where there's not enough water, they take their chances. We should not engineer or fool with nature!
J.C.

_____

EMAIL

From: Richard Greenwald [rgrnwld@msmail.net]
To: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]; J.C. Hallberg [hallberg.jc@msmail.net]
Sent: **WEDNESDAY 05/18/2005, 11:00 AM**
Subject: Re: Permit Hearing for Rain Makers, Inc.

Dear Parker and J.C.,
I want to stay out of your squabbling. I don't have enough factual information and need more evidence on both sides. I am cautious, but can probably be convinced either way.
Rich

EMAILS dated MAY 19 - MAY 22, 2005 between Weather Modification Board Executive Director, Parker Shaw and Rain Makers, Inc., Hugh Fitzpatrick and Jan Wiegard in regard to the permit hearing held on May 16th.

Midstate Department of Natural Resources - Water Conservation EMAIL

From: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]

To: Hugh Fitzpatrick, President and CEO Rain Makers, Inc. [Fitz@rainmakersinc.com]; Jan Wiegard [Wiegard@rainmakersinc.com]

Sent: **THURSDAY 05/19/2005, 4:00 PM**

Subject: Weather Modification Permit Hearing

Hugh and Jan, Like I just said on the phone, I am sorry I couldn't get it done! Hallberg is a nutty tree hugger and Greenwald is a wishy-washy, do-nothing. This is an emergency and we need rain! *Parker*

Rain Makers, Inc. EMAIL

From: Hugh Fitzpatrick, President and CEO Rain Makers, Inc. [Fitz@rainmakersinc.com]

To: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]

CC: Jan Wiegard [Wiegard@rainmakersinc.com]

Sent: **FRIDAY 05/20/2005, 8:00 AM**

Subject: Re: Weather Modification Permit Hearing

Parker, Calm down! All you have to do is declare a drought emergency. Under the law you can do it. This is the chance to save the community. I know it will work. Jan knows it will work. It's great to have a true patriot in our corner. *Hugh*

Midstate Department of Natural Resources - Water Conservation EMAIL

From: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]

To: Hugh Fitzpatrick, President and CEO Rain Makers, Inc. [Fitz@rainmakersinc.com]

Sent: **SATURDAY 05/21/2005, 10:00 AM**

Subject: Re: Weather Modification Permit Hearing

Hugh, I'll do it! Dinner soon??? *Parker*

Rain Makers, Inc. EMAIL

From: Hugh Fitzpatrick, President and CEO Rain Makers, Inc. [Fitz@rainmakersinc.com]

To: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]

Sent: **SUNDAY 05/22/2005, 8:00 AM**

Subject: Re: Weather Modification Permit Hearing

Parker, Thanks my friend! Dinner soon! *Hugh*

Emails dated MAY 22, 2005 between Board Member, J.C. Hallberg
and D.J. Hillstone (Earth's Natural Circle)
in regard to the permit hearing held on May 16th.

EMAIL

From: J.C. Hallberg [hallberg.jc@msmail.net]
To: D.J. Hillstone [dj.hillstone@earthsnaturalcircle.com]
Sent: **SUNDAY 05/22/2005, 10:00 AM**
Subject: Weather Modification Permit Hearing for Rain Makers, Inc.

Dear D.J.,

Parker Shaw has gone mad since the hearing on May 16th. Shaw just doesn't get it. All Shaw sees is the money. Shaw has no idea of the possible disaster looming. I showed Shaw the 1972 Rapid City flood information you sent me, but Shaw just scoffed at it and me. Shaw said, "That was then, and this is now." Shaw told me to, "Move into the 21st century!" And added that I should, "Grow up J.C., because you are playing with the big boys and not in the sandbox anymore!" I always thought Shaw had a screw loose, but now Shaw is over the top.

J.C.

EMAIL

From: D.J. Hillstone [dj.hillstone@earthsnaturalcircle.com]
To: J.C. Hallberg [hallberg.jc@msmail.net]
Sent: **SUNDAY 05/22/2005, 11:00 AM**
Subject: Re: Weather Modification Permit Hearing for Rain Makers, Inc.

J.C.,

We will try to file a law suit to stop this, but I'm afraid it may be too late. Rain Makers has to publish TWO Notice of Intentions to conduct weather modification operations before they do it. I hope our lawyer can get a restraining order in time.

My spouse asked if you and a date would like to join us and our Earth's Natural Circle (ENC) members for a barbeque in a couple of weeks. It will be nice to have a quiet evening with friends away from the craziness.

D.J. Hillstone

EMAIL

From: J.C. Hallberg [hallberg.jc@msmail.net]
To: D.J. Hillstone [dj.hillstone@earthsnaturalcircle.com]
Sent: **SUNDAY 05/22/2005, 1:00 PM**
Subject: Re: Weather Modification Permit Hearing for Rain Makers, Inc.

D.J.

A barbeque sounds great. I am afraid that Shaw may use an emergency order to by-pass the board.

J.C.

Memorandum

DATE: **Monday, May 23, 2005**

FROM: **Midstate Weather Modification Board Executive Director, Parker Shaw**

TO: **Hugh Fitzpatrick and Jan Wiegard - Rain Makers, Inc.**

J.C. Hallberg and Richard Greenwald - Weather Modification Board Members

RE: **Rain Makers, Inc. Weather Modification Permit Granted**

As the Executive Director of the Midstate Weather Modification Board, and under emergency Statute 36-66-107(3) which grants weather modification permits to be issued in cases of fire, frost, hail, sleet, smog, fog, drought or other emergency without a vote by the Weather Modification Board, I officially declare an emergency due to drought conditions and other economic factors.

I hereby grant a weather modification-cloud seeding permit to Rain Makers, Inc. - Weather Modification License holder #3668100-2004-01. This permit authorizes the commencement of cloud seeding for 30 days from this date, or until such time this emergency is alleviated.

I hereby waive any Notice of Intent publication requirements.

Parker Shaw

Parker Shaw

Executive Director

Midstate Weather Modification Board

Emails dated MAY 24, 2005 between Midstate Weather Modification Board Executive Director, Parker Shaw and board members, Richard Greenwald and J.C. Hallberg in regard to granting of Weather Modification Permit to Rain Makers, Inc.

EMAIL

From: J.C. Hallberg [hallberg.jc@msmail.net]
To: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]
CC: Richard Greenwald [rgrnwld@msmail.net]; D.J. Hillstone [dj.hillstone@earthsnaturalcircle.com]
Sent: **TUESDAY 05/24/2005, 5:30 AM**
Subject: Memo Granting Permit for Rain Makers, Inc.

Parker,
This is outrageous! You have become an unscrupulous dictator. Don't say I didn't warn you.
J.C.

EMAIL

From: Richard Greenwald [rgrnwld@msmail.net]
To: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]; J.C. Hallberg [hallberg.jc@msmail.net]
Sent: **TUESDAY 05/24/2005, 8:00 AM**
Subject: Re: Memo Granting Permit for Rain Makers, Inc.

Parker and J.C.,
I should never have been on this board! All I want is a good community and for people to get along.
I don't get it. What is the matter with you people?
Rich

RAIN MAKERS, INC. EMAIL

From: Hugh Fitzpatrick, President and CEO Rain Makers, Inc. [Fitz@rainmakersinc.com]

To: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]

Sent: **FRIDAY 06/03/2005, 10:00 AM**

Subject: Weather Modification Permit approved and operation planned in next ten days

Attachment: Notice of Intent (NOI) published 05-30-05 in Metropolitan News

Parker,

It was great to talk with you again this morning on the phone. It was entirely our pleasure to take you and your spouse to dinner last Saturday evening. LaBella Pagliacci's serves the best Italian cuisine in Midstate and is one of our favorite restaurants.

Thank you again for approving the weather modification permit for our company. Rain Makers, Inc. published the first Notice of Intention to Conduct Weather Modification Operations (NOI) on Monday, May 30th in the Metropolitan News. See attached NOI-Form WM4-NOI.

Weather predictions indicate there will be a favorable cloud seeding period during be the next ten days. We hope to make the most of it.

Hugh

MIDSTATE DEPARTMENT OF LICENSING AND REGULATION

P.O. BOX 11223 - SILVER SPRINGS, MIDSTATE - 1-800-555-5555

midstateweathermodification@licensebureau.state.ms.us

FORM WM4 - NOI

NOTICE OF INTENTION TO CONDUCT WEATHER MODIFICATION OPERATIONS IN THE STATE OF MIDSTATE.

PURSUANT TO: MIDSTATE ADMINISTRATIVE PROCEDURES ACT, M.R.S. 36-68-100.

The date of the **first** *(of two weekly required)* publication of this Notice of Intent was on: **May 30, 2005** *(date)*. It was published in the **Metropolitan News** *(name of newspaper*), which is **distributed /circulated** and/or published in **Prairie County** *(name of county)*, Midstate.

1. Notice is hereby given that **Hugh Fitzpatrick, d.b.a. Rain Makers, Inc., 5500 Airport Tech Center Complex, Silver Springs, Midstate** *(name and address of permit applicant)* has filed an application with the Midstate Department of Licensing and Regulation for a state permit to conduct weather modification operations to change, or attempt to change, the natural development of clouds for the purpose, objective, period and by the method summarized herein below.
2. **Hugh Fitzpatrick, d.b.a. Rain Makers, Inc., 5500 Airport Tech Center Complex, Silver Springs, Midstate** *(name of permit applicant here)* holds a valid Midstate weather-modification license for **Fiscal Year 2005.**
3. The purpose of the proposed weather-modification operation is: **rain augmentation** *(state purpose(s) here)* within the target area by **Hugh Fitzpatrick, d.b.a. Rain Makers, Inc., 5500 Airport Tech Center Complex, Silver Springs, Midstate** *(name of permit applicant here)*. The requested period of the permit is **FOUR YEARS** *(give number of years)* from date of issuance of the permit.
4. The proposed weather modification operation is to be carried out in both an operational area and a target area, to cause the intended effect(s) to occur only in the target area. The operational area is composed of the target area and that area within the following boundary (boundaries) **Prairie County, Midstate** *(give the name(s) of the county (counties), or otherwise provide a detailed description, in sufficient detail to plot the area on a map)*.
5. The area to be affected by the proposed weather modification operation is the target area. The target area is that area contained within the following boundary (boundaries): **Prairie County, Midstate** *(name the county (counties), or otherwise provide a detailed description in sufficient detail to plot the area on a map)*.
6. The methods and materials to be used in conducting this operation are summarized herein. A meteorologist licensed by Midstate to conduct weather modification operations, **Jan Wiegard, Ph.D. of Rain Makers, Inc.** *(name of meteorologist)* will select suitable clouds for seeding using a weather radar system, as well as standard analytical and weather forecasting procedures, to guide aircraft to release cloud condensation nuclei either at cloud base or at cloud top to promote the growth and development of the precipitation process within the clouds. The aircraft will be equipped with flare racks or generators to dispense appropriate materials, either glaciogenic or hygroscopic or a combination of the two, into those clouds deemed suitable for seeding.

Emails dated JUNE 13, 2005 between Hugh Fitzpatrick (Rain Makers, Inc.)

and Weather Modification Board Executive Director, Parker Shaw.

RAIN MAKERS, INC. EMAIL

From: Hugh Fitzpatrick, President and CEO Rain Makers, Inc. [Fitz@rainmakersinc.com]
To: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]
Sent: **MONDAY, JUNE 13, 8:00 AM**
Subject: Notice of Intention (NOI) to Conduct Weather Modification Operations

Parker
I apologize for not publishing the 2nd Notice of Intention to seed the clouds. I was too busy to do so and didn't get around to doing it. The weather looks ripe today, and we will be aerial seeding the clouds today!
Hugh

Midstate Department of Natural Resources - Water Conservation EMAIL

From: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]
To: Hugh Fitzpatrick, President and CEO Rain Makers, Inc. [Fitz@rainmakersinc.com]
Sent: **MONDAY, JUNE 13, 8:10 AM**
Subject: Re: Notice of Intention (NOI) to Conduct Weather Modification Operations

Hi Hugh,
Don't worry about it. No one really cares about the bureaucratic details. Let's get the clouds seeded, the rain falling and the drought ending. :-)
Parker

RAIN MAKERS, INC. EMAIL

From: Hugh Fitzpatrick, President and CEO Rain Makers, Inc. [Fitz@rainmakersinc.com]
To: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]
Sent: **MONDAY, JUNE 13, 8:12 AM**
Subject: RE: Notice of Intention (NOI) to Conduct Weather Modification Operations

Parker,
Great! The posse is heading out, we are mounted up and ready to dump. We have been ground seeding since the 9th and will keep blasting away. Hope the wind holds steady. ;-)
Hugh

Emails dated JUNE 13 and 14, 2005 between Weather Modification Board Executive Director, Parker Shaw, and Board Members Hallberg and Greenwald.

EMAIL

From: J.C. Hallberg [hallberg.jc@msmail.net]
To: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]
CC: Richard Greenwald [rgrnwld@msmail.net]
Sent: **MONDAY, JUNE 13, 10:00 AM**
Subject: Rain Makers ground and aerial cloud seeding?

Parker,
What's going on here? I just heard through the grapevine that Rain Makers has been ground cloud seeding since the 9th and is going to do aerial cloud seeding today! The second Notice of Intent has not been published! You know I am **TOTALLY** opposed to this and your emergency approval for Rain Makers' permit. This must be **stopped**, or we are in trouble!
J.C.

Midstate Department of Natural Resources - Water Conservation EMAIL

From: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]
To: J.C. Hallberg [hallberg.jc@msmail.net]
CC: Richard Greenwald [rgrnwld@msmail.net]
Sent: **MONDAY, JUNE 13, 11:00 AM**
Subject: Re: Rain Makers ground and aerial cloud seeding?

J.C.,
Stick to teaching your classes at Midstate University and let me take care of the problems. Stay out of the way and let a professional (me) solve this crisis. We **MUST** get water falling from the sky and flowing in the rivers for the farmers and ranchers, or our economy will go deeper into the "dry" tank.
Parker

EMAIL

From: Richard Greenwald [rgrnwld@msmail.net]
To: Parker Shaw, Executive Director [pshaw@msnaturalresources.org];
J.C. Hallberg [hallberg.jc@msmail.net]
Sent: **MONDAY, JUNE 13, 11:15 AM**
Subject: Re: Rain Makers ground and aerial cloud seeding?

Parker and J.C.,
I really, really, really don't want to be part of your bickering. Get a grip!! The permit has already been approved. So, let's see what happens.
Rich

EMAIL

From: J.C. Hallberg [hallberg.jc@msmail.net]
To: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]
CC: Richard Greenwald [rgrnwld@msmail.net]
Sent: **TUESDAY, JUNE 14, 10:00 AM**
Subject: Look what happened!

Parker,
I told you so!!! Look what you have done! You are sooooo wrong and you'll pay for your arrogance!
J.C.

_____

Midstate Department of Natural Resources - Water Conservation EMAIL

From: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]
To: J.C. Hallberg [hallberg.jc@msmail.net]
CC: Richard Greenwald [rgrnwld@msmail.net]
Sent: **TUESDAY, JUNE 14, 10:15AM**
Subject: Re: Look what happened!

J.C.,
An act of God is what I call it. We did what was right. Never second guess when you do it right. Never try to control an unexpected work of the Lord.
Parker

METROPOLITAN NEWS

L. Marie, Publisher; John Oliver, Editor

What's Inside:

Largest cat on record eats five legged frog and her eyes turn from blue to green.

Family decides to live in bathtub for six months in order to win grand prize of new home.

June 14, 2005

SHIELDS FALLS UNDER FLOOD WATERS !!

A sudden rainstorm that dropped nearly ten inches of rain caused massive flooding in Shields Falls and the surrounding area. The flood waters forced the mandatory evacuation of hundreds of homes in neighborhoods located near the Falls River. Some homes are completely under water while others have flooded basements. Residents have been urged to seek shelter on higher ground.

The Senior Residential Center and Shields Falls Hospital have also been put on alert for possible evacuation. Many downtown businesses are closed and have sustained major water damage.

Among those residents forced to leave, Mary Cadena, said she and her husband have over five feet of water in the basement of their home. They quickly tried to move many of their belongings to the second story and packed their truck with the rest. "I've been crying nonstop since this began. I'm afraid we are going to lose everything. It's unreal. Hopefully our house doesn't get washed away," she said.

The Red Cross has set up a temporary shelter at a school in Bedrock, 15 miles south of the city. Ruth Greenwood, Red Cross Director, said, "There are water damaged homes, businesses, and farm fields everywhere. One of the first things we saw when we arrived were cars floating down the river. One car dealership's lot was full of cars that had been submerged, some were overturned and many were piled against the building walls. The water came up so quick, people didn't have time to move their cars."

Travel is extremely difficult in the area. Bridges have been closed and city streets are flooded. There is only one open road out of the city going south. That highway has several inches of standing water on it.

"It's really a dangerous situation here," said Shields Falls Mayor Cornelius Isenberg. "Emergency crews are out helping our citizens who are trying to leave and those who are stranded. We're trying to hold our ground, but the flood waters are still rising dramatically. We're trying to maintain the city's critical infrastructure and services but more than half of our residents lost power when one of the substations failed. We're worried about gas line ruptures and much, much more devastation. This a very fluid and developing situation."

Fire Chief Mark Lindstrom said, "One of our water rescue teams lost a boat this morning due to debris in the water. We've enlisted private fishing boats to help us out in this emergency."

The Midstate National Guard has been called in to help with flood efforts and will distribute thousands of sandbags.

METROPOLITAN NEWS

L. Marie, Publisher; John Oliver, Editor

What's Inside:

Medical miracle: Man performs his own appendectomy without sedatives.

June 20, 2005

TRAGEDY MOUNTS IN SHIELDS FALLS FLOOD DISASTER

Lives and Businesses Lost

The tragedy is mounting in Shields Falls following the disaster. Here's the latest information we have.

Shield Falls City Mayor, Cornelius "Kerney" Isenberg says: "Our town has been devastated. I grew up in Rapid City, South Dakota. My parents were devastated by the loss of their home and business in 1972. I moved them to live here in Shields Falls with us after that. Now this. My 85 year old Mom lives in the senior citizen complex that had to be evacuated and is now destroyed. She is reliving the nightmare of Rapid City."

Business Woman Lauren Spencer says: "My business was totally destroyed. It's a complete loss. I'm not sure what I'm going to do."

Police / Fire Chief: "The flood was horrendous. The Falls River just roared through the town. We couldn't stop it. It was terrible. It was a wall of water. Some of us got out but we lost fourteen of our close friends."

Hundreds of residents were displaced from their homes, and many injured. Fourteen Shields Falls residents perished in the flood. Their names are listed below:

1. Great-Grandmother LuVerna Wiese, 85, a life-long resident of Shields Falls was trapped in her home and unable to escape as it was swept away by flood waters.

2-5. Bill and Lorna Pedersen, ages 37 and 35 and their two children Mark and MaryAnn, ages 8 and 6 drowned. The family was found down-river still in the car they were using to try to escape the fast moving and rising waters.

6-7. Two Shields Falls fire fighters, Jim Jordan, age 45, a 10 year veteran of the Shields Falls Fire Department and Chris Dayton, age 39, a 5-year veteran. Both died in the line of duty while attempting to fix a gas line rupture which exploded.

8. Danny Francios, age 67, died of heart attack while attempting to rescue pets from his flooded home.

9-10. Meg Swanson, age 24 and her infant son, Jeremy, drowned when she jumped with her son in her arms from the roof of their home trying to reach safety.

11. Shane Banks, age 26. The boat he was using for rescue operations overturned in the swift current. Shane suffered massive blunt force trauma injuries and drowned.

12. Lisa McCrae, age 49, drowned after clinging to a tree waiting to be rescued but was swept away in the raging flood waters.

13-14. Three year old twins, Ashley and Tyler Baumgartner lost their lives by drowning while still strapped in their car seats. Their parents, Myron and Dolores, escaped from the family's van through the front windows but could not get to the twins in time as the vehicle was caught in the flash flooding of the Falls River and was submerged beneath the waters.

RAIN MAKERS, INC. EMAIL

From: Hugh Fitzpatrick [Fitz@rainmakersinc.com]

To: Parker Shaw, Executive Director [pshaw@msnaturalresources.org]

Sent: **Friday 08/26/2005 1:00 PM**

Subject: FORM WM3 - Report on Weather Modification Activities

As per your telephone call this morning, I am attaching Form WM3 - REPORT ON WEATHER MODIFICATION ACTIVITIES for June 13, 2005.

I apologize for the lengthy delay. I realize this form should have been filed with your office during the required time frame of 10 days after the conclusion of the operation. However, in light of the events that transpired, it was overlooked.

I regret to inform you that our daily flight logs were accidentally destroyed for the months of May and June.

Complete in accordance with instructions given in Midstate Administrative Procedures Act, M.R.S. 36-68-100. And send to: **MIDSTATE DEPARTMENT OF LICENSING AND REGULATION, P.O. BOX 11223 - SILVER SPRINGS, MIDSTATE - 1-800-555-5555**	**MIDSTATE FORM - WM3** **REPORT ON WEATHER MODIFICATION ACTIVITIES**
1. PROJECT OR ACTIVITY DESIGNATION, IF ANY **Operation /Project Name: Prairie Rain** 3. PURPOSE OF PROJECT OR ACTIVITY **Rain Modification for Prairie County, Midstate**	2. DATES OF PROJECT a. Date First Actual Weather Modification Activity Undertaken: **GROUND - JUNE 9-13; AERIAL - JUNE 13** b. Termination Date of Weather Modification Activities: **JUNE 13, 2005**
4. (a) SPONSOR NAME: **Prairie County Ranchers & Farmers Assoc.** AFFILIATION: ADDRESS: **P.O. Box 7744, Prairie City, Midstate** PHONE NUMBER: **555-550-4343**	4. (b) OPERATOR NAME: **HUGH FITZPATRICK** AFFILIATION: **RAIN MAKERS, INC.** ADDRESS: **5500 AIRPORT TECH CENTER COMPLEX, SILVER SPRINGS, MIDSTATE** PHONE #: **555-555-5550**
5. TARGET AREA	
TARGET AREA: **PRAIRIE COUNTY, MIDSTATE** SIZE OF AREA IN SQ. MI.: **2,000 square miles**	LOCATION: **PRAIRIE COUNTY, MIDSTATE** SIZE OF AREA IN SQ. MI.: **2,000 square miles**
6. DESCRIPTION OF WEATHER MODIFICATION APPARATUS, MODIFICATION AGENTS AND THEIR DISPERSAL RATES, THE TECHNIQUES EMPLOYED: **See attached pages (2) with description of apparatus, agents and their dispersal rates and the techniques to be employed.**	
7. LOG BOOKS: Enter name, affiliation, address and telephone number of responsible individual from whom daily log books or other records may be obtained. NAME: **HUGH FITZPATRICK** AFFILIATION: **RAIN MAKERS, INC.** ADDRESS: **5500 AIRPORT TECH CENTER COMPLEX, SILVER SPRINGS, MIDSTATE** PHONE #: **555-555-5550**	
8. SAFETY AND ENVIRONMENT: ☒**YES** ☐ NO Provisions were made to acquire the latest forecasts, advisories, warnings of the National Weather Service, Forest Service or others when issued prior to and during operations. ☒**YES** ☐ NO Safety procedures (operational constraints, provisions for suspension of operations, monitoring methods, etc., and environmental guidelines were included in operational plan.)	
CERTIFICATION: **I CERTIFY THAT THE ABOVE STATEMENTS ARE TRUE, COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.**	
NAME: **HUGH FITZPATRICK** AFFILIATION: **RAIN MAKERS, INC.** ADDRESS: **5500 AIRPORT TECH CENTER COMPLEX, SILVER SPRINGS, MIDSTATE** PHONE #: **555-555-5550**	SIGNATURE: ***Hugh Fitzpatrick*** TITLE: **President and CEO** DATE: **June 14, 2005**

FORM WM3 - REPORT ON WEATHER MODIFICATION ACTIVITIES - Page 1

ATTACHMENT TO FORM WM3
REPORT ON WEATHER MODIFICATION ACTIVITIES
BY RAIN MAKERS, INC.
(Page 1 of 2)

6. DESCRIPTION OF WEATHER MODIFICATION APPARATUS, MODIFICATION AGENTS AND THEIR DISPERSAL RATES, THE TECHNIQUES EMPLOYED:

Apparatus

Aircraft

An instrumented Gulfstream IV research aircraft will be deployed for cloud seeding and physical measurements. Cloud seeding will be accomplished using pyrotechnic flares or wing-mounted solution burners.

The onboard instrumentation package for the aircraft is as follows:

1. Forward Scattering Spectrometer Probe [FSSP] (able to detect cloud droplets between 2 and 47 μm diameter)[19]
2. Passive Cavity Aerosol Spectrometer Probe [PCASP] (able to measure concentrations and sizes of aerosol particles between 0.1 and 3.0 μm diameter)
3. 2D-C Optical Array Imaging Probe (able to detect cloud and precipitation particles between 25 to 800 μm diameter) or similar probe
4. 2D-P Optical Array Imaging Probe or a SPEC High Volume Particle Spectrometer [HVPS] (able to detect cloud and precipitation particles between 0.1 to greater than 6.4 mm diameter)
5. Cloud Liquid Water (CLW) sensor
6. Cloud Condensation Nuclei (CCN) counter
7. Condensation Nucleus (CN) counter
8. Ice nucleus (IN) counter
9. System to measure three-dimensional wind components
10. Temperature, pressure and dew point sensors
11. Data recording system with telemetry
    - These data should be recorded on a data system at least once per second.
    - The aircraft should be certified to fly in known icing conditions where most of the airborne seeding will be conducted.

Weather Modification Agent

Silver Iodide (AgI) delivered by ground generators and hydroscopic particles delivered by aircraft.

[19] A micrometre is one-millionth of a metre (1/1000 of a millimetre, or 0.001mm). Its unit symbol in the International System of Units (SI) is μm. As a point of reference, a single strand of hair usually has a diameter of 20 to 180 μm and red blood cells are approximately 8 μm in diameter.

ATTACHMENT TO FORM WM3
REPORT ON WEATHER MODIFICATION ACTIVITIES
BY RAIN MAKERS, INC.
(Page 2 of 2)

6. DESCRIPTION OF WEATHER MODIFICATION APPARATUS, MODIFICATION AGENTS AND THEIR DISPERSAL RATES, THE TECHNIQUES EMPLOYED (continued):

Aircraft Dispersal Rates

Pyrotechnic flares or wing-mounted solution burners containing hydroscopic particles were programmed to release flares at a rate of approximately one flare every 5 to 10 seconds in order to release at least 20 grams of seeding material into the atmosphere**.**

Figure 1. Photograph of burning hygroscopic flares during a seeding experiment.[20]

Ground based generators

Ground generators make use of propane gas flame into which a solution of silver iodide and acetone is injected. The acetone readily burns and the silver iodide is vaporized by the flame and released into the atmosphere.

Figure 2. Typical ground based generators.[21]

[20] From Roelof T. Bruintjes, 1999. A Review of Cloud Seeding Experiments to Enhance Precipitation and Some New Prospects, Bulletin of the American Meteorological Society, Vol. 80, No. 5, May 1999.

[21] From A. W. Huggins, S. L. Kenyon, L. Warren, A. D. Peace, S. P. Bilishand, M. J. Manton, 2008. THE SNOWY PRECIPITATION ENHANCEMENT RESEARCH PROJECT: A DESCRIPTION AND PRELIMINARY RESULTS, Journal of Weather Modification.

MIDSTATE CLIMATOLOGIST BRIEFING REPORT FOR
MIDSTATE SENATORS AND REPRESENTATIVES

submitted by

Arvid Klingfelter
Midstate Climatologist

August 15, 2005

Dear Members of the Midstate Senate and House of Representatives,

At your request, I compiled a brief climatological background report regarding Falls and Prairie Counties located in Midstate as well as weather conditions on the date of June 13, 2005.

Prairie County Climatological Background:

- Prairie County lies in the eastern plains section of the state featuring a low relative humidity, abundant sunshine, infrequent rains and snowfall, moderate to high wind movement and a large daily seasonal range in temperature. Summer daily maximum temperatures are often 95°F or above and 100°+F temperatures have been observed. Winter extremes are from zero to -10°F.
- Precipitation falls on a seasonal cycle. Seventy to eighty percent of annual total precipitation falls mainly during the growing season from April through September. From early March through early June, periodic widespread storms can bring beneficial moisture to crops and grasslands. Summer precipitation comes largely from thunderstorm activity and can be heavy. Historically, flash floods in June have occurred, but it is most commonly dry. The average precipitation is 10-12 inches. The region is almost always in, or on the verge of, drought. Multi-year droughts are common to the area as was the case from 1930-1940 and in the mid 1950s and 1970s.

Falls County Climatological Background:

- Falls County lies near the foothills of the Midstate Mountains, Front Range Pass. Average wind movement is less overall than experienced in Prairie County to the southeast, but areas very near the mountains are subject to periodic, turbulent winds from the effects of the prevailing north-northwesterly winds. These winds are sometimes referred to as “chinook winds” if they are warm and “bora winds” when associated with a cold frontal passage downslope off the mountains. Seasonable temperature changes are not as extreme as on the plains. There is a milder temperate corridor near the mountains.
- Precipitation is controlled by the mountain range, elevation, and notably the Midstate Mountains, Front Range Pass, located to the west of Falls County. In spring, melting snow pack from the higher elevations provide the primary source of water and water for extensive irrigation. Snow melts during May and June, causing the rivers to reach their peak capacity. In summer, the peaks and ranges are effective thunderstorm generators when air masses are sufficiently moist. Average precipitation is 12-14 inches. Some years, local thunderstorms form nearly every afternoon in and near the front range. Hail is possible from storms in June, July and August.

Midstate Wind Flow:

The prevailing winds in Midstate are from the north-northwest flowing to the south-southeast. These NNW winds funnel through the Midstate Mountains, Front Range Pass, located west of Falls County.

Weather Information - June 13, 2005

A severe, five-year drought in the eastern part of Midstate, most notably in Prairie County lying southeast of Falls County, prompted Prairie County farmers, ranchers and other citizens to hire Rain Makers, Inc. to perform a weather modification operation for enhanced rainfall in early June 2005.

Winds:

On Monday, June 13, 2005, the date of the cloud seeding operation conducted by Rain Makers, Inc., there was a sudden shift in winds coming directly from the south due to an area of low pressure which rapidly developed west of the Front Range. Low pressure cells caused counterclockwise wind rotation. While wind shifts are an occasional occurrence during the months of June, July and August on the eastern side of the mountain range, the rapid onset of the low pressure trough on that day created an unexpected, high velocity wind shift. Wind directional shifts have occurred, on average over the past 10 years, about six times per year in this area. See sketch diagram (Fig. 1-MCO) below which indicates the proposed location of seeding to the west of the pass, the expected seeded cloud path through the pass and actual path and wind direction on the day of seeding.

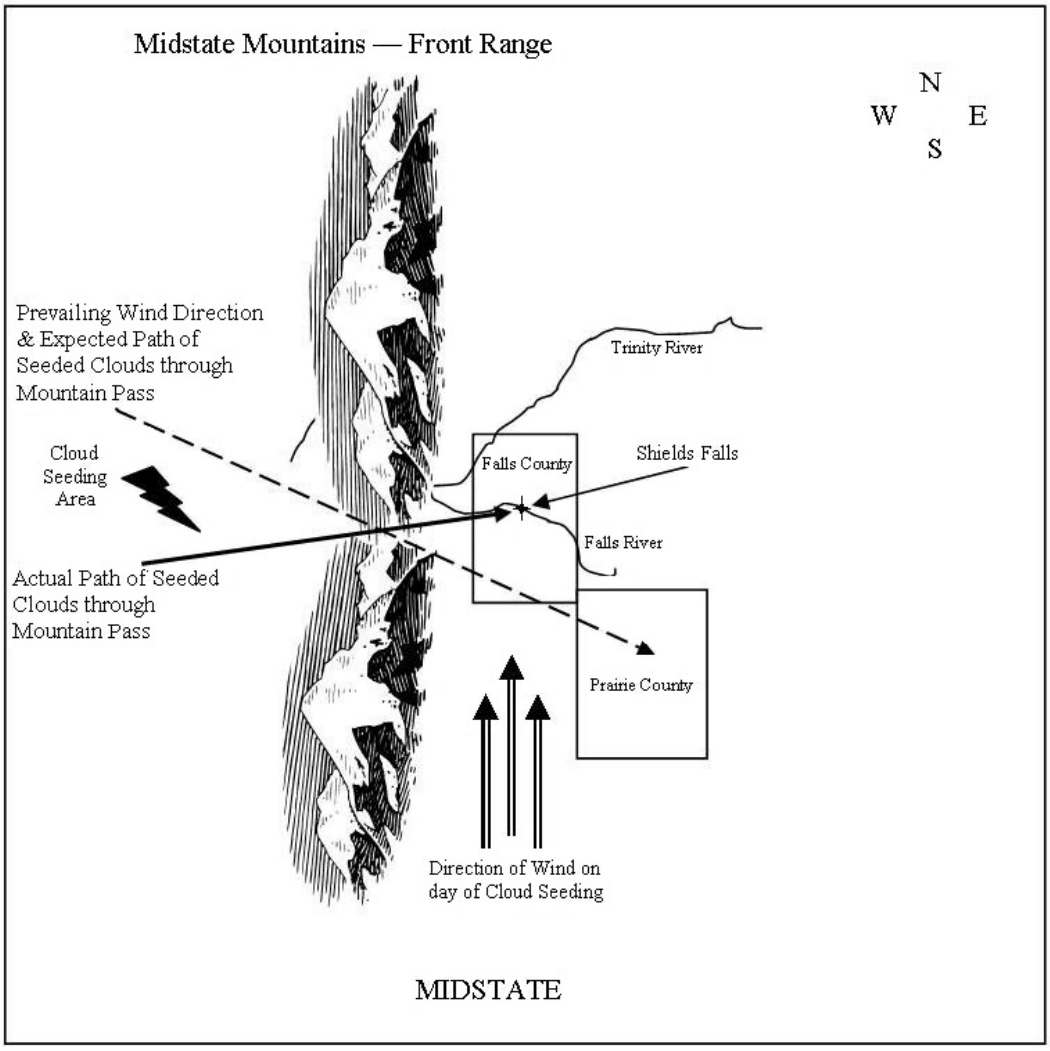

Figure 1-MCO. Diagram of cloud seeding area, prevailing and actual wind directions on June 13, 2005 and situational map showing Falls and Prairie County locations.

Precipitation:

As indicated in the climatological background for Falls and Prairie Counties, the average annual precipitation range for Falls County is between 12-14 inches. For Prairie County, the annual precipitation rate is 10-12 inches.

On June 13, 2005, from 1500-1900 hours, local time, the Midstate Climatological Office rain gauges recorded the following amounts of rainfall in and near Falls and Prairie Counties. See Table 1-MCO below.

STATION	PRECIPITATION (inches/hour)	TOTAL PRECIPITATION (inches)
1	0.2	0.8
2	0.3	1.2
3	0.4	1.6
4	0.5	2.0
5	1.5	6.0
6	2.5	10.0
7	3.0	12.0
8	2.0	8.0
9	0.0	0.0
10	0.0	0.0

Table 1-MCO. Record of precipitation from Midstate Climatology office rain gauges on June 13, 2005, from 1500-1900 hours, local time.

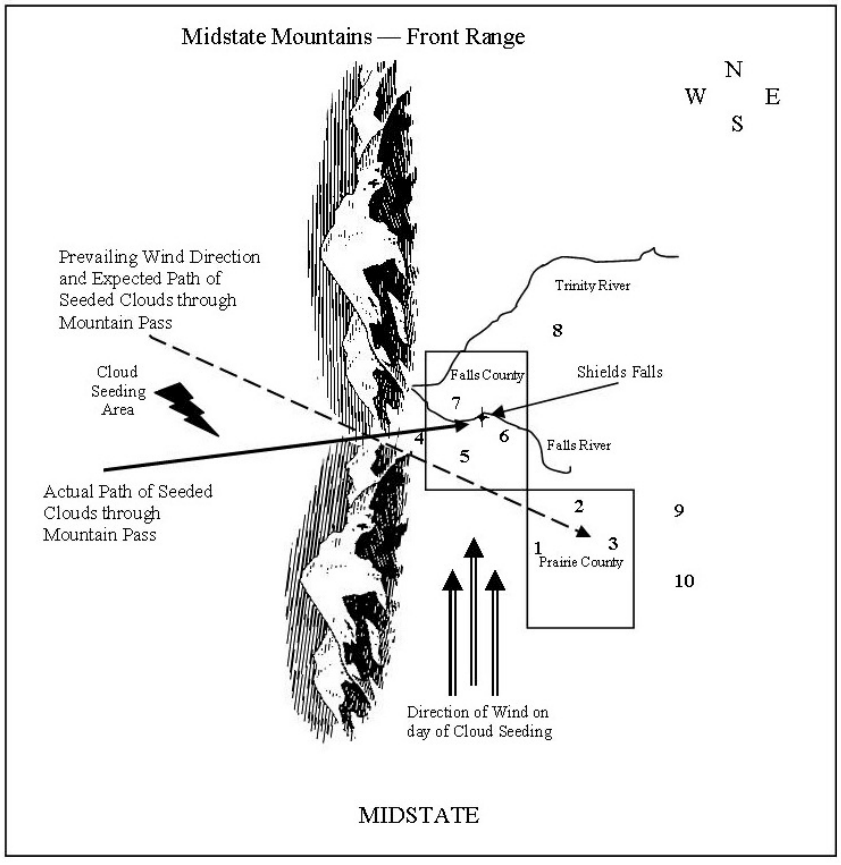

Figure 2-MCO. Location of cloud seeding project showing projected atmospheric flow versus the actual flow of seeded clouds on June 13, 2005. Numbers 1-10 indicate the location of Midstate Climatology office rain gauges.

REPORT ON LOSS OF LIVES, PERSONAL INJURIES AND PROPERTY DAMAGES RELATED TO JUNE 13, 2005 FLOOD IN SHIELDS FALLS AND SURROUNDING AREA

FOR MIDSTATE SENATORS AND REPRESENTATIVES

submitted by

Marie Swenson, Shields Falls City Manager

Shields Falls, Midstate

Dear Members of the Midstate Senate and House of Representatives,

At your request, the following is a summary report that lists the loss of life, personal injury and property damages that were reported to the City Manager's office resulting from the flood that occurred in Shields Falls, Midstate on June 13, 2005.

- Shields Falls residents who lost their lives:
  1. Jim Jordan (age 45)
  2. Chris Dayton (age 39)
  3. Bill Pedersen (age 37)
  4. Lorna Pedersen (age 35)
  5. Mark Pedersen (age 8)
  6. MaryAnn Pedersen (age 6)
  7. Danny Francois (age 67)
  8. Margaret ("Meg") Swanson (age 24)
  9. Jeremy Swanson (age five months)
  10. Shane Banks (age 26)
  11. Lisa McCrae (age 49)
  12. LuVerna Wiese (age 85)
  13. Ashley Baumgartner (age 3)
  14. Tyler Baumgartner (age 3)

- Personal injuries:
  1. Jeff Crittenden (age 10) - traumatic brain injury.
  2. JoAnn Grayson (age 27) - multiple fractures of her spine and limbs plus multiple contusions.
  3. 223 Shields Falls residents reported non-life threatening, personal injuries. All 223 were treated at nearby clinics, emergency rooms or hospitals and were released.

- City and personal property damages:
  1. Total destruction of the Shields Falls bridge. Estimated cost to rebuild/replace is $75 million.
  2. Shields Falls Elementary School was totally destroyed. Replacement/rebuilding cost is $70 million.
  3. Shields Falls city offices, police department, fire department buildings and all equipment. Replacement/rebuilding costs are estimated at $300 million dollars.
  4. Shields Falls Golf Course and sporting goods business were destroyed. Owner, Lauren Spencer's losses total more than $1 million.
  5. Harvest Moon gift store and boutique was destroyed. Owner, Lisa Littlebird's sustained losses of $50,000.
  6. Martin Photography, LLC. Owner, Timothy Martin, anticipates damages in excess of $60,000.
  7. Thirty-five residential homes were destroyed. Average replacement cost is $250,000 each.
  8. Twenty-two small businesses and offices lost equipment and stock. Damages are estimated at close to $15 million.
  9. Loss of 200 vehicles and automobiles. 190 were personal vehicles and 10 were public school buses.

Date: **August 17, 2005**

Marie Swenson

Marie Swenson, Shields Falls City Manager

PLEADINGS

Summons, Complaint & Answer

STATE OF MIDSTATE **DISTRICT COURT**
COUNTY OF FALLS **SECOND JUDICIAL DISTRICT**

Court File No. 4545

City of Shields Falls, et al.,

Plaintiffs,

v. **SUMMONS**

State of Midstate, Midstate Department of Natural Resources–Water Conservation, Weather Modification Board, and its individual members, Rain Makers, Inc., and Hugh Fitzpatrick,

Defendants.

THE STATE OF MIDSTATE TO THE ABOVE-NAMED DEFENDANTS:

YOU ARE HEREBY SUMMONED and required to serve upon Plaintiffs' attorneys an Answer to the Complaint which is herewith served upon you within twenty (20) days after service of the Summons upon you, exclusive of the day of service. If you fail to do so, judgment by default will be taken against you for the relief demanded in the Complaint.

Date: February 4, 2008

R.W. Sackett
R.W. SACKETT
ATTORNEY FOR PLAINTIFFS

STATE OF MIDSTATE **DISTRICT COURT**
COUNTY OF FALLS **SECOND JUDICIAL DISTRICT**

Court File No. 4545

City of Shields Falls, et al.*,

Plaintiffs,

v. **COMPLAINT**

State of Midstate, Midstate Department of Natural Resources–Water Conservation, Weather Modification Board, and its individual members, Rain Makers, Inc., and Hugh Fitzpatrick,

Defendants.

Plaintiffs, individually and on behalf of all other persons and organizations similarly situated, by and through their attorneys, for their complaint, allege upon personal knowledge as to themselves and their own acts, and upon information and belief as to all other matters, as follows:

I. Nature of the Action

1. This is a class action suit to recover damages from flooding caused by Defendants' actions. Plaintiffs include the City of Shields Falls, the governing body of a small city of 7,800 located in Falls County, Midstate, and several individuals who live or own businesses in Shields Falls.

2. On June 13, 2005, Shields Falls suffered severe flood following torrential rains. Immediately preceding the extremely heavy rainfall was a cloud seeding process, operating under a permit improperly granted by an agency of the State of Midstate. Defendant Rain Makes, Inc. conducted the cloud seeding operation directly west of Shields Falls.

3. The catastrophic flooding caused the deaths of fourteen people and injured hundred within Shields Falls. The flooding also destroyed the city's main bridge and its elementary school and caused major damage to the city offices and police and fire departments. In addition, thirty-five homes and approximately two hundred vehicles were destroyed. Many businesses were lost causing a disastrous economic impact on the surrounding community. The city has never suffered similar flooding in the past nor has there been flood damage or rainfall of this magnitude in Shields Falls prior to the flood of June 13, 2005.

*Includes the estates of deceased, injured parties and businesses.

4. Plaintiffs bring this class action under state common law and The Midstate Weather Modification Act of 1975, Paragraphs 36-66-114 and 36-66-115 on behalf of themselves, residents of Shields Falls who were injured or whose family members were killed and business owners of Shields Falls whose livelihoods were destroyed, against the state of Midstate, the Midstate Department of Natural Resources–Water Conservation, the Weather Modification Board and its individual members (who granted the permit to conduct the cloud seeding), Rain Makers, Inc. (the company that conducted the cloud seeding operation) and Hugh Fitzpatrick.

II. The Named Parties

A. Plaintiffs

5. Plaintiff City of Shields Falls is a municipal corporation existing pursuant to the statutes of the State of Midstate, and is located in the County of Falls, State of Midstate. Shields Falls has a population of approximately 7,800 people with numerous businesses located in or doing business in the city.

6. Plaintiff Julie Jordan (age 46) is the widow of Jim Jordan (age 45) and the mother of their four children: Jeff (age 17), Mary (age 16) and twins Joe and Jennifer (both age 12). Jim served as a firefighter for Shields Falls for ten years until he was killed on duty while attempting to fix a gas line rupture during the flood.

7. Plaintiffs Conrad and Barbara Dayton are the parents of Chris Dayton (age 39). Chris served as a firefighter for Shields Falls for five years until he was killed on duty while attempting to fix a gas line rupture during the flood.

8. Plaintiff Maureen Pedersen (age 62) is the mother of Bill Pedersen (age 37), mother-in-law of Lorna Pedersen (age 35), and grandmother of Bill and Lorna's children, Mark (age 8) and MaryAnn (age 6). Bill, Lorna, Mark and MaryAnn Pedersen all drowned in their car as they were attempting to escape the fast-moving and rising waters.

9. J.J. Morten (age 70) is the life partner of Danny Francios (age 67), who died of a heart attack while attempting to rescue their dog, Sopie and cat, Sato, from their flooded home. Morten is also the Executor of Francios' estate. Morten and Francios had been in a committed relationship for over 40 years.

10. Greg Swanson (age 24) is the widower of Margaret ("Meg") Swanson (age 24), and the father of their five-month-old son, Jeremy. Meg and her son Jeremy drowned when she jumped, cradling Jeremy in her arms, from the roof of their home as the flood waters started to overflow their perch on the roof. Meg was trying to reach a rescue boat, but could not jump far enough; she and her infant son were washed quickly away by the fast-moving water.

11. Tom and Sheila Banks (both age 50) are the parents of Shane Banks (age 26). Shane rescued numerous citizens of Shields Falls using his recreational boat until he drowned when the boat he was using for rescue operations overturned in the swift current.

12. John McRae (age 47) is the widower of Lisa McCrae (age 49), who drowned after clinging to a tree waiting to be rescued but was swept away in the raging flood waters.

13. Pete Wiese (age 60) is the son of great-grandmother LuVerna Wiese (age 85), a life-long resident of Shields Falls. LuVerna was trapped in her home and unable to escape as it was swept away by flood waters. Her body ultimately was found with her rosary beads wound tightly around her hand.

14. Myron (age 29) and Dolores Baumgartner (age 26) are the parents of twins Ashley and Tyler Baumgartner (both age 3). The twins lost their lives by drowning while still strapped in their car seats. Myron and Dolores were able to escape from the family van through the front side windows but could not get to the twins as the vehicle was caught in the flash flooding and ultimately submerged.

15. Jeff Crittenden (age 10) is an honors student at Bethune Elementary School in Shields Falls. He suffered a traumatic brain injury when he was struck by debris when he was caught up in swirling flood waters. Although rescuers were able to pull him to safety before he drowned, he will need substantial medical and other support services for the rest of his life; he is unlikely to regain his ability to control his bodily functions, ability to walk and ability to communicate with others.

16. JoAnn Grayson (age 27) suffered multiple fractures to all of her limbs and spine as well as multiple contusions when she fell from a second story window where she was trying to hand her son, J.R. (age 3) to rescuers. Although she may be able to regain use of her limbs at some point, JoAnn suffers from debilitating pain, which to date has been unmitigated by medication or other pain management strategies.

17. Lauren Spencer (age 45) was the sole owner of Midstate Mountain Sports and Shields Falls Golf Course. Lauren's business, Midstate Mountain Sports was situated next to the Falls River. Her entire inventory, records, fixtures, computers and buildings were destroyed in the flood. The golf course, club house, equipment, and other out buildings were flooded. Lauren's losses total more than one million dollars.

18. Lisa Littlebird, (age 40) was the sole owner and proprietor of The Harvest Moon, a gift store and boutique in the business district of Shields Falls. Lisa had over $50,000 in inventory in the store at the time of the flood, but had no business insurance. Her inventory was completely destroyed in the flood, as were all her fixtures, records and computer equipment.

19. Timothy Martin (age 32) was the sole owner and proprietor of Martin Photography, LLC. He photographed weddings, baptisms, graduations and other important occasions for the people of Shields Falls. He had recently been transferring his negatives to digital format; his equipment and the records from many older and recent photo assignments were completely destroyed by the flood waters. His damages exceed $60,000.

B. Defendants

20. Defendant State of Midstate, is now, and at all times mentioned in this complaint was, a sovereign state of the United States. Midstate is the eighth largest state in the United States covering 105,000 square miles and is divided into 64 counties.

21. Defendant Midstate Department of Natural Resources–Water Conservation, Weather Modification Board is an agency of the State of Midstate. The agency is uniquely authorized and responsible for granting permits for cloud seeding under The Midstate Weather Modification Act of 1975, Article 36.

22. Defendants Parker Shaw, Richard Greenwald and J.C. Hallberg are all now, and at all times mentioned in this complaint were, members of the Weather Modification Board. Under The Midstate Weather Modification Act of 1975, Article 36, the members of the Weather Modification Board have sole authority within the State of Midstate to grant permits for cloud seeding and to monitor the activities of those granted permits to perform cloud seeding.

23. Defendant Rain Makers, Inc. is a Midstate corporation that is now, and at all times mentioned in this complaint was, located and doing business in Midstate.

24. Defendant Hugh Fitzpatrick is now, and at all times mentioned in this complaint was, President and Chief Executive Office of Defendant Rain Makers, Inc.

III. Factual Allegations

25. Plaintiffs incorporate herein the allegations of Paragraphs 1 to 24 of this complaint.

26. Cloud seeding is a controversial weather modification scheme where chemical agents are dumped into the atmosphere to alter the amount and timing of rainfall. Cloud seeding is particularly popular in China and countries such as South Africa and France.

27. In 1975, the state of Midstate joined a small minority of states in the United States and enacted legislation to authorize weather modification operations, including cloud seeding for narrow purposes. The Midstate Weather Modification Act of 1975, Article 36 ("The Weather Modification Act") and the Midstate Weather Modification Rules and Regulations Administrative Procedures Act ("The Weather Modification Rules") prescribe the practices for the state of Midstate on cloud seeding. For the first fifteen years after enactment, few modification operations were conducted, due to controversy and opposition to the practice as well as failed earlier attempts.

28. In May 2005, the Weather Modification Board, under state authorization, granted the first permit to practice weather modification since 1999. Although the full Board failed to approve the permit, the Board's executive director unilaterally granted the permit, invoking the seldom used exception for Board approval under The Weather Modification Act, Paragraph 36-66-107(3). The permit was granted to Rain Makers, Inc. to carry out specific weather modification operations, namely cloud seeding, within the state of Midstate. The executive director issued the permit in violation of The Weather Modification Act, Paragraphs 36-66-105 and 36-66-109, and The Weather Modification Rules 36-68-100, Sections C and D.

29. On May 30, 2005, Defendant Rain Makers, Inc. published its first public Notice of Intent (NOI) in the metropolitan paper indicating that its cloud seeding operation will take place solely in Prairie County, the county adjacent to Falls County, where Shields Falls is located. Defendant Rain Makers, Inc. violated The Weather Modification Rules in at least two ways. First, Defendant Rain Makers, Inc. did not make any notice whatsoever of cloud seeding impacts in Falls County or Shields Falls. Second, Defendant Rain Makers, Inc. made no further publications concerning the cloud seeding after its initial notice. In addition, no member of the Weather Modification Board granted a waiver to Rain Makers, Inc. regarding these violations. Further, no member of the Weather Modification Board issued an order prohibiting Rain Makers, Inc. from initiating its cloud seeding operation, despite its violations of The Weather Modification Rules.

30. On June 13, 2005, Defendant Rain Makers, Inc. began cloud seeding directly west of Shields Falls. A sudden rainstorm dropped over ten inches of rain in Shields Falls and the surrounding area. On information and belief, Shields Falls has never had rainfall of this magnitude before the cloud seeding by Rain Makers, Inc.

31. The unexpected rainfall caused massive flooding and catastrophic damage to Shields Falls and its residents. Fourteen people died. Hundreds were injured. The flood waters were so strong that cars were carried away by the torrential currents. The flooding destroyed the city's main bridge and its elementary school, and caused major damage to the city offices and police and fire departments. In addition, thirty-five homes and approximately two hundred vehicles were destroyed. Businesses and economic activity in Shields Falls were severely impaired.

IV. The Plaintiff Class

32. Plaintiffs bring this action as a class action pursuant to Rules 23.01 and 23.02(c) of the Midstate Rules of Civil Procedure on behalf of all residents of Shields Falls who were injured or as the legal representatives of the estates of decedents killed as a result of the actions of Defendants on or about June 13, 2005.

33. Excluded from the class are Defendants and their officers and members, and their legal counsel.

34. The class is so numerous as to make joinder impracticable. The exact number of class members is unknown, although it is believed that the class contains hundreds of members, and that many class members are unaware that they have claims. Whether or not they are aware, however, some members may have claims with damages in amounts that, while significant, when taken individually may be too small to justify the expense of a separate lawsuit; aggregated, however, they make litigation financially feasible.

35. The Plaintiffs' claims are typical of the claims they seeks to represent for the class. The Plaintiffs will fairly and adequately represent the members of the class who are victims of the same misconduct, and it has no interests that are antagonistic to the claims of the class. The Plaintiffs' interests in this action are antagonistic only to the interests of Defendants, and the Plaintiffs will vigorously pursue the claims that they assert on behalf of the class.

36. The Plaintiffs have retained counsel who is competent and experienced in class action litigation, and who has represented other victims of large tort claims. Counsel has agreed to handle this case on a contingent basis, with its compensation for professional services to be awarded by the Court.

37. Common questions of law and fact affect the rights of each member of the class and common relief by way of damages is sought for the class.

38. Numerous and substantial questions of law and fact, to all members of the class, will control in this litigation and will predominate over any so called individual issues.

39. A class action provides a fair, efficient and superior method, if not the only method, for adjudicating this controversy. The substantive claims are substantially the same and will require evidentiary proof of the same kind and application of the same law.

40. The Plaintiffs will seek to identify all members of the class through discovery procedures as may be appropriate and will provide the class with notice of this action as the Court may direct.

V. First Cause of Action for Negligence

(Against Defendants Rain Makers, Inc. and Fitzpatrick)

41. Plaintiffs readopt and re-allege Paragraphs 1 to 40 of this complaint.

42. On or before June 13, 2005, Defendants undertook actions to approve, plan, and execute weather modification and cloud seeding operations in the proximity of Shields Falls.

43. At all material times, Defendants owed a duty to the Plaintiffs to act with the ordinary care of reasonable persons with respect to all aspects of the weather modification and cloud seeding operations.

44. Notwithstanding the duty mentioned above, Defendants committed one or more of the following acts of negligence:

    (a) carelessly and negligently failed to review properly the plans for the weather modification and cloud seeding operations;

    (b) carelessly and negligently failed to enforce properly the rule regarding weather modification and cloud seeding operations;

    (c) carelessly and negligently failed to monitor the execution of the weather modification and cloud seeding operations; and

    (d) carelessly and negligently failed to perform properly the weather modification and cloud seeding operations.

45. As a proximate result of one or more of the foregoing acts of negligence on the part of Defendants, the Plaintiffs suffered substantial damages, including injury and the loss of life, property damage and loss, and the loss of business operations and income. Plaintiffs demand judgment against Defendants in a fair and reasonable sum in excess of $50,000 for each individual Plaintiff in the class together with their costs of suit and attorney's fees.

VI. Second Cause of Action for Negligence Per Se

(Against Defendants Rain Makers, Inc. and Fitzpatrick)

46. Plaintiffs readopt and re-allege Paragraphs 1 to 45 of this complaint.

47. In doing the acts and engaging in the conduct as alleged herein, Defendants violated The Midstate Weather Modification Act of 1975, Article 36 and its related rules.

48. The Weather Modification Act and its related rules were designed to ensure the safety of residents of Midstate and the proper execution of weather modification and cloud seeding operations. The damages to the Plaintiffs resulted from occurrences against which this statute was designed to protect. Plaintiffs were members of the class of persons for whose protection this statute was adopted.

49. The violations of this statute by Defendants were the legal cause of the injury and damages to Plaintiffs.

VII. Third Cause of Action for Strict Liability

(Against Defendants Rain Makers, Inc. and Fitzpatrick)

50. Plaintiffs readopt and re-allege Paragraphs 1 to 49 of this complaint.

51. Defendants, through approval, oversight or execution, undertook to modify weather and perform cloud seeding to produce more rainfall on or about June 13, 2005.

52. Weather modification and cloud seeding is an abnormally dangerous activity, because there is potential for great harm through flood; there is inadequate predictability of the effects of cloud seeding, making it difficult to reduce or eliminate the flood risk; and cloud seeding is not commonly done.

53. Defendants' approval, authorization and execution of weather modification and cloud seeding contributed to the amount and intensity of the storm in Shields Falls beyond what would have occurred naturally. The amount and intensity increased the flood and other related effects, which caused the damages to Plaintiffs.

VIII. Fourth Cause of Action for Gross Negligence

(Against the State Defendants)

54. Plaintiffs readopt and re-allege Paragraphs 1 to 53 of this complaint.

55. Defendants owed the Plaintiffs a duty to discharge their responsibilities under The Weather Modification Act with due and diligent care and skill.

56. Defendants' acts constitute gross negligence pursuant to The Weather Modification Act, Paragraph 36-66-114, in that such acts manifested a lack of due diligence and care, and a conscious, voluntary act and omission in reckless disregard of their duties.

57. As a direct and proximate result of Defendants' gross negligence and failure to fulfill their duties, Plaintiffs sustained the injuries and damages as more particularly described herein.

WHEREFORE, Plaintiffs demand judgment as follows:

1. Certifying and declaring that this action may be maintained as a class action pursuant to Rules 23.01 and 23.02(c) of the Midstate Rules of Civil Procedure;

2. On the First Cause of Action against Defendants, awarding Plaintiffs and the other members of the class damages in an amount to be proven at trial plus the costs of this action;

3. On the Second Cause of Action against Defendants, awarding Plaintiffs and the other members of the class damages in an amount to be proven at trial plus the costs of this action;

4. On the Third Cause of Action against Defendants, awarding Plaintiffs and the other members of the class damages in an amount to be proven at trial plus the costs of this action;

5. On the Fourth Cause of Action against defendants, awarding Plaintiffs and the other members of the class damages in an amount to be proven at trial plus the costs of this action;

6. Awarding Plaintiffs and the other members of the class damages in excess of $100 million, the exact amount of which will be the subject of proof in this action;

7. Awarding Plaintiffs and the other members of the class their costs and the expenses of this litigation, including reasonable attorneys' fees and experts' fees and other costs and disbursements; and

8. Granting such other and further relief as the Court may deem just and proper.

9. Plaintiffs hereby demand a JURY TRIAL.

Date: February 4, 2008

R.W. Sackett

R.W. SACKETT

ATTORNEY FOR PLAINTIFFS

STATE OF MIDSTATE
COUNTY OF FALLS

DISTRICT COURT
SECOND JUDICIAL DISTRICT

Court File No. 4545

City of Shields Falls, et al.,

Plaintiffs,

v.

DEFENDANTS' INDIVIDUAL AND JOINT ANSWER TO CLASS ACTION COMPLAINT

State of Midstate, Midstate Department of Natural Resources–Water Conservation, Weather Modification Board, and its individual members, Rain Makers, Inc., and Hugh Fitzpatrick,

Defendants.

ANSWER

Defendants, individually and jointly, answer and otherwise respond to the Plaintiffs' Class Action Complaint. Except as specifically admitted or explained herein, Defendants deny each and every matter and allegation contained in the Class Action Complaint:

1. Defendants deny that the flooding alleged in paragraph 1 was caused by Defendants' actions. Defendants admit the other allegations in paragraph 1.

2. Defendants deny that the cloud seeding operation alleged in paragraph 2 was conducted under a permit improperly granted by an agency of the State of Midstate. Defendants admit the other allegations in paragraph 2.

3. Defendants admit that Shields Falls experienced a severe flood on June 13, 2005, but lack knowledge or information sufficient to form a belief as to the truth of the rest of the allegations in paragraph 3.

4. The allegations in paragraph 4 are jurisdictional as to the class action, contain legal allegations as opposed to factual allegations, and do not require a response. If a response is required, Defendants deny the allegations.

5. Defendants admit the allegations of paragraph 5.

6. Defendants lack knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 6.

7. Defendants lack knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 7.

8. Defendants lack knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 8.

9. Defendants lack knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 9.

10. Defendants lack knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 10.

11. Defendants lack knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 11.

12. Defendants lack knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 12.

13. Defendants lack knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 13.

14. Defendants lack knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 14.

15. Defendants lack knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 15.

16. Defendants lack knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 16.

17. Defendants lack knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 17.

18. Defendants lack knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 18.

19. Defendants lack knowledge or information sufficient to form a belief as to the truth of the allegations in paragraph 19.

20. Defendants admit the allegations of paragraph 20.

21. Defendants admit the allegations of paragraph 21.

22. Defendants admit the allegations of paragraph 22.

23. Defendants admit the allegations of paragraph 23.

24. Defendants admit the allegations of paragraph 24.

25. Defendants repeat and incorporate by reference all responses to the foregoing paragraphs.

26. Defendants admit that cloud seeding is a weather modification process where chemical agents are placed into the atmosphere to alter the amount and timing of rainfall. Defendants deny that cloud seeding is controversial and lack knowledge or information sufficient to form a belief as to the truth of the rest of the allegations in paragraph 26.

27. Defendants admit that in 1975 Midstate adopted The Midstate Weather Modification Act of 1975, Article 36 ("The Weather Modification Act") and The Midstate Weather Modification Rules and Regulations Administrative Procedures Act ("The Weather Modification Rules") which prescribe the practices for the state of Midstate on cloud seeding. Defendants lack knowledge or information sufficient to form a belief as to the truth of the rest of the allegations in paragraph 27.

28. Defendants admit that in May 2005 the Weather Modification Board, under state authorization, granted the first permit to practice weather modification since 1999 and admit that the permit was granted to Rain Makers, Inc. to carry out specific weather modification operations, namely cloud seeding, within the state of Midstate. Defendants deny the rest of the allegations in paragraph 28.

29. Defendants admit that on May 30, 2005, Defendant Rain Makers, Inc. published its first public Notice of Intent (NOI) in the metropolitan paper indicating that its cloud seeding operation would take place in Prairie County, the county adjacent to Falls County, where Shields Falls is located, but Defendants deny all the remaining allegations in paragraph 29.

30. Defendants admit that on June 13, 2005, Defendant Rain Makers, Inc. began cloud seeding directly west of Shields Falls. Defendants admit that during the next 24 hours a rainstorm dropped over ten inches of rain in Shields Falls and the surrounding area. Defendants lack knowledge or information sufficient to form a belief as to the truth of the rest of the allegations in paragraph 30.

31. Defendants admit that Shields Falls and its residents experienced flooding and catastrophic damage as alleged in paragraph 31, but deny all the rest of the allegations in paragraph 31.

32. The allegations in paragraph 32 are jurisdictional as to the class action, contain legal allegations as opposed to factual allegations, and do not require a response. If a response is required, Defendants deny the allegations.

33. The allegations in paragraph 33 are jurisdictional as to the class action, contain legal allegations as opposed to factual allegations, and do not require a response. If a response is required, Defendants deny the allegations.

34. The allegations in paragraph 34 are jurisdictional as to the class action, contain legal allegations as opposed to factual allegations, and do not require a response. If a response is required, Defendants deny the allegations.

35. The allegations in paragraph 35 are jurisdictional as to the class action, contain legal allegations as opposed to factual allegations, and do not require a response. If a response is required, Defendants deny the allegations.

36. The allegations in paragraph 36 are jurisdictional as to the class action, contain legal allegations as opposed to factual allegations, and do not require a response. If a response is required, Defendants deny the allegations

37. The allegations in paragraph 37 are jurisdictional as to the class action, contain legal allegations as opposed to factual allegations, and do not require a response. If a response is required, Defendants deny the allegations.

38. The allegations in paragraph 38 are jurisdictional as to the class action, contain legal allegations as opposed to factual allegations, and do not require a response. If a response is required, Defendants deny the allegations.

39. The allegations in paragraph 39 are jurisdictional as to the class action, contain legal allegations as opposed to factual allegations, and do not require a response. If a response is required, Defendants deny the allegations.

40. The allegations in paragraph 40 are jurisdictional as to the class action, contain legal allegations as opposed to factual allegations, and do not require a response. If a response is required, Defendants deny the allegations.

41. Defendants repeat and incorporate by reference all responses to the foregoing paragraphs.

42. Defendants admit the allegations in paragraph 42.

43. Defendants admit the allegations in paragraph 43.

44. Defendants deny the allegations in paragraph 44.

45. Defendants deny the allegations in paragraph 45 and need not respond to the legal conclusions and demands in the rest of the paragraph.

46. Defendants repeat and incorporate by reference all responses to the foregoing paragraphs.

47. Defendants deny the allegations in paragraph 47.

48. Defendants admit that The Weather Modification Act and its related rules were designed to ensure the safety of residents of Midstate and the proper execution of weather modification and cloud seeding operations, but deny the rest of the allegations in paragraph 48.

49. Defendants deny the allegations in paragraph 49 and need not respond to the legal conclusions and demands in the rest of the paragraph.

50. Defendants repeat and incorporate by reference all responses to the foregoing paragraphs.

51. Defendants admit the allegations of paragraph 51.

52. Defendants deny the allegations of paragraph 52.

53. Defendants deny the allegations of paragraph 53.

54. Defendants repeat and incorporate by reference all responses to the foregoing paragraphs.

55. Defendants admit the allegations of paragraph 55.

56. Defendants deny the allegations of paragraph 56.

57. Defendants deny the allegations in paragraph 57 and need not respond to the legal conclusions and demands in the rest of the paragraph.

FIRST AFFIRMATIVE DEFENSE

Defendants are not liable due to consent through an agreement entered into prior to weather modification activities.

SECOND AFFIRMATIVE DEFENSE

Defendants are not liable and Defendants' acts or omissions were justified under the doctrine of public necessity, the right to protect public from imminent disaster by performing acts which might otherwise be tortuous.

THIRD AFFIRMATIVE DEFENSE

Any injuries sustained or suffered by Plaintiffs at the time and place and on the occasion mentioned in the complaint were caused in whole or in part, or were contributed to, by the negligence or fault or want of care of the Plaintiffs, and not by any negligence or fault, gross negligence, or want of care on the part of Defendants.

FOURTH AFFIRMATIVE DEFENSE

The damages, if any, sustained by Plaintiffs as alleged in their complaint were the result of an unusual and unprecedented rainfall, followed by extraordinary and unprecedented flood waters. Defendants could not have reasonably anticipated or guarded against this unprecedented rainfall and flood, which were the sole proximate cause of any damage to Plaintiffs.

FIFTH AFFIRMATIVE DEFENSE

The damages, if any, sustained by Plaintiffs were caused by an act of God or nature, for which Defendants were and are not responsible.

SIXTH AFFIRMATIVE DEFENSE

The subject matter of Plaintiffs' complaint arose from activities subject to The Midstate Weather Modification Act of 1975, Article 36. That statute requires that any dispute between Plaintiffs and Defendants arising from activities conducted under the provisions of that statute be submitted to non-binding arbitration. No action arising out of such dispute can be maintained by any party until after completion of arbitration proceedings.

SEVENTH AFFIRMATIVE DEFENSE

Defendants allege that every act or omission alleged in the complaint was done in good faith conformity with the rules and regulations of The Midstate Weather Modification Act of 1975, Article 36, and there is no liability for any such act or omission alleged.

EIGHTH AFFIRMATIVE DEFENSE

Defendants allege that Plaintiff City of Shields Falls' claims are barred by its own unclean hands and wrongful conduct, in that it had faulty water drainage systems, inadequate rescue and emergency services, and other related municipal failures to protect its citizens and address the conditions presented during and after the occasion mentioned in the Complaint, and that its own buildings and structures were inadequately constructed and maintained.

NINTH AFFIRMATIVE DEFENSE

Defendants allege that Plaintiffs and members of the purported plaintiff class would be unjustly enriched if they recovered anything in this action.

TENTH AFFIRMATIVE DEFENSE

Plaintiffs' claims are barred in whole or in part because Plaintiffs failed to make reasonable efforts to mitigate such purported injury or damage, which reasonable efforts would have prevented their injury or damages, if any.

ELEVENTH AFFIRMATIVE DEFENSE

Plaintiffs' claims are barred by sovereign or Eleventh Amendment immunity.

TWELFTH AFFIRMATIVE DEFENSE

Plaintiffs' claims are barred by executive immunity.

THIRTEENTH AFFIRMATIVE DEFENSE

Plaintiffs' claims are barred by qualified immunity.

FOURTEENTH AFFIRMATIVE DEFENSE

Plaintiffs' claims are barred by statutory discretionary immunity.

FIFTEENTH AFFIRMATIVE DEFENSE

Plaintiffs' claims are barred by the statute of limitations.

ADDITIONAL DEFENSES

1. Lacks subject-matter jurisdiction;
2. Lack of personal jurisdiction;
3. Improper venue;
4. Insufficient process;
5. Insufficient service of process;
6. Failure to state a claim upon which relief can be granted; and
7. Failure to join a party under Rule 19.

WHEREFORE, Defendants request that:

1. Plaintiffs' class action complaint be dismissed in its entirety;
2. Plaintiffs be responsible for all costs of this action; and
3. Defendants be granted such other and further relief to which they are entitled.

Date: February 14, 2008

Phillip Longmont
PHILLIP LONGMONT
ATTORNEY FOR DEFENDANTS

EXPERT REPORTS

Jan Wiegard, Ph.D. (Rain Makers, Inc.)
- Initial Report for Weather Modification Board Hearing
- Follow-Up Report for Legislative Hearing

D.J. Hillstone, Ph.D., J.D. (Earth's Natural Circle)
- Initial Report for Weather Modification Board Hearing
- Follow-Up Report for Legislative Hearing

R.J. Scott, Ph.D. (Geoengineering Consultants, LLC)
- Report for Jury Trial

Jordan Gale, Ph.D. (Global Commons Environmental Consulting, Ltd.)
- Report for Jury Trial

EXPERT REPORT

JAN WIEGARD, Ph.D. (Rain Makers, Inc.)

Initial Report for Weather Modification Board Hearing

Cloud Seeding in Prairie County, Midstate

Jan Wiegard Ph.D.
Rain Makers, Inc.

Introduction

Cloud seeding is a technique for weather modification and is a scientific process intended to enhance rain. The theories, technologies, and practices of cloud seeding can be traced to the post World War II era when scientists discovered that by purposefully injecting silver iodide and dry ice into the atmosphere at altitude, ice crystal formation is enhanced in clouds thereby creating the conditions needed for precipitation.

Artificial cloud seeding improves a natural cloud's ability to produce precipitation by adding small particles, called ice nuclei, to the clouds. These particles have an ice crystalline structure that allow water to freeze at temperatures below 0°C and are critical sites for the condensation necessary for precipitation. When sufficient naturally occurring ice nuclei are lacking in the atmosphere to produce precipitation, adding silver iodide nuclei through seeding can increase the amount of precipitation produced by the cloud. There are no environmentally harmful effects from cloud seeding with silver iodide aerosols.[22]

The increase of precipitation due to aerial cloud seeding can range from almost immediate to up to 30 minutes depending on the seeding delivery method. Ground based methods for base seeding are easier to accomplish but take longer by requiring the seeding agents to be transported by the cloud's updraft to become effective. Direct injection of seeding agents into a cloud requires working at high altitudes by aircraft and is faster but more expensive.

Recent prolonged and severe drought conditions in Prairie County, Midstate can be alleviated with a scientific program of cloud seeding. Cloud seeding is a safe and reliable method that produces precipitation and allows man to succeed where nature has failed.

Specific Project Goals and Measurable Scientific Outcomes

The goal of this project is to enhance precipitation within the operational and target area of Prairie County, Midstate through the application of cloud seeding technology. The benefits of additional precipitation are expected to enhance actual precipitation amounts and subsequently enhance runoff into the streams and reservoirs of Prairie County.

The current and historically unprecedented low precipitation and soil moisture conditions following five below normal years of precipitation in Prairie County pose a clear threat to the economic viability and sustainability of Prairie County, warranting an effort to increase water resources in the county.

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[22] Weather Modification Association, 2009. Position statement on the environmental impact of using silver iodide as a cloud seeding agent. www.weathermodification.org.

Results from carefully conducted ground-based experiments in the State of Columbia and other agricultural regions have shown that precipitation can be increased by 5-15% annually in the areas targeted by cloud seeding operations. Trace chemical analyses of precipitation from these cloud seeding projects conducted during 2000 and 2002 in the State of Columbia, 100 miles to the west of the Midstate Mountains, showed that 34-52% of the samples contained enhanced concentrations of silver, indicative of precipitation created by cloud seeding with silver iodide (AgI). Previous environmental assessments have indicated no negative impacts to watersheds from cloud seeding operations.

The primary measurable outcome of the project will be an estimated enhancement in precipitation that will be computed for each period of cloud seeding based on the hours of seeding, amount of seeding material released, expected increase in precipitation rate, and the average areal coverage of the fallout from each seeding site.

Previous results from ground-based cloud seeding projects by Rain Makers, Inc. documented the hourly increases in precipitation due to cloud seeding range from 0.01 to 0.25 inches per hour. As a conservative estimate of the effect for the Prairie County project, a value of 0.25 inches per hour will be used in the enhancement estimates.

Project Location

This proposal focuses on a cloud seeding effort for Prairie County in Midstate. Figure 1 shows the location of the project.

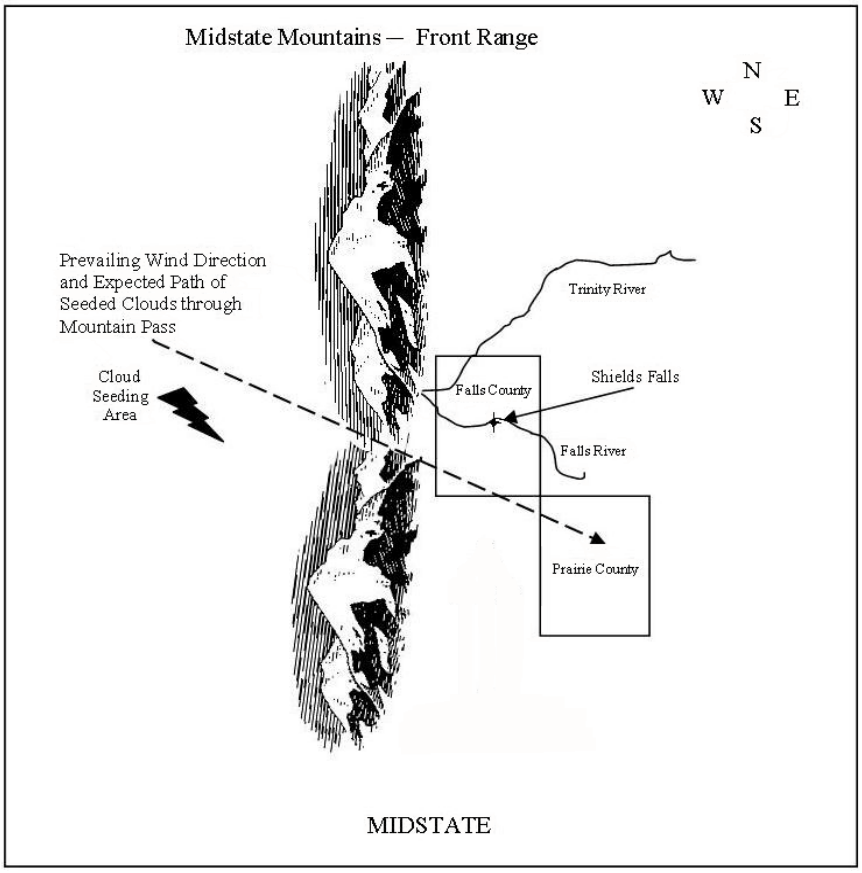

FIGURE 1. Location of cloud seeding area and projected path of seeded clouds to Prairie County

The region to the west of the Midstate Mountains labeled "Cloud Seeding Area" approximately encloses the cloud seeding target area for Prairie County by both ground and aircraft resources.

Project Description

The project design and method of operation will be nearly identical to those for the State of Columbia in 2000 and 2002. Seeding will be conducted from a line of five ground-based remotely operated generators positioned a few miles to the west of Mountain Pass in the saddle of the Midstate Mountains (Fig. 1).

The generators will be positioned to take advantage of typical wind directions in spring storms for the eastern region of the State of Columbia and will be remotely activated by Rain Makers, Inc.'s staff when the proper weather and cloud conditions for seeding have been verified.

Ground-based cloud seeding will follow Regional Water Commission (RWC) guidelines. This "chain-of-events" in the cloud seeding process has been verified by numerous ground-based experiments conducted in the State of Columbia.

The seeding material will be silver iodide (AgI). The seeding "generators" burn a solution containing AgI dissolved in acetone. The burning process produces a "smoke" of microscopic AgI particles (about 0.0001 mm in size) that will be transported downwind and dispersed eastwards in clouds over the Midstate Mountains through Mountain Pass. Vertical dispersion above the surface is produced by the turbulence created by wind moving over the uneven terrain. In the presence of cloud droplets existing at temperatures below -7°C, the silver iodide particles act as ice-forming nuclei and enhance the ice particle concentration in the natural clouds. Once initiated by silver iodide the ice particles grow in size and mass as they move downwind and begin falling to the surface where they have sufficient mass to overcome the upward motion in the clouds. In 20 to 30 minutes, precipitation within the seeding plume can reach the surface in and around the target area.

Phase 1 of the Midstate project will include establishment of five seeding generators at the "cloud seeding" location shown in Fig. 1. This will require mobilization and will involve moving the generators into position, filling the cloud seeding solution tanks, setting and filling propane tanks, and testing all generator components and communications links (including time to re-establish a radio communications link for one site). Generators will be filled with 100 gallons of seeding solution, which will allow for approximately 240 hours of seeding per unit.

Phase 2 of the Midstate project will involve aircraft seeding during a shorter period of two days. The aircraft seeding plan is similar, except the cloud seeding material will be dispensed directly into clouds at the appropriate temperature and upwind distance to account for the transport of seeding material by upper level winds.

It is anticipated that, as with the projects in the State of Columbia, the ground-based effort will account for 60% of the estimated precipitation enhancement resulting from cloud seeding. It is expected, therefore, that 40% of the estimated precipitation enhancement will derive from aircraft operations.

The meteorological forecasts and observations needed to conduct the project are the responsibility of the project manager who also serves as the project meteorologist and radar meteorologist. He will monitor environmental conditions during the full extent of the planned ground-based efforts beginning June 1, 2005, and extending for two weeks thereafter.

All operational guidelines, safety restrictions and suspension criteria for the project have previously been developed by Rain Makers, Inc. and specify the cloud, wind and temperature conditions in which a cloud seeding event can be initiated, including hazardous conditions to avoid potential hazards such as river flooding under which no cloud seeding operations should be commenced.

The project meteorologist will begin monitoring the weather and making forecasts for seeding events planned within three to five days. The technical staff of Rain Makers, Inc. will make regular checks of each seeding generator by logging into the generator's computer, activating the unit, and monitoring key operating parameters. As a storm begins affecting the target area, cloud conditions will be monitored more frequently to determine when seeding criteria are satisfied.

When the project meteorologist determines that conditions are correct, he will call the lead research technician with instructions regarding which generators to run and for how long. For aircraft seeding, the project meteorologist will coordinate with the flight crew to schedule a flight on an appropriate flight track (Fig. 1).

Seeding will commence when all pre-established seeding criteria are met, and will continue until conditions in the storm fail to meet the criteria. Based on prior experience in the State of Columbia, 10 to 40 seeding events can be expected during the Midstate project. The end date could occur sooner if generators run out of seeding solution or other consumable materials.

Phase 3 Assessment of the Midstate project will include the documentation of meteorological events to verify that cloud seeding occurred during optimal conditions. The estimates of precipitation enhancement will be made statistically and a report on project operations, including the measurable outcome, will be completed by the end of July, 2005.

Previous experience by Rain Makers, Inc. indicates that seeded storms may produce precipitation over larger areas than unseeded storms. This means some areas that normally would not have received precipitation, often do as a result of seeding. Seeding developing clouds before they start to produce precipitation may accelerate the precipitation process thereby causing precipitation to fall sooner and from smaller clouds than nature would produce.

Some redistribution of rainfall can occur within the scope of the precipitation event. Computer models suggest that regions of very intense precipitation may be slightly reduced while the total storm precipitation volume may be increased up to 100-200 miles downwind of a cloud seeding area. Research sponsored by the U.S. Bureau of Reclamation indicates that while there appears to be no decrease in precipitation in the immediate area of cloud seeding, there is a possibility of increase in precipitation many miles downwind from generator sites.[23]

[23] Brown, K. J., Elliott, R. D. and Thompson, J. R., 1973, Largescale Effects of Cloud Seeding, Report ARI-73-2. Aerometric Research Inc., Goleta, Calif.

EXPERT FOLLOW UP REPORT
JAN WIEGARD Ph.D. (Rain Makers, Inc.)

Follow Up Report for Legislative Hearing

Results of Cloud Seeding Project in Prairie County, Midstate

Jan Wiegard Ph.D.
Rain Makers, Inc.

Operations

On June 9, 2005, at 0800 hours, local time, Rain Makers, Inc., under contract to the State of Midstate, initiated cloud seeding operations to enhance rainfall in Prairie County and alleviate a multi-year drought. According to the operations plan described in the approved State permit, cloud seeding operations were initiated when I, Dr. Jan Wiegard, project meteorologist for Rain Makers, Inc., estimated that atmospheric conditions were right for cloud seeding.

On the morning of June 9, 2005, five seeding generators were turned on at the "cloud seeding" location shown in Figure 1 according to plans approved by Midstate. The generators had been previously deployed at fixed locations 1.0 mile apart along a straight line transect extending 6.0 miles to the west of the Midstate Mountains. Each generator was filled with 100 gallons of silver iodide (AgI) seeding solution to allow for approximately 240 hours of seeding per unit. Initially, it was planned, that the lead research technician from Rain Makers, Inc., after a call from me, would remotely control each seeding generator by logging into the generator's computer and activating each unit. However, due to cost considerations, advances in technology, and my forecast of calm atmospheric conditions during the window of operations, all generators were pre-set for continuous and automated operation from June 9-13, 2005. In this way, Rain Makers, Inc. was able to afford Midstate far more than the 10 to 40 discrete seeding events used for the Columbia project.

The decision to proceed with seeding was based on existing meteorological conditions on June 9, 2005. The operations plan called for temperature at the cloud top to be $\leq$ -7°C and at least 400 meters of cloud above the height of the -5°C level (the temperature at which silver iodide activates as a nucleating agent). These parameters and the freezing level were measured, or estimated, using upper air soundings on June 9, 2005, and found to be within project specifications.

On June 13, 2005, at 1100 hours, local time, I ordered aerial operations to commence. Clouds were seeded by injecting AgI into the atmosphere by a specially outfitted Gulfstream IV aircraft leased by Rain Makers, Inc. The aircraft dispersed cloud seeding agents directly into clouds at altitudes of approximately 20,000 feet above sea level at an average temperature aloft of -7°C. I forecast that due to atmospheric flow the pathway of transport for seeded clouds was to the southeast through Mountain Pass.

The site of aircraft operations was 10 miles further south of the planned seeding area outlined in the permit to Midstate. This change was necessitated by extensive turbulent flow adjacent to the Midstate Mountains that placed aircraft operations at the outer boundary of established safety protocols. A decision was made by me, as the project meteorologist, that the change in the seeding area and actual wind conditions would not materially affect the mission.

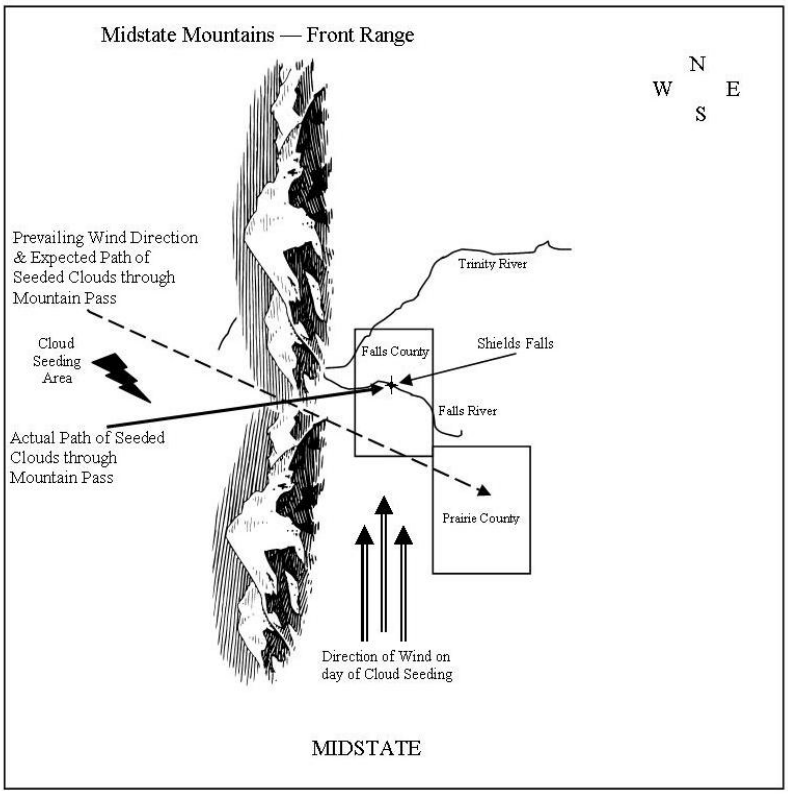

Figure 1. Location of cloud seeding area and projected and actual path of seeded clouds to Prairie Co.

Furthermore, it was planned that the progress of the seeding operations related to cloud development and precipitation reaching the ground would be monitored by radar from the Midstate Regional Airport. The original operations plan was to monitor cloud formation and intensity and compare radar data from seeded and unseeded clouds as they moved along the forecasted route through the Midstate Mountains. This strategy eliminated the necessity of establishing a network of precipitation gauges on the ground. The radar at the airport malfunctioned just as the cloud seeding began and I made the decision to abandon the use of the radar altogether instead of delaying aircraft operations.

Aircraft operations continued for 3.0 hours until 1400 hours local time at which time operations were suspended. Because of the extensive turbulence experienced aloft by the aircraft and out of concern for the flight crew's safety, I judged that further aircraft operations would not be safe.

Results

On June 13, 2005, at approximately 1500 hours, local time, precipitation began falling as rain over western Prairie County. Rain fell at an average rate of 0.3 inches per hour over a 4.0 hour period.

This amount of precipitation is just slightly outside the range of precipitation that was estimated (i.e., 0.01 to 0.25 inches per hour) and 20% above the conservative estimate for Prairie County of 0.25 inches per hour of enhanced precipitation due to cloud seeding, as outlined in our permit.

This was the first reported significant single rainfall event for Prairie County in over three years and is well within the annual average precipitation of 10-12 inches of rain in the spring.

Analysis

The primary analytical tool used to determine if cloud seeding resulted in enhanced precipitation was regression analysis. It was used to estimate the precipitation in the target area based on observations in the unseeded control area. These estimates were then applied to calculate the 'natural' precipitation in the target area during seeding events.

Statistical tests were used to compare the estimated 'natural' precipitation with the observed precipitation in the target area. While area-averaged values of precipitation are often used to quantify the impact of seeding, more sensitive tests involving principal components were applied to the data in order to detect an effect of seeding against the noisy background of natural variability.

The conventional means of removing temporal variations in rainfall is to use the double ratio[24]. A standard double ratio calculation found that the rainfall over the target was between 5% and 14% greater than other nearby 'control' areas with a satisfactory level of statistical significance being reached (i.e., >95% significance level).

Using the above analytical tools, statistical analyses indicated that the rain which fell in Prairie County late in the afternoon on June 13, 2005, was most likely caused by cloud seeding on the western side of the Midstate Mountains.

Falls County Flooding

The prevailing wind direction in Prairie County is from the north-northwest, as noted by the analysis of fifty years of data by the Midstate Climatology office and posted on the office's website. This means that the forecasted wind flow for the days of cloud seeding operations was to the southeast. Cloud seeding operations were conducted using this climatological data combined with numerical modeling and monitoring of weather conditions by Rain Makers, Inc.'s personnel.

Late in the afternoon of June 13, 2005, at approximately 1730 hours, local time, a large low pressure system developed rapidly over the Midstate Mountains and winds shifted abruptly to the south. The sudden shift caused the projected pathway for the seeded clouds to shift from a southeasterly direction towards Prairie County to a northeasterly direction towards Falls County.

This sudden wind shift was a rare and unexpected occurrence in the region and the rapid change in transport direction carried seeded clouds over the Midstate Mountains in the direction of Prairie and Falls Counties.

As noted in our initial permit report, seeded cloud systems may produce precipitation over larger areas than unseeded storm systems. This could lead to some areas that were not seeded, receiving precipitation. Precipitation volume may be increased up to 100-200 miles downwind of a cloud seeding area.

The rapid and unprecedented shift in wind direction carried some of the seeded clouds over Falls County. The risk that some seeded clouds could drift from one area to another was disclosed in our project permit that was approved by Midstate.

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[24] Gabriel, K. R., 1999: Ratio statistics for randomized experiments in precipitation stimulation. J. Appl. Meteor., 38, pp. 290–301.

Even if the seeded clouds entered Falls County as a result of Rain Maker, Inc.'s cloud seeding operations by air and ground, the magnitude of the rainfall would be beyond the carrying capacity of moisture in the air mass. The records pertaining to air and ground seeding operations for Midstate are consistent with this analysis. The flooding experienced in Falls County was not related to cloud seeding for Prairie County and was merely coincidental.

Conclusion

Rain Makers, Inc. performed in accordance with normal industry practice and scientific best practices in its cloud seeding operations. The precipitation that occurred over Prairie County was within the reasonable range of variance of our project permit. The heavy precipitation that fell in Falls County was the result of an "Act of God" that was unrelated to cloud seeding operations for Prairie County.

EXPERT REPORT
D.J. HILLSTONE Ph.D., J.D.
(Earth's Natural Circle, citizens and business owners of Midstate)

Initial Report for Weather Modification Board Hearing

Cloud Seeding: Snake Oil Science

D.J. Hillstone Ph.D., J.D.
Earth's Natural Circle

Introduction

During the American Civil War, military gunners trained their artillery cannons at the sky and fired, hoping to make rain. Their reasoning was simple; rain comes from thunderstorms and thunderstorms produce booms so if we make booming sounds with our cannons, rain will come. Nothing happened then and nothing will happen now as Rain Makers, Inc. attempts to sell Midstate an expensive, ineffective, and potentially dangerous cloud seeding project.

Cloud seeding is not science and weather modification is the dangerous application of bits and pieces of sound science that is slickly packaged as an "application" but has never been proven to work. Weather modification plays on the emotions of people who are desperate for solutions and is on par with communicating with the dead in that people see and hear what they want.

Cloud Seeding Basics

For cloud seeding to occur, small-sized particles called ice nuclei are created. These particles have an ice crystal structure around which water freezes. These nuclei help the cloud produce precipitation by freezing super-cooled liquid water which consists of cloud droplets in liquid form at temperatures colder than 32°F (0°C).

The primary component of cloud seeding which is used to create ice nuclei is silver iodide (AgI). This compound is dissolved in acetone and lifted aloft by ground-based generators that disperse a toxic chemical cloud upwards by turbulent eddy flow.

Sometimes aircraft can be used to supplement ground seeding operations by releasing AgI from pyrotechnic flares or from wing mounted burners. The particles are released directly into clouds upwind of the target area with the goal that the AgI will drift in the direction of the prevailing or actual wind direction. Once AgI-induced ice particles form, they continue to grow in size as they travel downwind. The particles then begin falling to the surface when they have sufficient mass to overcome the upward motion in the clouds.

A critical problem with cloud seeding projects is that the designer of the project, the operator of the project, and the scientific independent evaluator of the project are literally one and the same individual or entity. This leads to inevitable and intractable conflicts of interests in honestly evaluating the safety, efficacy, and impact of the project. Furthermore, given the commercial nature of the projects, the seeding and evaluation methods used are proprietary and outside the reach of public scrutiny and available, if at all, only after protracted bureaucratic and legal wrangling. In short, the scientific integrity of the project is questionable.

No Scientific Basis to Cloud Seeding

There are a number of drawbacks associated with cloud seeding. In many cases, there is no control system in place that can determine whether a cloud would have rained even without being seeded. Also, particular conditions are required for cold cloud seeding to be effective: 1) the temperature of the clouds must contain super-cooled water that is below the freezing point, but not frozen, and in a narrow range of 14°F (-10°C) and -4°F (-20°C); 2) winds must be within a narrow range of speed so as not to cause dispersion of the cloud; and 3) the clouds must be of such vertical extent to maintain a sufficient updraft that allows adequate time for the ice particles to grow before falling as precipitation.

Given that the potential for rainfall is strongly dependant on the dynamics of the clouds that are being seeded, cloud seeding is not a cure for drought. Professor Charles Doswell, a noted meteorologist formerly with the National Severe Storms Laboratory in Norman, Oklahoma, has said: "*On the whole, cloud seeding to enhance precipitation is going to be very difficult to distinguish from what Mother Nature produces naturally! Weather modification isn't going to break a drought, which is characterized by infrequent chances even to find clouds worth seeding*."[25]

In a 1998 position paper, the premier national scientific organization in atmospheric sciences, the American Meteorological Society (AMS), stated: "*There is statistical evidence that precipitation from supercooled orographic clouds (clouds that develop over mountains) has been seasonally increased by about 10%. The physical cause-and-effect relationships, however, have not been fully documented*."[26] What this statement acknowledges is that precipitation by cloud seeding may occur or it may not because scientists cannot tell how, scientifically, even a 10% increase in precipitation occurs.

In a seminal and exhaustive scientific review of cloud seeding techniques and their effectiveness, Dr. Bruintjes of the National Center for Atmospheric Research noted: "*Although rainfall increases from individual clouds on a limited scale have been documented, evidence on what the effect on area rainfall would be has not been documented. This method therefore remains as yet an unproven technology for increasing rainfall for water resources*."[27]

In looking ahead, Dr. Bruintjes wrote that: "*Future investigations thus should concentrate on establishing a physical hypothesis that incorporates all the major components of the precipitation formation processes in order to provide as sound a scientific basis as possible for estimating the magnitude of the expected effect*."[28] Finally, he cautions that: "*Progress in understanding a single component of this process is intrinsically limited if an understanding of all the major components is not developed to comparable levels*."[29]

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[25] http://www.flame.org/~cdoswell/wxmod/wxmod.html.

[26] American Meteorological Society, 1998.

[27] Bruintjes, R.T.,1999. A Review of Cloud Seeding Experiments to Enhance Precipitation and Some New Prospects. *Bulletin of the American Meteorological Society*; doi=10.1.1.172.5373.

[28] *Id.*

[29] *Id.*

In other words, the science community is unsure if cloud seeding creates precipitation because they cannot establish causality between seeding (cause) and precipitation (effect).

Indeed, in Midstate's neighbor to the west, the state legislature appropriated $8.0 million in 1999 for a five year cloud seeding project. Four years into the project, the legislature had to appropriate another $3.0 million to the project because the project had failed to produce results. In a recent media interview describing the cloud seeding project, the state project director said he "can't say how big a difference it's making." After spending eleven million in taxpayer money so far, he cannot tell if the project is working. Researchers in Israel analyzed fifty years of data and concluded that cloud seeding is an ineffective method for increasing precipitation. The scientific journal *Science* heralded the nature of cloud seeding in a 1982 article entitled "*Cloud Seeding: One Success in 35 years*."[30] These results are consistent with, if nothing else, the AMS position that scientists are unsure if seeding works or what the effects may be.

The State of Illinois conducted an exploratory cloud seeding experiment designed to modify clouds to augment rainfall during the summer of 1989. As noted in the abstract of the report on the study's results: "*This field experiment was carried out as part of the Precipitation Augmentation for Crops Experiment (PACE) initiated by the Illinois State Water Survey in 1978 with support from the National Oceanic and Atmospheric Administration. Findings after adjusting for sample bias indicate visual evidence for seeding effects on cloud tops; no evidence of enhancement in echo size or growth from seeding; and a weak suggestion of a possible rain increase in cloud groups that had been treated with silver iodide*."[31]

While there are serious questions about the effectiveness of cloud seeding there are even more important questions surrounding the potential negative impact of seeding agents. Silver iodide, in particular, is an insect poison and is toxic to humans when ingested. While it may be argued that the seeding agents are widely dispersed in the atmosphere, there are two flaws with this line of reasoning.

First, the seeding agent presumably is scavenged from the clouds and the air by the rainfall. Hence, the rain itself will contain and concentrate this poison. It may be soaked up by plants (and eaten by livestock) or drain into the groundwater supply. There are many chemicals that can have negative environmental effects even at relatively low average concentrations.

Second, if seeding with silver iodide achieves widespread use, the amount being dispersed would increase as would exposure to the toxin. What might be relatively safe at the current relatively low dosages might become hazardous if seeding becomes routine unless it can be shown conclusively that it harmlessly degrades. Where are such studies?

The State of Midstate is home to several endangered and threatened species. The number of wildlife species occurring within lands regulated by the Midstate Department of Natural Resources-Water Conservation is extensive because of the large area and the variety of habitats encompassed by the Shields Creek and Falls River watersheds. Some wildlife species are associated with one specific habitat type, while others may use a variety of different habitats. Some wildlife species use specific habitats seasonally, such as migratory birds and migrating deer, and other wildlife species are year-round residents of specific habitats.

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[30] Kerr, *Science*, 1982, Vol. 217, No. 4559, pp. 519-521.

[31] Czys et al., 1993. Results from the 1989 Exploratory Cloud Seeding Experiment in Illinois, Bulletin 72, *Illinois State Water Survey Department of Energy and Natural Resources*, p. 154.

Furthermore, Prairie County lies within the Central Region Flyway, the primary seasonal movement corridor for birds migrating east of the Midstate Mountains. This flyway adds significantly to the diversity of bird species in Midstate. Wetlands, lakes, rivers, riparian forests, and agricultural fields provide resting and foraging opportunities for migrating birds.

Where are the studies of the toxicity of silver iodide in the environment and how it would affect the biology of the protected wildlife in the watershed? What would be the effect of precipitation changes on the habitat and viability of the biota?

Cautionary Tales of Cloud Seeding Destructiveness

There are, however, some aspects of seeding projects where the results are known and point to the disasters from rushing to implement a project with potentially unintended consequences. Cloud seeding projects may potentially cause uneven environmental impacts beyond municipal, state, or regional boundaries, thus risking undesirable social, ethical, legal, and political implications that need to be addressed before a project should be implemented.

For example, a cloud seeding project in Arizona intended to increase precipitation in the target area resulted in a 40% decrease in precipitation in areas 90-180 miles downwind of the target area.[32] In reality, the Midstate project will modify everyone's weather in a large regional area without seeming controlled and without the majority consent of the affected people.

Evidence from previous cloud seeding projects indicates that seeded storms often rain over larger areas than unseeded storms. This means some areas that would not have received rain, often do as a result of seeding. Indeed, one prominent scientific cloud seeding study from Australia provided a number of seeding project metrics and cautioned that "*there must be no severe weather threats that precipitation enhancement could exacerbate (for example, flooding)*."[33] Unfortunately, this advice was not available to the people of Rapid City, South Dakota in the summer of 1972.

On the evening of June 9, 1972, the city of Rapid City, South Dakota was inundated by an unprecedented deluge of flood waters that left 238 people dead including rescuers, and destroyed over 1,300 homes, 36 businesses, and 5,000 vehicles. The financial losses exceeded $165 million throughout the region in actual losses. Lost income from tourism and other sources neared $50 million. During this one evening's storm, 1 billion metric tons of water fell on the region with some cities experiencing precipitation of 4 inches in 30 minutes and more than 10 inches overall in a 60-square mile area.

While the effects of the rainfall and consequent flood are well known, the causes are not. It was known only to a few persons at the time who were directly involved, that the federal government in concert with private parties conducted two experimental cloud seeding flights earlier that day as part of the "Cloud Catcher" project in an attempt to increase precipitation in the Black Hills area. The results were disastrous.

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[32] Neyman J. et al., 1973. Downwind and Upwind Effects in the Arizona Cloud-Seeding Experiment. Proc. Nat. Acad. Sci. Vol. 70, No. 2, pp. 357-360 and Neyman, J. and Osborn, H.B., 1971; Evidence of Widespread Effects of Cloud Seeding at Two Arizona Experiments, Proceedings of the National Academy of Sciences Vol. 68, No. 3, pp. 649-652.

[33] Huggins et al., 2008. The Snowy Precipitation Enhancement Research Project: A Description and Preliminary Results. *Journal of Weather Modification*.

Importantly, the techniques used back in 1972 are essentially the same as those being proposed today by Rain Makers, Inc. for Midstate. If the technique is the same, the strategy is the same, and the goal is the same, why would the results be any different? Don't let Midstate become another Rapid City. History and the electorate have never been kind to elected officials who place profit ahead of public safety. Consider yourselves warned.

EXPERT FOLLOW UP REPORT
D.J. HILLSTONE Ph.D., J.D.
(Earth's Natural Circle, citizens and business owners of Midstate)

Follow Up Report for Legislative Hearing

Catastrophic Flooding in Falls County and Cloud Seeding

D.J. Hillstone Ph.D., J.D.
Earth's Natural Circle

Introduction

In my report to the Midstate Weather Modification Board, I cautioned that, based on scientific evidence from cloud seeding projects, "*seeded storms often rain over larger areas than unseeded storms. This means some areas that would not have received rain, often do as a result of seeding.*[34] I also wrote that the Board should consider itself warned. Well, the Board ignored my warning and the worst occurred.

The most commonly posed question regarding cloud seeding projects, especially those projects with the stated goal of precipitation increase, is that of effects outside of a given project's intended target area. In the case of the Prairie County seeding project, the stated goal was to increase precipitation to Prairie County. The increased precipitation, however, fell with devastating swiftness and impact in Falls County and the city of Shields Falls, located 70 miles to the northwest and outside the intended target of Prairie County.

Due to careless planning and implementation of the cloud seeding project for Prairie County, Shields Falls in Falls County, outside the intended target area, suffered the worst flooding in its history on June 13, 2005. On that day, Shields Falls experienced unprecedented and catastrophic torrential rains that triggered massive flooding, resulting in millions in damages to infrastructure, injured hundreds of people, and took the lives of fourteen of its residents.

Cloud Seeding Project Analysis

Rain Makers, Inc. ran ground-based generators continuously from June 9-13, 2005, that injected silver iodide (AgI) into the atmosphere to the west of the Midstate Mountains. In addition to this ground-based seeding effort, aerial cloud seeding operations in the same region occurred for three hours on June 13, 2005, at 1100 hours, local time.

Data from the Midstate Climatology office website show that average yearly precipitation totals are 11 inches for both Prairie and Falls Counties. The actual precipitation data for June 13, 2005, from rain gauges located within Prairie and Falls Counties are shown in Table 1 and the aerial distribution of rain gauges are shown in Figure 1.

[34] In Hillstone #1 report quoted from Huggins et al., 2008. The Snowy Precipitation Enhancement Research Project: A Description and Preliminary Results. *Journal of Weather Modification*.

STATION	PRECIPITATION (inches/hour)	TOTAL PRECIPITATION (inches)
1	0.2	0.8
2	0.3	1.2
3	0.4	1.6
4	0.5	2.0
5	1.5	6.0
6	2.5	10.0
7	3.0	12.0
8	2.0	8.0
9	0.0	0.0
10	0.0	0.0

Table 1. Record of precipitation from Midstate Climatology office rain gauges on June 13, 2005, from 1500-1900 hours, local time.

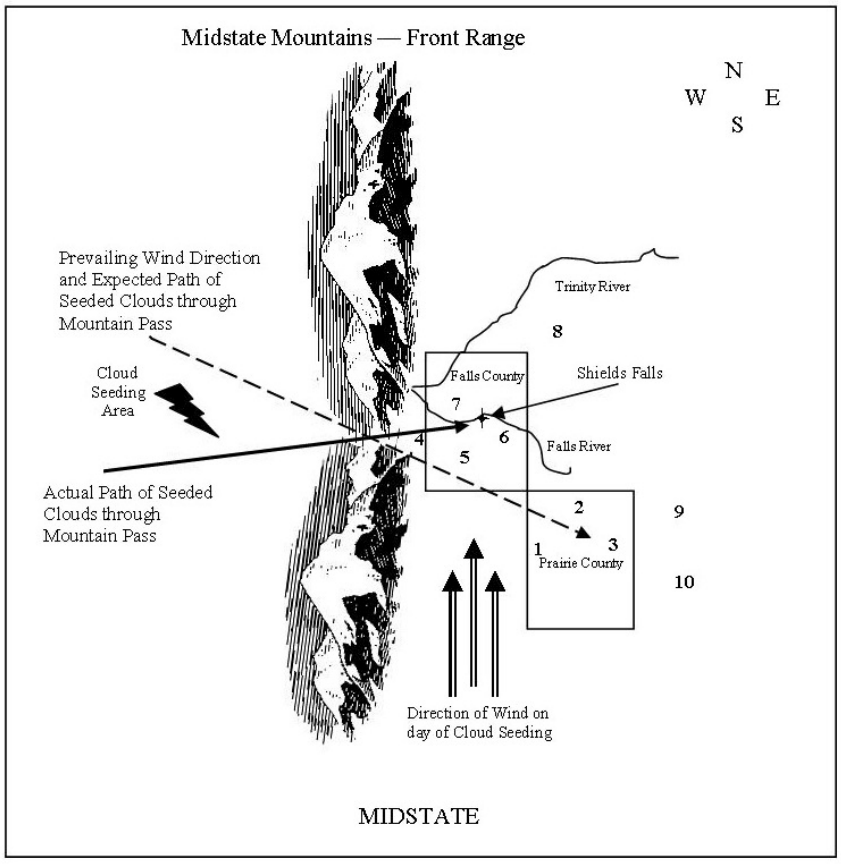

Figure 1. Location of cloud seeding project. The map shows the projected atmospheric flow versus the actual flow of seeded clouds. The numbers on the map indicate Midstate Climatology office rain gauges.

Analysis of the data shows total precipitation within the increased precipitation target area in Prairie County on June 13, 2005, during 1500-1900 hours, averaged 3.6 inches (Stations 1-3). In Falls County, the average precipitation was 9.3 inches for the same period (Stations 5-7). To the west of Falls County (Station 4), 2.0 inches of precipitation was recorded. In areas to the east of Falls County (Station 8) and Prairie County (Stations 9-10), precipitation totals were 8.0 inches and 0.0 inches, respectively.

The pattern of precipitation shows most of the planned increase in precipitation fell outside the target area of Prairie County and instead fell in Falls County. The precipitation followed the *actual* flow of seeded clouds and not the *projected* flow of seeded clouds. The data also reveals that more rain fell in Falls County during one storm on June 13, 2005, between 1500 and 1900 than in the entire year. Data from the Midstate Climatology office indicates that the amount of rain that fell in Falls County on June 13, 2005, was unprecedented.

Planning and Implementation Missteps

The cloud seeding project conducted in Prairie County by Rain Makers, Inc. exhibited three fundamental flaws in scientific design and implementation that created foreseeable outcomes.

First, the premise for the project was wrong from the start. Cloud seeding is not the right tool for drought.

As noted in my report to the Midstate Weather Modification Board during the permit process, I cautioned that the potential for rainfall was strongly dependant on cloud dynamics within the targeted cloud seeding area. I did not expect the Board to take my word for it, however, so I provided proof of my concern from peer review writings of a professional meteorologist, formerly associated with the National Severe Storms Laboratory, with decades of research and operational experience in the weather modification field, who wrote: "*Weather modification isn't going to break a drought*."[35]

Cloud dynamics matter because in order to produce precipitation, seeding conditions can only occur within a narrow physical environmental boundary within available clouds. Recall that for cold cloud seeding to be effective, three conditions must be met: 1) the temperature of the clouds must contain super-cooled water that is below the freezing point, but not frozen, and in a narrow range of 14°F (-10°C) and -4°F (-20°C); 2) winds must be within a narrow range of speed so as not to cause dispersion of the clouds; and 3) the clouds must be of such vertical extent to maintain a sufficient updraft that allows adequate time for the ice particles to grow before falling as precipitation.[36]

In order to seed for drought when no clouds are available, the atmosphere at large is seeded with the expectation of creating conditions for rain formation. Hopefully the artificially created rain that forms will behave as in controlled laboratory experiments and as theorized in mathematical models. However, this uncertainty is why professionals do not employ cloud seeding methods to relieve drought conditions.

[35] http://www.flame.org/~cdoswell/wxmod/wxmod.html.

[36] Hillstone Report #1.

Second, Rain Makers, Inc. operated the ground-based cloud seeding generators in automatic and continuous mode instead of in manual mode thereby injecting large quantities of cloud seeding agents into the atmosphere in a short period of time.

As discussed in my previous technical report, ground-based generators disperse silver iodide (AgI) dissolved in acetone that is lifted aloft to create ice nuclei that aid in cloud formation. In the manual mode, a human being decides when and how much seeding agent to release into the environment.

The strategy outlined in the weather modification permit for cloud seeding granted by the Midstate Weather Modification Board specified that the ground-based generators would be activated by a Rain Makers, Inc. technician who would remotely log into the computer that runs the generator. The technician would send a command to the unit to disperse seeding agents for a particular period of time thereby controlling the amount of seeding agent released to the atmosphere and also when it was released.

Instead, the ground-based generators were allowed to run continuously from June 9-13, 2005. This variance from the permitted procedures created a situation in which large areas of the atmosphere were supercharged with cloud condensing ice nuclei that created the conditions for cloud formation on a large and uncontrollable scale.

Running the generators continuously for days was like leaving a natural gas oven on for hours in a kitchen with the windows closed and the pilot light extinguished. The concentration of natural gas builds up over time and conditions ripen for a spark to ignite causing an explosion.

This was exactly the situation on June 13, 2005. Rain Makers, Inc. loaded the atmosphere with AgI dissolved in acetone continuously for days and created the conditions for explosive and uncontrollable precipitation. The amount of chemicals released during the time involved placed the actions of Rain Makers, Inc. beyond acceptable scientific practices based on analysis from computer models, previous laboratory experiments and previous cloud seeding operations.

Third, Rain Makers, Inc. failed to carefully monitor atmospheric conditions and make note of and adapt to changing meteorological conditions for the Midstate Mountains, in particular the severe weather that had moved into the region.

On June 13, 2005, at 1100 hours, local time, aerial cloud seeding operations were initiated adjacent to the Midstate Mountains by Rain Makers, Inc. and proceeded for 3.0 hours. Clouds were seeded by injecting AgI into clouds by aircraft at altitudes of 20,000 feet above sea level. This seeding continued despite meteorological conditions that indicated turbulent atmospheric conditions.

These meteorological conditions were known to Rain Makers, Inc. at the time. Aircraft operations were moved 10 miles south of the seeding area outlined in its seeding permit because of the turbulent flow on June 13, 2005. This turbulent flow is locally known to precede further atmospheric instability within 72 hours.

Such meteorological conditions made cloud seeding unthinkable because of the risk of unintended consequences. Previous scientific studies pointed out that, *"there must be no severe weather threats that precipitation enhancement could exacerbate (for example, flooding)*."[37] Furthermore, as noted previously in my report, winds must be within a narrow range of speed so as not to cause dispersion of the cloud. During the Prairie County cloud seeding project, seeding progressed although excessive turbulent flow existed and meteorological conditions were deteriorating with severe weather present.

The forecasted atmospheric flow on June 13, 2005, was to the southeast through the Midstate Mountains. Late in the afternoon of June 13, 2005, around 1730 hours local time, however, a large low pressure system developed rapidly over the region and the winds shifted to the south causing the projected flow of seeded clouds to shift from a southeasterly direction to a northeasterly flow. This caused the seeded clouds to flow away from Prairie County towards Falls County (Fig. 1).

Sudden wind shifts are not unusual for the region and occur, on average, about six times throughout the year, according to data compiled from the Midstate Climatologist website that is publically accessible. Furthermore, the Midstate Regional Airport is equipped with state-of-the art weather radar for real time monitoring of actual weather conditions and issues alerts when severe weather is forecast. This information was available to Rain Makers, Inc. at the time of seeding operations.

Conclusion

The rainfall amounts that fell on June 13 and ran off in just a few hours resulted in the flooding in Falls County. This amount of rainfall is unlikely to occur more than once in 100 years. The 100-year, four-hour rainfall expectancy is 3.5 inches throughout the Midstate Mountains area. In Falls County, the average precipitation on June 13, 2005, was 9.3 inches during a four hour period, more than double the 100-year event.

The rain that fell on June 13, 2005, in Falls County was statistically a rare event. The fact it occurred during a massive ground and aerial cloud seeding operation by Rain Makers, Inc. points to a connection between seeding and flooding.

[37] Quoted in Hillstone Report #1 and from Huggins et al., 2008. The Snowy Precipitation Enhancement Research Project: A Description and Preliminary Results. *Journal of Weather Modification.*

EXPERT REPORT
R.J. SCOTT Ph.D.
Report for Jury Trial

Evaluation of Weather Modification Operations for Prairie County, Midstate

R. J. Scott Ph.D.
Geoengineering Consultants, LLC

This report evaluates the design, outcomes, and efficacy of cloud seeding operations conducted by Rain Makers, Inc. for Prairie County, Midstate.

Project Design and Implementation

Rain Makers, Inc. proposed a cloud seeding project to Midstate to help alleviate a prolonged and severe drought existing in Prairie County in 2005 (i.e., five below normal years of precipitation). According to the report entitled "Cloud Seeding in Prairie County, Midstate" by project meteorologist Jan Wiegard, Ph.D. of Rain Makers, Inc., the goal of the seeding project was "an enhancement in actual precipitation amounts and subsequent enhancement in runoff into the streams and reservoirs of the target area." Given these project goals, it is necessary to evaluate, as discussed below, whether the project was properly designed for the expected outcome.

Seeding Agent

The seeding agent planned and used was silver iodide (AgI) dissolved in acetone. This seeding agent is used extensively in the weather modification industry and is the industry standard for seeding using ground-based generators and aircraft.

The use of AgI dissolved in acetone by Rain Makers, Inc. was reasonable and consistent with industry practice.

Cloud Seeding Operations

Rain Makers, Inc. proposed, in its permit application and its initial scientific report referenced above, to use a two-pronged approach to cloud seeding by dispersing AgI seeding agent by ground-based generators and aircraft, as described below.

Ground-Based Seeding

Rain Makers, Inc. proposed to use a series of five ground-based generators placed in an east-west line on the western side of the Midstate Mountains. These generators were to be controlled remotely by Rain Makers, Inc.'s technicians who would turn the generators on and off thereby controlling the flow of seeding agent to the atmosphere. However, Rain Makers, Inc. noted in their second report ("Results of Cloud Seeding Project in Prairie County, Midstate") that instead they set the generators on automatic and allowed the generators to run continuously from June 9-13, 2005.

Utilizing the generators by human command or while on automatic operation had no effect on the amount of seeding agents released. The ground-based generators contained a finite amount of seeding agent that did not exceed 100 gallons. This was the maximum allowed for the project by Rain Makers, Inc. and was designed specifically for the planned enhanced precipitation and geographic conditions in the seeding and target area. The total amount of seeding agent dispensed in discrete events controlled by humans would be the same amount of seeding dispensed automatically in continuous operations.

According to Rain Makers, Inc., the deviation from the original plan for dispersion was the result of evaluating meteorological conditions on June 9, 2005, as being calm and conducive to automatic operations. To operate the generators, the plan called for cloud-top temperatures to be ≤ -7°C and a minimum of 400 meters of cloud located above the height of the -5°C level. These environmental conditions existed on June 9, 2005, and were forecasted to last for several days.

Since meteorological conditions were favorable on June 9, 2005, and within operational specifications for the forecasted period, it was reasonable for Rain Makers, Inc. to switch to automatic operations. Furthermore, such a change from manual to automatic dispersal is consistent with common industry practice.

Aircraft Seeding

On June 13, 2005, at 1100 hours, local time, project meteorologist Dr. Jan Wiegard, gave permission to proceed with three hours of aerial seeding operations. A Gulfstream IV aircraft used flares to inject cloud seeding agents into the atmosphere at an altitude of 20,000 above sea level. The site for aircraft seeding was located 10 miles south of the site originally planned, due to turbulent flow around the Midstate Mountains and a reported concern for the aircrew's safety.

Such deviations from arranged flight plans are routine and are often scheduled immediately prior to flight to consider local conditions. In aerial operations, the safety of the flight crew is paramount. Turbulent conditions aloft are hazardous and must be assessed continuously. Dr. Wiegard's order to shift flight operations to the south to avoid heavy turbulence kept the crew's safety in mind and was prudent and reasonable.

Moving the aerial seeding operations to the south had little effect on the atmospheric transport of seeded clouds over the mountains. The amount of turbulence reported on June 13, 2005, created a situation for extensive vertical and horizontal mixing in the atmosphere of the seeding agents. This would typically lead to diluting the concentration of cloud seeding agents in the immediate flight path area so that seeding clouds would have little effect on precipitation.

In summary, both ground-based and aerial seeding operations were conducted in accordance with generally accepted techniques and practices in the field of weather modification.

Projected Outcome of Enhanced Precipitation

Rain Makers, Inc. estimated the rate of enhanced precipitation in Prairie County resulting from the cloud seeding project would be approximately 0.25 inches per hour. This estimate was based on results from the company's previous cloud seeding projects.

According to the report by Dr. Wiegard entitled "Results of Cloud Seeding Project in Prairie County, Midstate," actual precipitation in Prairie County on June 13, 2005, was measured to have occurred at an average rate of 0.3 inches per hour over the 4.0 hour period from 1500-1900 hours. Dr. Wiegard based his analysis of the rate of precipitation on standard industry practices using the difference between observed precipitation in an unseeded control area and the target area. Without establishing a control area, it is impossible to determine whether precipitation that occurs within an area is naturally occurring or results from artificial seeding operations.

Based on the details of Dr. Wiegard's experimental design, the reported rate of precipitation in Prairie County represents precipitation that resulted from artificial seeding operations and was not the result of natural occurring precipitation.

The actual rate of rainfall of 0.3 inches per hour was 20% above Rain Makers, Inc.'s estimate of 0.25 inches per hour of enhanced precipitation for the project. In the field of weather modification involving cloud seeding, there is no statistical standard for evaluating if an error surrounding an estimated change in precipitation is acceptable. In general, however, given the complex nature and scientific practice in this field, an error of plus or minus 20% is an acceptable level in project performance. Specifically, I find that an uncertainty level of plus or minus 20% acceptable when predicting an outcome of more or less precipitation from cloud seeding.

Since the actual change in precipitation in Prairie County was in line with the projected change in precipitation, Rain Makers, Inc. performed scientifically as promised.

Impact of Low Pressure System

The rapid shift in winds reported at 1730 hours on June 13, 2005, was the result of a massive low pressure system that was, based on observational data, a rare and unexpected occurrence for the region. The massive low pressure system caused the projected pathway of seeded clouds to shift from a southeasterly direction to a northeasterly direction over the Midstate Mountains. This sudden wind shift caused a change in the trajectory of seeded clouds from Prairie County to Falls County.

Earlier in the day on June 13, 2005, Dr. Wiegard determined that the atmospheric transport of seeded clouds would be southeast through Mountain Pass over the course of the ground and air-based seeding operations. This determination was based on computer modeling and analysis of fifty years of climatological data for the region.

The model used by Rain Makers, Inc. to forecast meteorological conditions was the Weather Research and Forecasting (WeRF) Model. This model is operated by the International Center for Atmospheric Research (ICAR) and is a cutting edge research tool and the next-generation operational forecasting system for mesoscale numerical weather prediction. There is no better model for forecasting the types of weather parameters of interest in the present case.

In order for weather forecasts to be of value, they must take into account typically occurring environmental conditions collected over as long a time period as possible. When the WeRF model was consulted to predict probable wind direction on June 13, 2005, the data input was fifty years of weather observations from Midstate which included typical and atypical environmental conditions.

The sudden shift in wind direction which occurred on June 13, 2005, was not predicted by WeRF because it was so rare it was scientifically unpredictable and, hence, unforeseeable. As a result, Dr. Wiegard could not have predicted the sudden change in wind direction that occurred on that day. The sudden shift in winds was an unpredictable and natural occurrence that interfered with operations.

Flooding in Falls County

The facts indicate that the reported flooding in Shields Falls in Falls County was the largest on record. The average precipitation was 7.5 inches over a four hour period late in the afternoon and evening of June 13, 2005, which was double the amount predicted for the statistical 100-year event.

That this flooding event occurred as a result of seeding on the western slopes of the Midstate Mountains, however, is speculative. The timing of the seeding and the flood may hint at a connection, but scientifically a link must be established between the cause (seeding) and effect (flooding). Temporal coincidence is not enough.

The amount of AgI seeding agent injected into the atmosphere by ground was the same for both manual and automatic seeding operations. The volume of AgI used was limited to 100 gallons for both manual and continuous dispersal. As per experimental design, this was the proper amount of AgI to induce approximately 0.25 inches of precipitation per hour given the atmospheric conditions at the time of seeding. Based on numerical modeling, this amount of AgI would not be capable of producing the amount of precipitation that fell in Shields Falls.

The unpredictable shift in winds that occurred on June 13, 2005, as a result of the low pressure system carried some seeded clouds over Falls County instead of Prairie County as originally designed. This sudden wind shift may have carried a portion of seeded clouds away from their intended target of Prairie County to Shields Falls in Falls County.

Even with this shift in trajectory of seeded clouds, the precipitation that occurred in Prairie County was within the estimated prediction for enhanced precipitation by Rain Makers, Inc. It is reasonable to expect that if seeded clouds were carried into Falls County they would produce precipitation equivalent to that which occurred in Prairie County. In fact, scientific research, referenced by Rain Makers, Inc. acknowledges that some areas outside the area targeted for precipitation may experience enhanced precipitation from a seeding project but those areas do not normally see more precipitation than the area targeted for precipitation.

In summary, there is no scientific evidence that flooding in Falls County was a result of cloud seeding operations conducted by Rain Makers, Inc.

EXPERT REPORT
JORDAN GALE Ph.D.
Report for Jury Trial

Assessment of Cloud Seeding in Midstate

Jordan Gale Ph.D.
Global Commons Environmental Consulting, Ltd.

Overview

On June 13, 2005, the city of Shields Falls in Falls County, Midstate was besieged by an amount of rainfall unknown in historic times bringing death and injury to dozens of people. The flooding caused damage to personal property and critical public infrastructure totaling in the hundreds of millions of dollars, and traumatized an entire city and region both psychologically and economically.

The disastrous events of June 13, 2005, were caused by a poorly executed cloud seeding project that was founded on three primary shortcomings: 1) Failure to properly monitor meteorological conditions; 2) Failure to properly account for existing and changing meteorological conditions; and 3) Failure to consider meteorological conditions during cloud seeding operations that could affect Falls County.

A final shortcoming, perhaps the most important of all, was the failure to notify governmental officials in Falls County and the people of Shields Falls of the hazards they faced from the cloud seeding project in Prairie County as events unfolded in June of 2005.

Missed Clues of an Impending Disaster

Rain Makers, Inc. missed a number of clues that signaled unfolding weather events. Had Rain Makers, Inc. acted upon these clues circumstances could have allowed for a different outcome. Many of the critical weather events had been predicted and were observed on the ground therefore it was possible for Rain Makers, Inc. to see the unfolding meteorological picture and potential flooding disaster.

Failure to properly monitor meteorological conditions

Monitoring meteorological conditions in real time is essential for safe and effective cloud seeding operations because environmental conditions can change rapidly. The science team must be able to react quickly to changing conditions. The original seeding operational plan called for monitoring cloud development and precipitation by radar at the Midstate Regional Airport [Wiegard Report #2]. As noted in his report, Dr. Wiegard planned "… to monitor cloud formation and intensity and compare radar data from seeded and unseeded clouds as they moved along the forecasted route through the Midstate Mountains." *[Id.]* However, as noted in the same report, Dr. Wiegard noted that; "The radar at the airport malfunctioned just as the cloud seeding began and I made the decision to abandon the use of the radar altogether instead of delaying aircraft operations." *[Id.]*

The lack of a working radar system rendered the Rain Makers, Inc. team functionally blind to meteorological conditions occurring in real time. Having such data available to the seeding team is one of critical elements of a properly designed and executed cloud seeding operation not only for the success of operations in terms of precipitation outcomes but for the safety of those in the air and on the ground.

Since the radar was not working, the Rain Makers Inc. science team was unable to view the radar returns of the large developing precipitation event. They were also unable to track the seeded clouds move away from Prairie County and towards Falls County. The science team had no way of monitoring the progress and potential impact of their operations. The Rain Makers, Inc. team simply started up the experiment and let it run without any monitoring and controls.

The Rain Makers Inc. project meteorologist, Dr. Wiegard, should not have initiated cloud seeding operations without a working radar system. Commencing cloud seeding operations without a working radar system was a breach of the standards of professional practice in the field of cloud seeding operations.

Failure to properly account for existing and changing meteorological conditions

Dr. Jan Wiegard, ordered aerial cloud seeding to commence at 1100 hours on the morning of June 13, 2005, but at a location 10 miles south of the originally planned area. [Wiegard Report #2] This change in aerial cloud seeding was necessitated by his observation of "extensive turbulent flow adjacent to the Midstate Mountains that placed aircraft operations at the outer boundary of established safety protocols." *[Id.]*

Allowing cloud seeding to occur with extensive turbulence violated the second of three generally accepted scientific criteria for cloud seeding articulated in Dr. Hillstone's report that "winds must be within a narrow range of speed so as not to cause dispersion of the clouds." [Hillstone Report #2] The presence of atmospheric turbulence that was sufficiently "excessive" and prompted a change in the flight plan of an experienced flight crew is evidence that winds were outside the "narrow range of speed" required for safe cloud seeding operations.

The excessive turbulence noted by Dr. Wiegard on June 13, 2005, was known locally to be the harbinger of significant changes in weather that were coming to the region. As noted by Dr. Hillstone in his report of the analysis of climatological data from the Midstate Climatology office, "turbulent flow is locally known to precede further atmospheric instability within 72 hours." [Hillstone Report #2]

Such atmospheric instability occurred in the form of a large low pressure system that settled over the region on June 13, 2005, within hours of Dr. Wiegard reporting the excessive turbulence in the atmosphere near the mountains. The occurrence of the low pressure system was not, however, unprecedented as such changes occur on an occasional basis in June and have occurred approximately six times per year over the last ten years. [ref: Midstate Climatological Report by Arvid Klingfelter]

The low pressure system was a game changer for the Prairie County cloud seeding operations because it shifted the direction of transport for the seeded clouds from the southeast over Prairie County to a more northeasterly direction over Falls County. This resulted in heavily seeded clouds being transported into the area surrounding Shields Falls.

There is no basis in either of Dr. Wiegard's reports, from before or after the seeding operations, that Rain Makers, Inc. recognized or appreciated the atmospheric dynamics of the situation. It appears from his reports that, while the turbulence was noted and accounted for in terms of the aerial operations, there was no attempt to suspend or alter operations once the existence of the low pressure system was evident.

In my opinion, based on the reports of Drs. Wiegard and Hillstone and my own knowledge in the field, the Rain Makers, Inc. team failed to adequately address existing and changing meteorological conditions that had the potential to impact, and did in fact impact, the projected outcome of the project.

Failure to consider meteorological conditions during cloud seeding operations that could affect Falls County

The scientific literature contains peer-reviewed articles that discuss the possibility that areas outside of those targeted for precipitation could experience precipitation from cloud seeding operations. As noted in Dr. Hillstone's report, "one prominent scientific cloud seeding study from Australia set out a number of seeding project metrics and cautioned that "there must be no severe weather threats that precipitation enhancement could exacerbate (for example, flooding)." [ref: Huggins et al., 2008. The Snowy Precipitation Enhancement Research Project: A Description and Preliminary Results. *Journal of Weather Modification*] [ref: Hillstone Report #2].

The basis of such scientific studies is that cloud seeding operations have a degree of uncertainty as to predictable results. In the present case, there was a 20% increase in precipitation in Prairie County above the expected level of precipitation. This was higher than planned and higher than the usually acceptable level of statistical error of plus or minus 10% in performance.

As noted in Hillstone Report #2, a cloud seeding project in Arizona resulted in a 40% increase in precipitation outside the target area. [ref: Neyman J. et al., 1973. Downwind and Upwind Effects in the Arizona-Cloud Seeding Experiment …. Proc. Nat. Acad. Sci. …] The possibility of new or increased precipitation outside of the target area is well established in the scientific literature and is a source of active discussion among cloud seeding operators.

The use of continuous and automatic seeding loaded a large amount of seeding agent (AgI) into the atmosphere without consideration of existing atmospheric conditions. The seeded clouds were meant to produce rain and that is what they did with the aid of natural processes but not where or in the amount that Rain Makers, Inc. intended. They designed their project for conditions expected to be experienced over Prairie County but failed to react when the atmospheric flow favored transporting the seeded clouds away from their intended target area.

In my opinion, not contemplating the possibility that winds could shift and move seeded clouds away from their target area, and that this could alter the actual precipitation that fell outside the target area, was not in keeping with standard professional practice.

Failure to warn governmental officials in Falls County and the people of Shields Falls of the hazards they faced from the cloud seeding project

It is a commonly held professional ethic in the field of weather modification that possession of special knowledge carries with it a professional obligation to communicate to area governments and residents the plans for cloud seeding operations and to provide updates after actual seeding operations commence.

The Rain Makers, Inc. team had an obligation to keep abreast of current meteorological conditions and to inform area residents and government officials in Prairie County, and neighboring counties, of the seeding operation progress and to update them on predicted outcomes. It was therefore incumbent upon Rain Makers, Inc. to reassess weather conditions as a result of the low pressure system. This could have been accomplished by commencing another model run with the WeRF model to forecast new meteorological conditions. There is no evidence from the documentary record that this was done. As noted above, the science team was operating blindly since the radar at the airport was not operational.

In my opinion, Rain Makers, Inc.'s conduct of not considering how meteorological conditions were changing and the possible impact on Falls County was a breach of acceptable professional practice and ethics.

APPENDICES

APPENDIX A
Program Objectives & Methodology

PROGRAM OBJECTIVES

- Improve expert witnesses' ability to communicate better and hone their skills.
- Demonstrate the intellectual merit of an open exchange of expert witnesses and attorneys discussing approaches to communicating scientific information, interpretation of data and extrapolation from data in a legal arena.
- Demonstrate the effectiveness of learning-by-doing teaching models in the training of expert witnesses.
- Demonstrate and communicate the importance of continuous training for expert witnesses.
- Demonstrate the efficacy of on-going global training of expert witnesses in the communication of complex scientific information.
- Demonstrate the effectiveness of expert witness training and provide the basis for a new report on communicating scientific concepts in a legal setting.
- Conduct proactive outreach activities to share interim and final results with professional colleagues and academic and student groups.
- Provide hands-on experience involving the law and resolution of legal issues relative to the case (practicum exercise).
- Increase participant's knowledge and understanding of a trial and the roles specific to each of the following – judge, jury member, opposing attorney, defending attorney and witness.
- Increase participant's understanding of the roles and purposes of legal proceedings including oral arguments, pleadings and motions, arbitrations, negotiations and in-chamber settlement conferences.
- Increase the participant's understanding of how to address ethical issues, problems associated with testimony and how to apply legal theory to practical problem solving which will develop and improve expert witnesses' ability to communicate.
- Provide practice in preparing written documents and giving oral presentations as used in legal proceedings, allowing expert witnesses to experiment and practice what works best.
- Provide coaching and feedback on written documents and oral presentations to hone participant's skills.

THE PRACTICUM EXERCISE

The "real life" Practicum Exercise is the learning platform for the learning-by-doing workshops. Expert witnesses will learn how to effectively communicate complex scientific information in legal, political and public forms. The simulation-based workshop will allow learning to take place in a context that gives critical meaning to the subject matter. When the expert witnesses learn through the performance of actual lawyering tasks they will encode learning in distinctive, active and multiple ways.[38] Expert witnesses will learn to assist the listener in understanding scientific principles by applying the principles to real life settings.

The Practicum Exercise includes clearly stated and achievable learning objectives; briefings and demonstrations by faculty; participant and group analysis and discussion; written and oral performances; faculty analysis; feedback; and reflection on lessons learned. The teaching and learning protocols are based on Modern Learning Theory.

[38] Paul S. Ferber, Adult Learning Theory and Simulations–Designing Simulations to Educate Lawyers, 9 CLINICAL L. REV. 417, 434 (2002).

METHODOLOGY FOR ACADEMY WORKSHOP:
TEACHING AND LEARNING-BY-DOING

Expert witnesses participating in the workshop will learn how to communicate a true understanding of their knowledge rather than reciting facts.[39] The workshop will provide expert witnesses with a method for effectively applying what they have learned and how to continue to improve. Expert witnesses will perform better as an expert witness when they understand why the formula works. Once understanding is achieved an expert witness will be more successful at applying their knowledge in multiple contexts–such as court rooms, legislative and other governmental hearings, the media and the public. The workshop will build on the expert witnesses' prior knowledge and experience.

The faculty will actively engage expert witnesses so that differences beyond appearance can be discovered and shared. Expert witnesses in small groups will demonstrate subject mastery.

The workshop will provide a cooperative learning environment and embrace diversity by recognizing differences such as prior education, experience, background, learning styles, race and gender.

The expert witnesses will engage in active learning. Experiential learning, or learning-by-doing, is highly preferable to passive absorption of concepts.[40] A process called metacognition will provide expert witnesses opportunities to understand how they learn.[41] The process improves the ability to predict performance and monitor progress toward full understanding of a principle.[42] Methods that provide expert witnesses opportunities for self-assessment and improvement will be effective because the expert witnesses are given tools that empower them to take control of the learning process.

The workshop will be based on the eight components of an effective learning environment. Gerald F. Hess suggests than an effective learning environment consists of eight components, "[R]espect, expectation, support, collaboration, inclusion, engagement, delight and feedback."[43] "The more elements present, the more likely the environment will be conducive to learning." *Id.* In a respectful environment, teachers "participate in a dialogue, explore ideas and solve problems creatively." *Id.* Expert witnesses must be willing to confront challenging tasks with no intimidation or humiliation, which may cause withdrawal from participation and learning. *Id.* Collaboration is accomplished through the creation of cooperative learning environments, including cooperation among students and teachers in course design, delivery and evaluation. *Id.*

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[39] John D. Bransford, et al., How People Learn: Brain, Mind, Experience and School (2000), *supra* note 467, at 8-9.

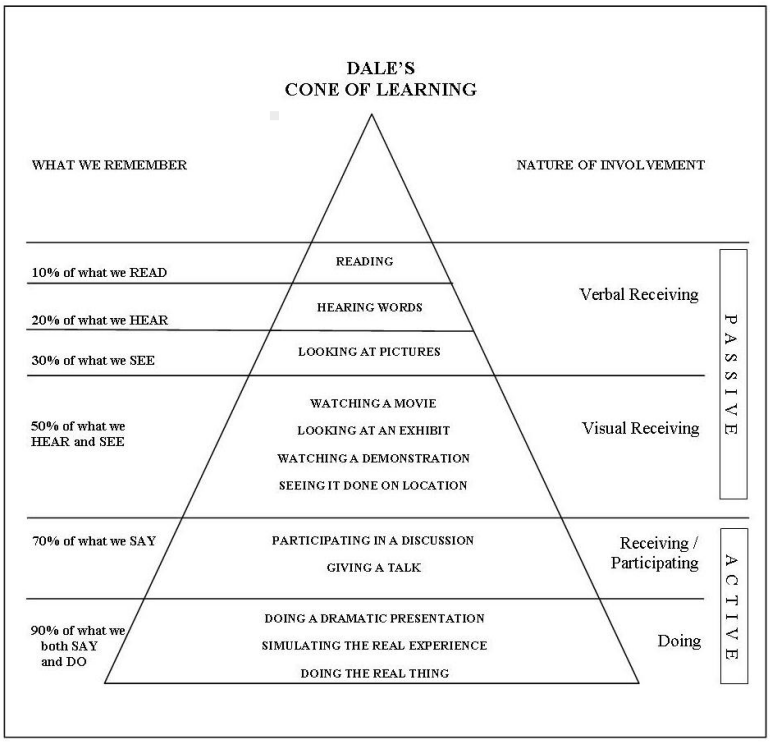
[40] Fran Quigley, Seizing the Disorienting Moment: Adult Learning Theory and the Teaching of Social Justice in Law School Clinics, 2 CLINICAL L. REV. 37, 46-47 (1995), *supra* note 146, at 48-51.

[41] Bransford et al., *supra* note 467, at 12.

[42] *See* Leah M. Christensen, The Psychology Behind Case Briefing: A Powerful Cognitive Schema, 29 CAMPBELL L. REV. 5, 20 (2006); Robin A. Boyle, Law Students with Attention Deficit Disorder: How to Reach Them, How to Teach Them, 39 J. MARSHALL L. REV. 349, 375 (2006).

[43] Gerald F. Hess, Heads and Hearts: The Teaching and Learning Environment in Law School, 52 J. LEGAL EDUC. 77, 81 (2002), *supra* note 162, at 76.

Cooperative learning will be the linchpin of the workshop. The benefits of cooperative learning are well documented.[44] "Research on adult learners has revealed that cooperative learning[45]–learning that takes place when peers share experiences and insights-is not only the most common type of adult learning, it is perhaps the most effective style."[46] "Cooperative learning produces higher achievement, . . . increases critical thinking, betters attrition, increases critical thinking, betters attitudes toward subject matter, increases social support, improves social adjustment and increases appreciation for diversity."[47] In a cooperative learning environment, students interact while the teacher, acting as a "Guide on the Side," makes decisions, develops the lessons, monitors and intervenes, evaluates and processes.[48]



Dale's Cone of Learning[49]

[44] Vernellia R. Randall, Increasing Retention and Improving Performance: Practical Advice on Using Cooperative Learning in Law Schools, 16 T.M. COOLEY L. REV. 201, 208 (1999), *supra* note 17, at 204.

[45] "Cooperative Learning is a structured, systematic instructional strategy in which small groups work together toward a common goal. . . . considerable research shows that cooperative learning produces higher achievement, reduces student attrition, increases critical thinking, betters attitudes toward subject matter, increases social support, improves social adjustment and increases appreciation for diversity." *Id.* at 203-204.

[46] Quigley, *supra* note 146, at 57.

[47] Randall, *supra* note 17, at 204.

[48] *Id* at 266; Alison King, From Sage on the Stage to Guide on the Side, 41 C. TEACHING 30, 30-35 (1993).

[49] Edgar Dale, Audio-Visual Methods in Teaching 108 (3d ed. 1969). (Chart revised and recreated by Linda Thorstad.)

Learning is not a spectator sport. Expert witnesses will not learn advocacy and expert witness communication skills sitting in class listening to teachers, memorizing pre-packaged assignments and spitting out answers. They must talk about what they are learning, write about it, relate it to past experiences and apply it. They must make what they learn part of themselves.[50]

Practicum based simulations in the workshop will provide direct and purposeful experiences. They provide a way for expert witnesses to achieve a wide variety of learning goals.[51] Simulations can model a system in a manner that is consistent with reality.[52]

Frequent feedback will provide an opportunity to help expert witnesses in the workshop understand how well they are solving a problem or performing a particular task, and how to make their problem-solving or learning process more effective. When expert witnesses participate in experiential learning followed by debriefing, they learn how to learn from experience, essentially developing a learning process that they can apply to professional development.[53] In a simulation setting, expert witnesses can practice reflection-in-action, which "is a process of thinking about what we are doing while we are doing it and still affect the task results." *Id* at 436. As expert witnesses develop this ability, the debriefing process plays an important role. *Id* at 436-37.

Expert witnesses improve their skills through ongoing practice and feedback. Expert witnesses actively construct, discover, transform, develop and extend their own knowledge and skills, while teachers are also given an opportunity to regularly monitor and examine the effectiveness of their teaching methods on a particular topic.[54] Because research demonstrates that adult learners thrive in a democratic learning environment, implementation of this two-way street of evaluation will be an essential part of the workshop.

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[50] Arthur W. Chickering & Zelda F. Gamson, Seven Principles for Good Practice, 39 AM. ASS'N FOR HIGHER EDUC. BULL., March 1987. Http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/7princip.htm (Last visited 3-30-10).

[51] Ferber, *supra* note 494, at 417.

[52] Kurt Squire, Video Games in Education, INTERNATIONAL JOURNAL OF INTELLIGENT SIMULATIONS AND GAMING (2) 1. (2003).

[53] Ferber, *supra* note 494, at 435.

[54] *See generally* Randall, Increasing Retention, *supra* note 17, at 260.

APPENDIX B
Directions

REPRESENTATION OF MULTIPLE CLIENTS

According to Rule 1.7 of the Model Rules of Professional Conduct: Conflict of Interest: Current Clients, representation of multiple clients in a single matter is permissible. Representation of multiple clients may occur when the clients consent to the representation after consultation with the attorney, explanation by the attorney of the implications of the common representation and the advantages and risks involved. Here, because Plaintiffs have consented to be represented by the same attorney and have waived all actual and potential conflicts of interest, Rule 1.7 permits counsel for the defendants to represent both parties.

BURDEN OF PROOF

Court or Jury Trial

The Plaintiff shall have the burden of proof by a preponderance of the evidence.

ORDER OF PRESENTATION AND RULES OF EVIDENCE

Court or Jury Trial

- City of Shields Falls, et al.* are the Plaintiffs. State of Midstate, Midstate Department of Natural Resources–Water Conservation, Weather Modification Board, and its individual members, Rain Makers, Inc. and Hugh Fitzpatrick are the Defendants.
- The Plaintiff must present evidence first.
- The Plaintiff may not call Defendants or defense witnesses as witnesses in its case in chief.
- Local rules governing the Order of Opening Statement and Final Argument:
  The Plaintiff shall present the first opening statement and the concluding final argument. The Defendants shall not have a rebuttal final argument.
- The Federal Rules of Evidence, Procedure and Law of Midstate shall govern.

SUGGESTED TIME SCHEDULES

The following schedules indicate how the time may be allocated. The time available for opening statement, witness examination, and final argument may be allocated as the attorneys wish. Objections and arguments will be counted against the attorney that is speaking.

*Includes the estates of deceased, injured parties and businesses.

Court Trial - 3 Hours

Each side has 60 minutes available and will be responsible for keeping track of its time.

Preliminary Discussion	10 minutes		
Plaintiff	60 minutes —>	[Opening statement	5 min.]
Defendant	60 minutes —>	[Direct examination	30 min.]
Final Argument	10 minutes	[Cross-examination	15 min.]
Critique	30 minutes	[Final Argument	10 min.]
Breaks	20 minutes		

Jury Trial - 6 hours and 15 minutes* (See Following Expert Witness Section for Additional Time Schedule)

Each side has 90 minutes plus 10 minutes for jury selection. The trial may take less time however, the total time should not exceed 6 hours and 15 minutes.

Preliminary Discussion	30 minutes			
Judge's Introduction (in jury trial)	10 minutes			
Jury Selection (10 minutes per side)	20 minutes			
Plaintiff	90 minutes	—>	[Opening statement	10 min.]
Defendant	90 minutes	—>	[Direct examination	45 min.]
Judge's Final Instructions	10 minutes		[Cross-examination	20 min.]
Jury Deliberation	30 minutes		[Final argument	15 min.]
Critique By Jury	15 minutes			
Critique By Judge	30 minutes			
Breaks	20 minutes			
Lunch	30 minutes			

Negotiation and Mediation

The time schedules for negotiation and mediation exercises will be determined by faculty.

***EXPERT WITNESSES: Only called as witnesses when expert witness examination is part of the exercise. Each expert witness examination adds 30 minutes per side (20 minutes for direct examination and 10 minutes for cross-examination).**

When expert witness examinations are a part of the exercise the admissibility and use of expert witness reports are governed by the Rules of Evidence.

When expert witness examinations are not a part of this exercise, the reports of the expert witnesses are admissible. The expert reports should be marked as exhibits and entered into evidence before opening statements. Both parties may refer to the reports in opening statement and final argument. In a trial the judge may provide the report to the jury.

APPENDIX C
APPLICABLE LAW

MIDSTATE
APPLICABLE LAW

MIDSTATE WEATHER MODIFICATION ACT OF 1975
ARTICLE 36

36-66-100. Declaration of Rights.

The Midstate House and Senate declare that the State of Midstate claims, in the name of the people of the State, the right to all moisture suspended in the atmosphere which falls or is artificially induced to fall within its borders. It is further declared that the State of Midstate claims the prior right to increase or permit the increase of precipitation by artificial means for use in Midstate and claims the right to modify weather as it affects the people of the State of Midstate and to permit such modification by activity within Midstate.

36-66-101. Definitions.

(1) Weather modification is considered to be any program, operation, or experiment intended to induce changes in the composition, behavior, or dynamics of the atmosphere by artificial means. The State recognizes the economic benefits to be derived from weather modification and determines that operations, research, experimentation and development in the field of weather modification should be encouraged, provided proper safeguards are in place in order to minimize possible adverse effects.

(2) "Director" means the Executive Director of the Department of Natural Resources. The Executive Director is appointed by the Governor of the State of Midstate to serve a term of three years.

(3) "Operation" means the performance in Midstate of any activity to attempt to modify or having the effect of modifying natural weather conditions other than usual and customary activities not conducted primarily for weather modification and having only a minor effect on natural weather conditions.

(4) "Operator" means any person who conducts a weather modification operation in Midstate.

(5) "Permit" means a certification of project approval to conduct a specific weather modification operation within the State under the conditions and within the limitations required and established under the provisions of this article.

(6) "Publication" or "publish" means a minimum of at least two consecutive weekly legal notices in at least one newspaper of general circulation in the county or counties, or portions thereof, included within the proposed operation. Publications of notices provided for in this article may be made, at the discretion of the Director, by notices broadcast over any or all standard or FM radio stations, television stations and cable television. Such broadcast notices shall make reference to locations or publications wherein details of the subject matter of the notices are located.

36-66-102. Administration.

(1) The Executive Director of the Department of Natural Resources is hereby charged with the administration of this article.

(2) The Executive Director shall issue all permits provided for in this article.

36-66-103. Powers of the Executive Director.

The Executive Director is in charge of administering the Act and is authorized to:

(1) Issue permits to weather modification operations (see Midstate Rules and Regulations, Administrative Procedures Act, M.R.S. 36-68-100);

(2) Establish standards and instructions to govern research and development or commercial operations in order to minimize danger to land, health, safety, people, property or the environment;

(3) Make studies or investigations, obtain information and hold any hearings necessary to assist the Executive Director in the administration of the Act;

(4) Represent the State in matters pertaining to plans, procedures or negotiations for interstate compacts relating to weather modification, recognizing that the consent of the General Assembly and approval of the Governor is needed prior to implementation of any such compact;

(5) Participate in and promote continuous research and development in the theory, development and utilization of weather modification;

(6) Conduct and contract for research and development activities relating to weather modification; and

(7) Accept federal grants, private gifts and donations from any source.

36-66-104. Permit Required - Exemptions.

(1) No person may engage in activities for weather modification and control without a weather modification permit issued by the Director; nor may any person engage in any activities in violation of any term of condition of the permit.

(2) The Director, to the extent the Director considers exemptions practical, may provide by regulation for exempting the following activities from the fee requirements of this article.

(a) Research, development, and experiments conducted by state and federal agencies, state institutions of higher education, and bona fide nonprofit research organizations;
(b) Laboratory research and experiments; and
(c) Activities of an emergency nature for protection against fire, frost, hail, sleet, smog, fog or drought.

36-66-105. Permit Required - When Issued.
Panel of 3 people - Director and 2 Board Members - 2 out of 3 votes needed.

(1) The Director, in accordance with regulations, shall issue a weather modification permit to each applicant who:

(a) Pays the permit fee, if applicable.
(b) Furnishes proof of financial responsibility adequate to meet obligations reasonably likely to be attached to or result from the proposed weather modification operation.
(c) Submits a complete operational plan for each proposed project prepared by the operator in control which includes a specific statement of objectives, the proposed operating area which specifies the primary target area and shows the area reasonably expected to be affected, the name and address of the operator, the nature and object of the intended operation, the person or organization on whose behalf it is to be conducted and a statement showing any expected effect upon the environment and methods of determining and evaluating the same. This plan shall be placed on file with the Director.
(d) Publishes a notice of intent to modify weather in the counties to be affected by the weather modification program before the operator secures a permit and before beginning operations.
(e) Provides information that is requested by the Director regarding the qualifications, education and experience of the operator.

(2) Before a permit may be issued, the Director or Director's authorized agent shall hold a public hearing on the proposed project. Said hearing shall be held in a place within a reasonable proximity of the area expected to be affected by the proposed operation.

(3) No permit may be issued unless the Director determines, based on the information provided in the operational plan and on the testimony provided at the public hearing:

(a) That the project is reasonably expected to benefit the people in said area or benefit the people of the State of Midstate;
(b) That the project is scientifically and technically feasible;
(c) That the project does not involve a high degree of risk of substantial harm to land, people, health, safety, property or the environment;
(d) That the project is designed to include adequate safeguards to prevent substantial damage to land, water rights, people, health, safety or the environment;
(e) That the project will not adversely affect another project; and
(f) That the project is designed to minimize risk and maximize scientific gains or economic benefits to the residents of the area or the State.

36-66-106. Permit Fee.

(1) The fee for each permit or the renewal thereof shall be at least one hundred dollars. If the operation is a commercial project, the Director shall set a fee that is sufficient to pay the direct costs of review of the permit application, pubic hearings regarding the application and monitoring of permit operations. Said fee shall be deposited into the Midstate Water Conservation Board construction fund.

36-66-107. Limits of Permit.

(1) A permit for ground-based, winter cloud seeding shall be issued for a period of four years.

(2) The Director may approve a permit for aircraft, warm weather hygroscopic seeding for a continuous time period up to four years in duration.

(3) A project permit may be granted by the Director without prior publication of notice by the operator in cases of fire, frost, hail, sleet, smog, fog, drought or other emergency. In such cases, publication of notice shall be performed as soon as possible and shall not be subject to the time limited specified in this article.

36-66-108. Modification of Permit.

(1) Once issued, a permit may be modified by the Director if:
(a) The operator is give notice and a reasonable opportunity for hearing on the need for a revision.
(b) It appears necessary to protect the health or property of any person or to protect the environment.
(c) If an emergency situation exists or is pending that could endanger life, property or the environment, the Executive Director may temporarily suspend or modify a permit. The issue of such order shall include notice of a hearing to be held within ten days thereafter. Failure to comply with an order temporarily suspending an operation or modifying the conditions of a permit shall be grounds for immediate revocation of the permit.

36-66-109. Scope of Activity.

Once a permit is issued, the operator shall confine activities within the limits of time and area specified in the permit, except to the extent that the limits are modified by the Director. The operator shall also comply with any terms and conditions of the permit as originally issued or as subsequently modified by the Director.

Any person who operates a weather modification program without a permit, or whose operations affects areas not covered by the permit, or who knowingly violates the conditions of a permit commits negligence *per se.* The Executive Director may order such person to cease and desist.

36-66-110. Reports of Operator.

(1) The Director may promulgate rules requiring any operator who has been issued a weather modification permit to file certain reports regarding operations conducted under the permit.

(2) All reports filed under the provision of this section are declared to be public records.

36-66-112. Operations Affecting Weather in Other States.

Weather control operations may not be carried on in Midstate for the purpose of affecting weather in any other state if that state prohibits such operations to be carried on in that state for the benefit of Midstate or its inhabitants.

36-66-112. Suspension-Revocation-Refusal to Renew.

(1) The Director may suspend or revoke a permit if it appears that the operator no longer has the qualifications necessary for the issuance of an original permit or has violated any provision of this article.

(2) The Director may refuse to issue another permit to any applicant who has failed to comply with any provision of this article.

36-66-113. Hearing Required.

(1) The Director may not suspend or revoke a permit without first giving the operator notice and a reasonable opportunity to be heard with respect to the grounds for the Director's proposed action.

(2) Said hearing shall be conducted by an administrative law judge.

36-66-114. Governmental Immunity.

(1) The state and its agencies, counties, and municipalities, persons, companies or corporations hired or appointed by the above, other public entities within the state, and the officers and employees thereof are immune from liability resulting from any weather modification operations approved or conducted by them under the provisions and limitations of this article,

(2) EXCEPT in situations of gross negligence there shall be NO immunity from liability resulting from any weather modification operation.

Gross Negligence is defined as:

(a) A lack of slight diligence or care, or

(b) A conscious, voluntary act or omission in reckless disregard of a legal duty and of the consequences to another party, who may typically recover exemplary damages.

36-66-115. Legal Recourse-Liability-Damages.

(1) The mere dissemination of materials and substances into the atmosphere pursuant to an authorized project shall not give rise to the contention or concept that such use of the atmosphere constitutes trespass or involves an actionable or enjoinable public or private nuisance.

(2)(a) Failure to obtain a permit before conducting an operation, or any actions which knowingly constitute a violation of the conditions of a permit, shall constitute negligence *per se*.

(b) The Director may order any person who is found to be conducting a weather modification operation without a permit to cease and desist from said operation. Any person who fails to obey said order commits as a Class 6 felony, which is punishable by between 12 and 18 months imprisonment, a fine of between $1,000 and $100,000, or both.

36-66-116. Permit as Defense in Actions.

The fact that a person, company or corporation was issued a permit under this article, or that the person has complied with the requirement established by the Director pursuant to this article, is not admissible as a defense in actions for damages or injunctive relief brought against the person, company or corporation.

36-66-117. Judicial Review.

Judicial review of any action of the Director may be held in accordance with provisions herein.

36-66-117(a). Civil Litigation.

Nothing in this article shall prevent any person, corporation or party from initiating a civil lawsuit in either state or federal court nor shall any provisions in this article prevent the recovery of damage for business, property or personal loss.

36-66-117(b). Non-Binding Arbitration.

Upon the filing of any complaint and answer to that complaint, all issues alleged in said complaint shall be submitted to non-binding arbitration before an arbitrator appointed by agreement of the parties.

36-66-118. Penalties.

(1)(a) The state and its agencies, counties, and municipalities, persons, companies or corporations hired or appointed by the above, other public entities within the state, and the officers and employees responsible for conducting a weather modification operation without first having procured the required permit and any person who contracts with or pays another person known to be without a permit to conduct a weather modification operation commits a Class 6 Felony, which is punishable by between 12 and 18 months imprisonment, a fine of between $1,000 and $100,000, or both.

(b) Any person operating an aircraft conducting a weather modification operation, which operation has not received the required permit, shall have this violation reported to the United States Department of Transportation, Federal Aviation Administration, by the Director.

(2) Any person who makes a false statement in the application for a permit, who fails to file any report as required by this article, or who violates any other provisions of this article, is guilty of a misdemeanor and, upon conviction thereof, shall be punished by a fine or not more than five thousand dollars, or by imprisonment in the county jail for not more than six months, or by both such fine and imprisonment. Each such violation shall be a separate offense.

MIDSTATE WEATHER MODIFICATION RULES AND REGULATIONS

Midstate Administrative Procedures Act, M.R.S. 36-68-100.

The Executive Director of the Department of Natural Resources is empowered to issues rules and regulations required to implement the Weather Modification Act - Article 36. Rules include information needed by persons applying for licenses and permits.

A. General Information

A license is granted for expertise in a specified form of weather modification technology (e.g., snow augmentation, hail suppression, cloud seeding). A permit is required for each weather modification project and projects must be directed by persons who hold a current Midstate weather modification license.

B. Application for license

(1) Use Application for License (Form WM1) to apply for a license. WM1 must be submitted at least 45 days before the beginning date of proposed project use.

(2) Licensees must meet at least one of the following requirements:

(a) Eight years professional experience in weather modification field research or operations with at least three years as project director.

(b) Baccalaureate degree in engineering, mathematics or physical sciences and three years experience in weather modification field research or operations.

(c) Baccalaureate degree in meteorology or Baccalaureate degree in engineering (which includes, or is in addition to, twenty-five semester hours of meteorology) and two years experience in weather modification operations or research.

(d) Certification as manager by the Weather Modification Association.

(3) A license fee of $100 is required of all applicants including persons employed by commercial firms, government and non-profit agencies.

(4) A license expires at the end of the calendar year in which it is issued.

C. Application for permit

(1) Use form WM2 to apply for a weather modification permit. Submit Form WM2 at least 45 days before the beginning date of a proposed project. Information required includes:

(a) A description of the objectives of the proposed project.

(b) A written description and map identifying the target area reasonably expected to be affected by the project.

(c) A description of how the project will be carried out including location of office, weather data used, aircraft types, seeding devices and material, seeding rates, etc.

(d) How the proposed project is designed to provide and offers promise of providing economic benefit to the target area (applicable to commercial projects only).

(e) How the proposed project is reasonably expected to benefit other persons living the target area and the people of Midstate.

(f) How the proposed project is scientifically and technically feasible (applicable to commercial projects only).

(g) How the proposed project is designed for and offers promise of expanding the knowledge and technology of weather modification (applicable to research projects only).
(h) The risk that the proposed project could cause substantial harm to land, water, people, health, safety, property and the environment and the safeguards proposed for use by the operator to prevent substantial harm.
(i) How other weather modification projects (if any) could be affected adversely by the proposed project.
(j) The significant ecological impacts which may result from the project such as how precipitation patterns might be changed and how increased runoff would affect erosion.
(k) Provide evidence of a liability policy of at least $1 million to show financial responsibility.
(l) Provide proof that the insuring company is authorized to do business in Midstate.

(2) Legal Notice of Intent
Licensees applying for a permit shall publish intent to modify weather in the official newspapers of those Midstate counties which lie wholly or partly within the target area of the proposed project and in those counties which are reasonably expected to be affected by the project. Official newspapers are those newspapers designated by County Commissions for publication of legal notices. The target area is defined as the area in which the operator desires to produce effects. Counties which may reasonably be expected to be affected by the project include, at a minimum, those counties that are adjacent to the county (or counties) containing the target area. Consult Form WM4 for suggested working for the legal notice.
(a) The legal notice shall:
(1) Be published in at least one newspaper of general circulation in the counties included within this proposed operation; publication constituting a minimum of at least two consecutive weekly legal notices with not less than one week intervening between the first publication and the last publication. Notice shall be complete on the date of the last publication.
(2) State the purpose, intended effects, dates and sponsor(s) of the proposed project.
(3) Designate the target area by referring to townships and ranges and by referring to lines drawn between prominent points. Counties contained therein should be named.
(4) State that a copy of the licensee's application for permit is available on request from the licensee, the Executive Director, or other persons or agencies specified by the Executive Director.
(5) State the time and place for the public hearing, as scheduled by the Department of Natural Resources. The hearing shall not be held more than one week following completion of publication of the notice of intent.
(b) If the County Commissioners have not designated a newspaper for publishing legal notices, the required notice shall be posted in at least three public places in the county. Posting shall be not more than fourteen days nor less than seven days before the public hearing.
(c) Affidavits provided by newspaper publishers, radio or television station managers, or sheriffs are sufficient proof of publication.

(3) Evaluating Permit Applications
Information provided on Form WM2 will be used by the Executive Director to decide (based on the criteria in M.R.S. § 36-68-100) if a permit should be granted.

(4) Granting of Permits
Permits shall be granted for a maximum of one year. Exceptions may be made for projects scheduled to last up to 18 months. Permits may be renewed during the five years following the date of issue providing conditions under which the permit was issued have not changed substantially.

D. Reports

(1) A current, daily log shall be kept by the permittee at the project office and made available for inspection by the public in a manner that does not interfere with the project that includes:
   a. Date of weather modification activity,
   b. Description of seeding agent used,
   c. Method of disseminating seeding agent (aircraft or ground-based generators), and
   d. Start and end times of seeding activities.

(2) Form WM3 - REPORT ON WEATHER MODIFICATION ACTIVITIES shall be submitted to the Executive Director no later than ten days after the end of the reporting period.

(3) Annual reports shall be made in accordance with M.R.S. § 36-68-100. A written final report which evaluates the project shall be submitted to the Executive Director and to county commission offices (in those counties in which publication of a legal notice of intent is required) within 30 days of completion of the project.

APPENDIX D
Jury Instructions &
Special Verdict Form

PART I
PRELIMINARY JURY INSTRUCTIONS
(Given Prior to the Evidence)

The following jury instructions state general principles which may apply to this case and which may be used at the discretion of the trial judge.

A. Introduction

You have been selected as jurors and have taken an oath to well and truly try this cause. This trial will last one day.

You should keep an open mind. You should not form or express an opinion during the trial and should reach no conclusion in this case until you have heard all of the evidence, the arguments of counsel, and the final instructions as to the law which will be given to you by the court.

B. Conduct of the Trial

First, the attorneys will have an opportunity to make opening statements. These statements are not evidence and should be considered only as a preview of what the attorneys expect the evidence will be.

Following the opening statements, witnesses will be called to testify. They will be placed under oath and questioned by the attorneys. Documents and other tangible exhibits may also be received as evidence. If an exhibit is given to you to examine, you should examine it carefully, individually, and without any comment.

It is the right of counsel to object when testimony or other evidence is offered which the attorney believes is not admissible.

When the court sustains an objection to a question, the jurors must disregard the question and the answer if one has been given, and draw no inference from the question or answer or speculate as to what the witness would have said if permitted to answer. Evidence stricken from the record must likewise be disregarded.

When the court sustains an objection to any evidence, the jurors must disregard such evidence.

When the court overrules an objection to any evidence, the jurors must not give such evidence any more weight than if the objection had not been made.

When the evidence is completed, the attorneys will make final statements. These final statements are not evidence but are given to assist you in evaluating the evidence. The attorneys are also permitted to argue, to attempt to persuade you to a particular verdict. You may accept or reject those arguments as you see fit.

Finally, just before you retire to consider your verdict, you will receive further instructions on the law which applies to this case.

Part II
FINAL JURY INSTRUCTIONS
(Given at Conclusion of Evidence)

A. Introduction

Members of the jury, the evidence and arguments in this case have been completed, and you will now receive instructions concerning the law.

The law applicable in this case is stated in these instructions and it is your duty to follow all of them. The order in which the instructions are given is not significant. You must not single out certain instructions and disregard others.

It is your duty to determine the facts, and to determine them only from the evidence in this case. You are to apply the law to the facts and in this way decide the case. You must not be governed or influenced by sympathy or prejudice for or against any party in this case. Your verdict must be based on evidence and not upon speculation, guess or conjecture.

From time to time it has been the duty of the court to rule on the admissibility of evidence. You must not concern yourselves with the reasons for these rulings. You should disregard questions and exhibits which were withdrawn or to which objections were sustained.

The evidence which you should consider consists only of the testimony of the witnesses and the exhibits which the court has received.

You should consider all the evidence in the light of your own observations and experiences in life.

Neither these instructions nor any ruling or remark indicate any opinion as to the facts or as to what your verdict should be.

B. Opening Statement/Closing Arguments

Opening statements are made by the attorneys to acquaint you with the facts they expect to prove. Closing arguments are made by the attorneys to discuss the facts and circumstances in the case, and should be confined to the evidence and to reasonable inferences to be drawn therefrom. Neither opening statements nor closing arguments are evidence, and any statement or argument made by the attorneys which is not based on the evidence should be disregarded.

C. Credibility of Witnesses

You are the sole judge of the credibility of the witnesses and of the weight to be given the testimony of each. In determining what credit is to be given any witness you may take into account his ability and opportunity to observe, his manner and appearance while testifying, and interest, bias or prejudice he may have, and the reasonableness of his testimony considered in the light of all the evidence, and any other factors that bear on the believability and weight of the witness' testimony.

D. Expert Witnesses (When Applicable)

You have heard evidence in this case from witnesses who have testified as experts. The law allows experts to express opinion on subjects involving their special knowledge, training and skill, experience or research; but while their opinions are allowed to be given, it is entirely within the province of the jury to determine what weight shall be given their testimony. Jurors are not bound by the testimony of experts; their testimony is to be weighed as that of any other witness.

E. Direct and Circumstantial Evidence

The law recognizes two kinds of evidence - direct and circumstantial. Direct evidence proves a fact directly, that is, the evidence by itself, if true, establishes the fact. Circumstantial evidence is the proof of facts or circumstances which give rise to a reasonable inference of other facts, that is, circumstantial evidence proves a fact indirectly in that it follows from other facts or circumstances according to common experience and observations in life. An eye witness is a common example of direct evidence, while human footprints are circumstantial evidence that a person was present.

The law makes no distinction between direct and circumstantial evidence as to degree of proof required, and each should be considered according to whatever weight or value it may have. All of the evidence should be considered and evaluated by you in arriving at your verdict.

F. Claims and Defenses

This case is about liability and causation. You are not to consider or assess damages or costs.

The court will now instruct you on the claims and defenses of each party and the law governing the case. You must arrive at your verdict by unanimous vote, applying the law, as you are now instructed, to the facts as you find them to be.

City of Shields Falls, et al. are the Plaintiffs. State of Midstate, Midstate Department of Natural Resources–Water Conservation, Weather Modification Board, and its individual members, Rain Makers, Inc. and Hugh Fitzpatrick are the Defendants.

The parties agree on the following:

1. Shields Falls is a municipal corporation existing pursuant to the statues of the State of Midstate and is located in the County of Falls, State of Midstate. Shields Falls has a population of approximately 7,800 people with numerous businesses located in or doing business in the city.
2. Rain Makers, Inc. applied for and obtained a weather modification license (#3668100-2004-01) and was granted a weather modification permit for rainfall augmentation by the State of Midstate, Midstate Department of Natural Resources–Water Conservation, Weather Modification Board.
3. Rain Makers, Inc. performed a weather modification operation for rainfall augmentation on June 13, 2005 in Midstate.
4. The City of Shields Falls and surrounding community experienced precipitation of nearly 10 inches over a four hour period on June 13, 2005, resulting in a severe flood.
5. There was loss of life, personal injuries and property damage sustained during flooding in Shields Falls on June 13, 2005.

Denials

Defendants deny:

- Negligence by Defendants
- Causation of flood
- Causation of death, personal injuries or property damage

G. Direct Cause

A direct cause is a cause which has a substantial part in bringing about the injury. There may be more than one direct cause of an injury. When the effects of negligent conduct of each of two or more persons actively work at substantially the same time to cause the injury, without either being a superseding cause, each may be a direct cause of the injury.

H. Negligence and Reasonable Care

The mere fact that an injury has happened does not of itself mean that anyone has been negligent.

A person may assume that every other person will use reasonable care and will obey the law until the contrary reasonably appears.

Negligence is the failure to use reasonable care. Reasonable care is that care which a reasonable person would use under like circumstances. Negligence is the doing of something which a reasonable person would not do, or the failure to do something a reasonable person would do, under like circumstances.

The violation of a duty owed another to use reasonable care is negligence. Whether or not a duty, has been violated depends upon the risks of the situation, the dangers known or reasonably to have been foreseen, and all of the then-existing circumstances.

I. Burden of Proof

In order to answer any question "yes," the greater weight of the evidence must support such an answer, otherwise you should answer the question "no."

"Greater weight of the evidence" means that all of the evidence by whomever produced must lead you to believe it is more likely that the claim is true than not true.

The greater weight of the evidence does not necessarily mean the greater number of witnesses or the greater volume of testimony. Any believable evidence may be a sufficient basis to prove a fact.

A party seeking damages must prove the nature, extent, duration, and consequences of harm.

J. Concluding Instruction

The court did not in any way and does not by these instructions give or intimate any opinions as to what has or has not been proven in this case, or as to what are or are not the facts of the case.

No one of these instructions states all of the law applicable, but all of them must be taken, read, and considered together as they are connected with and related to each other as a whole.

You must not be concerned with the wisdom of any rule of law. Regardless of any opinions you may have as to what the law ought to be, it would be a violation of your sworn duty to base a verdict upon any other view of the law than that given in the instructions of the court.

SPECIAL VERDICT FORM

STATE OF MIDSTATE **DISTRICT COURT**

COUNTY OF FALLS **SECOND JUDICIAL DISTRICT**

City of Shields Falls, et al.,
Plaintiffs,
v. **SPECIAL VERDICT**

State of Midstate, Midstate Department of Natural Resources–Water Conservation, Weather Modification Board, and its individual members, Rain Makers, Inc., and Hugh Fitzpatrick,
Defendants.

We, the Jury, in the above-entitled matter, make the following Findings of Fact:

Question 1: Were any of the following Defendants negligent?

A) Midstate Department of Natural Resources–Water Conservation Weather Modification Board and its individual members Yes _____No _____

B) Rain Makers, Inc., and Hugh Fitzpatrick Yes _____No _____

Question 2: If any answer to Question 1 was "yes," then answer this question:

Was such negligence a direct cause of flooding in Shields Falls?

A) Midstate Department of Natural Resources–Water Conservation Weather Modification Board and its individual members Yes _____No _____

B) Rain Makers, Inc., and Hugh Fitzpatrick Yes _____No _____

Question 3: If you answered "yes" to any portions of Questions 1 and 2, then answer this question:

Taking all of the negligence and liability which contributed as a direct cause to the flooding being 100%, what percentage of portion thereof do you attribute to:

A) Midstate Department of Natural Resources–Water Conservation Weather Modification Board and its individual members _____%

B) Rain Makers, Inc., and Hugh Fitzpatrick _____%

TOTAL 100 %

EXHIBITS LIST

Diagrams

Charts

Maps