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A COMMON LAW SOLUTION TO THE ACID RAIN PROBLEM

I. INTRODUCTION

Acid rain destroys forests, lakes, and lives¹ throughout the United States.² Acid rain is precipitation³ that has a pH⁴ of less than the normal pH of rain.⁵ The lower the pH of a solution, the greater its acidity. Rain's pH level is lowered by pollutants emitted by utilities and industries.⁶ It might be assumed that the greatest problems with acid rain's destructive aspects would be in highly industrialized areas of the nation. However, this assumption would be incorrect due to the

1. See CONGRESSIONAL RESEARCH SERVICE FOR THE SENATE COMM. ON THE ENVIRONMENT AND PUBLIC WORKS, 96TH CONG., 2D SESS., RESOURCE LOSSES FROM SURFACE WATER, GROUNDWATER, AND ATMOSPHERIC CONTAMINATION: A CATALOG (1980). The Congressional Research Service also found that estimates of damages caused annually by acid rain range from \$62 million per year to \$16.6 billion per year. The discrepancies were primarily due to the different dollar values allotted to health, pain, and premature death by the particular researcher. The Environmental Protection Agency considers past evaluation of environmental damages to have underestimated the actual damage costs of acid rain. ENVIRONMENTAL PROTECTION AGENCY, ENVIRONMENTAL EFFECTS OF INCREASED COAL UTILIZATION: ECOLOGICAL EFFECTS OF GASEOUS EMISSIONS FROM COAL COMBUSTION 19 (1978) [hereinafter cited as *EPA Effects of Coal*].

2. F. RECORD, D. BUBENICK & R. KINDAYA, ACID RAIN INFORMATION BOOK 127-36, 156-57 (1982) (from a report for the Department of Energy) [hereinafter cited as F. RECORD]. Emissions from transportation sources do not contribute significantly to the regional problem of acid precipitation because they are released close to the ground and, generally, deposited in their original form near the source area. Therefore, the closer to the ground emissions are released the less likely that they will contribute to acid precipitation. See *EPA Effect of Coal*, *supra* note 1, at 435.

3. For the purposes of this note, the term precipitation shall include dry fall. Dry fall are particulates which have not combined with cloud vapor. See *infra* text accompanying notes 24-25.

4. See *infra* notes 26-29 and accompanying text.

5. The pH level of normal, "non-acid" rain is 5.6. It is well established that a certain amount of acidity has always been deposited from the atmosphere. D. CALVERT, ACID DEPOSITION: ATMOSPHERIC PROCESSES IN EASTERN NORTH AMERICA 4 (1983).

6. It is a common misconception that an acid is an extremely dangerous substance which one would find marked with a skull and crossbones in a dark laboratory or hidden in a giant metal drum in a chemical dump. Actually, acids are all around us every day of our lives. An apple is acidic and so is vinegar.

Cogan, Who'll Stop the Rain? (unpublished manuscript) (available at the Center for Law and Liberal Education at Brown University). See also F. RECORD, *supra* note 2, at 162.

fact that pollutants travel long distances in the atmosphere before falling to the ground.⁷

Individuals suffering acid rain damage to their property have little choice but to bring a tort action for damages. The greatest impediment to such an action is the traditional requirement that the plaintiff must prove causation in fact. Acid rain results from the aggregation of emissions from hundreds of major sources. These emissions are chemically altered in the atmosphere and transported hundreds of miles before precipitating as acid rain. Present technology affords no basis for tracing acid rain to particular pollution sources. The emissions are not identifiable as coming from any one source. Unless alternatives to traditional causation requirements are developed, private individuals attempting to redress acid rain damage will be barred from seeking relief for the injuries inflicted on them, and polluters will be encouraged to continue shifting the costs of pollution onto the private individual.

Private individuals whose interest in property is diminished by pollution crossing over the property line may bring a common law nuisance suit against the emitters of the pollution.⁸ This action can

7. A study by the National Wildlife Federation has concluded that 15 of 26 states east of the Mississippi are "extremely vulnerable" to damage caused by acid rain. These states include: Connecticut, Kentucky, Maine, Massachusetts, Michigan, New Hampshire, New Jersey, New York, North Carolina, Vermont, West Virginia, and Wisconsin [Current Developments 12] ENV'T REP. (BNA) 749 (Oct. 16, 1981).

It is estimated that, of the acid rain falling in New England, 44 percent is caused by local pollution sources, 37 percent is from United States sources to the west and south of the region, and 18 percent comes from Canadian sources. The problem is even more pronounced in New York and New Jersey where only 28 percent of the acidity in the precipitation is caused by local sources. The states to the west and south account for 46 percent, New England is responsible for about 12 percent, and Canada for about 13 percent. *EPA Effects of Coal*, *supra* note 1, at 19.

It is estimated that approximately four million metric tons of sulfur dioxide pollution are released into Canada by U.S. sources into the atmosphere of the U.S. each year. Wetstone, *The Need for a New Regulatory Approach*, 22 ENV'T 9 (1980). A discussion of the international consequences of acid rain is beyond the scope of this note. See generally Johnston & Finkle, *Acid Precipitation in North America: The Case for Transboundary Cooperation*, 14 VAND. J. TRANSNAT'L L. 787 (1981); Wetstone & Rosencranz, *Transboundary Air Pollution: The Search for an International Response*, 8 HARV. ENV'T L. REV. 89 (1984).

8. Most private suits to remedy injuries caused by pollution are brought for nuisance. To establish his case, a plaintiff in a nuisance action must show that defendant's unreasonable conduct has substantially interfered with his use and enjoyment interest in his land. The determination of responsibility of defendant's conduct includes a balancing of the utility of his conduct against the magnitude of injury the

lie in either public or private nuisance law. A public nuisance action is brought when the damage to the individual's property is shared by a large number of individuals.⁹ A private nuisance action is brought when the damage to the private individual's property is exclusive to her or to a small number of others.¹⁰ In either case, the private individual must prove standing and causation in order to be successful in the action. These types of actions were the principle means of securing relief from pollution prior to 1955.

Another means for securing relief was added in 1955 when Congress passed the Clean Air Act (CAA).¹¹ One purpose of this Act was to provide a national standard for pollution control.¹² Although the Act did not eliminate state common law nuisance actions,¹³ it provided a means by which states could be regulated for the amount of pollution produced within their borders.¹⁴ While the CAA may serve as a means to control pollution in general, it is not an effective means of remedying pollution damage to private individuals.

These private individuals, as well as environmentalists, manufacturers, and the states, all have an interest in maintaining air quality. Environmentalists desire the air to be as clear as possible. Manufacturers have an interest in healthy employees¹⁵ and in investors who regard the company as profitable. The states have an interest in reducing the amount of pollution within their borders so that they can allow new manufacturers to locate in their state¹⁶ and attract tourism.¹⁷ The interests of the environmentalists, the manufacturers, and the private individuals whose property or health have been damaged must be

defendant suffers. Defendant's conduct must be either intentional, negligent, or inherently dangerous. Where defendant knows his conduct will effect plaintiff's use and enjoyment interest, his conduct is judged intentional. When he can reasonably foresee interference, his conduct is judged negligent. W. PROSSER & W. KEETON, PROSSER AND KEETON ON THE LAW OF TORTS, 616-54, (5th Ed. 1984).

9. 66 C.J.S. *Nuisance* § 78 (1955).

10. *Id.*

11. 42 U.S.C. § 7401 *et seq.* (1983).

12. 42 U.S.C. § 7401 (1983).

13. Note, *Causation in Acid Rain Litigation: Facilitation Proof with Joint Liability Theories*, 1983 B.Y.U. L. REV. 657.

14. *Id.*

15. Healthy employees take fewer sick leaves and are more productive in their work. Cogan, *supra* note 6, at 57.

16. If a state has exceeded its amount of regulated pollution, no new sources can enter the state until the air quality has improved. F. RECORD, *supra* note 2, at 166.

17. One of the effects of acid rain is the destruction of vegetation and fish. See *infra* notes 52-53.

balanced to arrive at a solution to the acid rain problem which is best suited to the needs of the nation.

Present solutions to the acid rain problem are ineffective.¹⁸ The common law nuisance actions brought by private individuals, if successful, provide only temporary monetary relief to the plaintiff while barring further action by her.¹⁹ The current CAA is little better, as it has no standards for the precursors of acid rain,²⁰ thus, it does not regulate acid rain per se. Although the CAA as such is not effective in controlling acid rain, it can, however, be a relevant vehicle for change in dealing with the acid rain problem. Until such change, however, acid rain will remain a growing problem.

This note examines the scientific and economic background of the acid rain problem.²¹ It discusses actions of private individuals under the common law of nuisance and the current CAA. In addition, this note makes a feasible proposal to codify the common law of nuisance.²²

II. ENVIRONMENTAL ASPECTS OF ACID RAIN

A. How Acid Rain Is Produced

Utilities and coal burning plants release sulfur and nitrogen compounds into the atmosphere. These compounds may combine with natural oxygen to form sulfates and nitrites.²³ Once formed, these compounds may precipitate in a dry fall²⁴ or may combine with cloud vapor to form sulfuric and nitric acids that precipitate as rain or snow in a wet fall.²⁵

Rain is naturally acidic.²⁶ The acidity of a solution depends upon the concentration of hydrogen ions in the solution and is expressed

18. See D. CALVERT, *supra* note 5, at 4.

19. *Id.*

20. There is no mention of the phrase "acid rain" or "acid precipitation" in the CAA.

21. See *infra* text accompanying notes 23-57.

22. See *infra* text accompanying notes 113-19.

23. Wetstone, *Air Pollution Control Laws in North America and the Problem of Acid Rain and Snow*, 10 ENVTL L. REP. 50,001 (1980), citing H. BOLIN, AIR POLLUTION ACROSS NATIONAL BOUNDRIES: THE IMPACT ON THE ENVIRONMENT OF SULFUR IN AIR AND PRECIPITATION (1972) (Sweden's case study for the United Nations Conference on the Human Environment in Stockholm).

24. See *supra* note 3 for an explanation of the term "dry fall".

25. *Id.*

26. Cogan, *supra* note 6, at 2.

as its "pH."²⁷ Although pure water is neutral, with a pH of 7, natural carbon dioxide lowers the pH of normal rain to approximately 5.6.²⁹

The acidity of rain has increased since scientific measurement of rain's pH began in the 1950s.³⁰ The highest levels occur in the North-east sections of the United States where precipitation is often twenty-five to forty times more acidic than natural rainfall.³¹ Sulfuric and nitric acids do occur naturally, yet man-made acids contribute ninety-five to ninety-eight percent of all atmospheric acid.³² The effect of natural emissions on the decrease of the pH of rain is insignificant when compared to the effect of man-made emissions over the past thirty years.

The decrease in pH levels of rain can be attributed to the process by which emissions are transported far beyond their sources of production. The prevailing planetary winds carry pollutants hundreds, even thousands of miles from the emitting source before the pollutants precipitate back to Earth.³³ Transport and dispersion processes are

27. Cowling, *Acid Rain: An Emerging Ecological and Public Policy Issue*, 5 CAN.-U.S. L.J. 23, 24 (1982) (part of the *Canada-United States Law Proceedings: The Transnational Implications of Acid Rain* Conference held March 28, 1981.) The pH scale is logarithmic, therefore a pH of 4.6 is ten times as acidic as a pH of 5.6. *Id.* The pH scale ranges from corrosive acid, with a pH of 1, (i.e., battery acid) to a corrosive alkaline, with a pH of 14 (i.e., lye). Fischer, *The Availability of Private Remedies for Acid Rain Damage*, 9 ECOLOGY L.Q. 429, 431 (1981).

28. ENVIRONMENTAL PROTECTION AGENCY, ACID RAIN RESEARCH SUMMARY (1979), reprinted in *Acid Rain: Hearings Before the Subcommittee of Oversight and Investigation of the House Committee on Interstate and Foreign Commerce*, 96th Cong., 2d Sess. 205 (1980).

29. Cowling, *supra* note 27, at 24.

30. Likens & Bormann, *Acid Rain: A Serious Regional Environmental Problem*, 184 SCIENCE 1176 (June 1974). See also Wetstone, *supra* note 23.

31. Wetstone, *supra* note 23, at 50,001. PH levels between 3.91 and 4.02 have been reported in New Hampshire and New York. Likens & Bormann, *supra* note 30, at 1176. Pennsylvania recently reported rain in the Allegheny National Forest with a pH of 2.32, and West Virginia recorded the lowest known pH level for rain, 1.5—a level more acidic than lemon juice. CANADA TODAY, Feb., 1981, at 2. See also Presentation of Clifford L. Jones, Secretary, Pennsylvania Department of Environmental Resources, *Position of the Commonwealth of Pennsylvania on the Interstate Transport of Air Pollution*, in Washington, D.C. (October 24, 1979).

32. *Id.*

33. One commentator states:

High levels of sulfate and nitrate, presumably anthropogenic in origin [man-made], move from continent to continent with the global flow of air masses. As an example, I [H. Clapham] recall hearing a report a few months ago that sulfur coming across the Atlantic was, in fact, the source of the sulfur that was plaguing Scandanavia.

highly complex, depending on temperature, wind speed, time of day and stack height.³⁴ The higher the surface temperature of the ground and the faster the wind blows, the further from the surface of the Earth the emissions will travel, thus prolonging their stay in the atmosphere. Also, the higher the emissions are first introduced into the atmosphere, the closer the emissions are to the jet stream.³⁵ The only transport and dispersion process over which man has control is stack height.

Sources of pollution used tall stacks, those over four-hundred and fifty feet high, as a means of complying with local emissions standards³⁶ thereby avoiding expensive emission control measures.³⁷ The tall stacks were efficient in meeting this objective; however, a recent EPA study reports that taller stacks and greater thermal effluxes from them have resulted in increased atmospheric residence times³⁸ for pollutant emissions. In turn, further distribution of the emissions and increased formation of secondary products may be occurring.³⁹ In an effort to comply with local regulations, emission sources have shifted part of the burden of dealing with the effects of acid rain downwind.

B. Biological Effects of Acid Rain

The effects of acid rain are not totally understood by scientists;

Clapham, *Coal, Cars and Questions: Knowns and Unknowns About Acid Rain*, 5 CAN.-U.S. L.J. 32, 35 (1982) (part of the *Canada-United States Law Institute Proceedings: The Transnational Implication of Acid Rain*, 5 CAN.-U.S. L.J. 1 (1982). Conference held March 28, 1981).

34. ENVIRONMENTAL PROTECTION AGENCY, THE ACIDIC DEPOSITION PHENOMENON AND ITS EFFECTS, Critical Assessment Review Papers, Public Review Draft, 3-2, 3-91 to 3-93 (1983) [hereinafter cited as *EPA Acidic Effects*]. These factors affect the extent to which emissions remain at low-level atmospheric "mixing" levels, thereby increasing the rate of deposition. Long range transport occurs when emissions are able to rise from the mixing level into the high speed jet stream. *Id.* at 3-11 to 3-28. Stack height is a factor because the taller the stack, the higher into the atmosphere the emissions are pushed, consequently making it easier for the emissions to reach the jet stream. Tall stacks have been compared to a missile silo, "capable of hurling aerial garbage at target sites far away." *Id.*

35. The jet stream is upper air wind currents which travel in predictable patterns at an approximate speed of 500 miles per hour. Harrington & Krupnick, *Stationary Source Pollution Policy and Choices for Reform*, 2 NAT'L RESOURCES J. 539, 546 (1981).

36. It is not within the scope of this note to discuss interstate air pollution law. See generally Lee, *Interstate Sulfate Pollution: Proposed Amendments to the Clean Air Act*, 5 HARV. ENVTL L. REV. 71 (1981).

37. *EPA Acidic Effects*, *supra* note 34, at 3-2.

38. Residence time is a term used to describe how long emissions remain suspended in the atmosphere. Likens, Wright, Galloway & Butler, *Acid Rain*, 241 SCI. AM. 43, 49 (1979).

39. *EPA Acidic Effects*, *supra* note 34, at 3-39.

however, several serious consequences have been identified.⁴⁰ One of the major effects of acid rain is on aquatic life and vegetation; this is caused indirectly by changes in soil and soil chemistry.⁴¹ In most areas of the nation, the soil is thousands of years old, and thus contains much decayed vegetation.⁴² When vegetation decays, it leaves behind a buffer. The buffer⁴³ neutralizes the acid that naturally occurs in rain.⁴⁴ In areas where the soil is young,⁴⁵ there are insufficient buffers to protect the soil from an acid overload.⁴⁶ Once the buffers have been utilized, severe consequences follow rapidly with the addition of small, previously inconsequential amounts of acid.⁴⁷

Another effect of acid rain is the leaching of toxic metal ions from the soil into the water. This occurs when the acid breaks the chemical bond holding the ions to naturally occurring minerals. Although naturally present in soils, ions such as aluminum, iron, mercury, and lead are not normally "chemically available";⁴⁸ they are bonded to the minerals. Each of the ions can have harmful impacts on vegetation, aquatic organisms, fish, and other animal life.⁴⁹

Yet another effect acid rain has on the soil is the inhibition of soil microbial activities,⁵⁰ causing a substantial decrease in the rate of litter decomposition.⁵¹ Litter decomposition is essential in replenishing soil nutrients. Thus, not only does acid rain consume valuable nutrients, but it also prevents nutrient formation, thereby compounding the problem. These three effects of acid rain on soil are only one set of problems associated with acid rain.

40. Wetstone, *supra* note 23, at 50,001-02.

41. *Id.* at 50,002.

42. Likens, Wright, Galloway & Butler, *supra* note 38, at 53.

43. Wetstone, *supra* note 23, at 50,002.

44. *Id.*

45. The soil is deemed "young" when it is formed from glacial rock. This type of soil is poor for vegetation.

46. The impact of acid rain depends upon the nature and depth of the soil layers. Rich soil (that which has had much organic decomposition) contains high levels of calcium carbonate, calcium, or lime which act as "buffers," neutralizing acid impact.

47. Wetstone, *supra* note 23, at 50,002.

48. *Id.* See also ENVIRONMENTAL PROTECTION AGENCY, CRITICAL ASSESSMENT REVIEW PAPERS, Public Review Draft, The Acidic Deposition Phenomenon and its Effects, 2-8 to 2-12, 2-57 to 2-58 (1983) [hereinafter cited as *EPA Critical Assessment*].

49. It now appears that increases in aluminum availability cause the most damage. An increase in free aluminum ions in the water has been linked to a decrease in fish reproduction. *Id.*

50. *EPA Critical Assessment*, *supra* note 48, at 2-57 to 2-58. See generally ENVIRONMENTAL PROTECTION AGENCY, EFFECTS OF SULFURIC ACID ON TWO MODEL HARDWOOD FORESTS: THROUGHFALL, LITTER LEACHATE AND SOIL SOLUTION (1980).

51. *Id.* at 2-49 to 2-50.

Acid rain run-off also acidifies lakes and streams; this increased acidity has a large economic impact. The run-off has been linked to the death of fish such as salmon and trout.⁵² The run-off also affects forests. Recent studies in the Green Mountains of Vermont have shown a fifty percent mortality rate in spruce trees since 1965 and indicate that acid rain is the probable cause.⁵³ Obviously, such losses adversely affect the fish and timber industries, which are important aspects of the economy.

In addition to the previously mentioned harmful consequences of acid rain, there are the human health hazards associated with it. The main concern of scientists is human exposure to toxic metal ions released from the soil.⁵⁴ Exposure can occur in a number of ways: acid rain can mobilize metals in the public water source,⁵⁵ the ions can be mobilized from household and municipal piping and storage tanks into the public water supply,⁵⁶ or the metal ions can accumulate through a build up of toxic elements in the food chain.⁵⁷ The long term health risks of acid rain have not been fully predicted by scientists, but it is easily seen that human health is certainly at risk.

III. COMMON LAW LIMITS ON POLLUTION

The harmful effects acid rain has on plant, animal, and human life are not without cost. Unfortunately, much of this cost falls on private individuals. For redress such individuals may sue the polluter under common law nuisance. However, such suits are hard to maintain because the plaintiff must show standing and causation in fact.

A. *Development of Common Law Nuisance Actions*

An individual may bring an action in nuisance against a person

52. OFFICE OF TECHNOLOGICAL ASSESSMENT, *THE DIRECT USE OF COAL—PROSPECTS AND PROBLEMS OF PRODUCTION AND COMBUSTION* 233 (1979). Fish eggs, frogs, and tadpoles are killed by high acidity. *Id.*

53. Vogelmann, *Catastrophe on Camel's Hump*, 91 NAT. HIST. 8, 12-13 (Nov. 1982). Conifers are more affected than hardwoods, probably because of the year-round exposure of their needles. However, significant growth and reproduction rate decreases in hardwoods were noted in the studies. *Id.* at 14.

54. See *supra* text accompanying notes 20-22. See also EPA *Critical Assessment*, *supra* note 48, at 6-1.

55. *Id.* at 6-36 to 6-38.

56. *Id.* at 6-34 to 6-40, 6-43 to 6-45. This is an even greater hazard where lead pipes are used. "Families receiving drinking water stored in lead cisterns or passed through lead pipes should be considered a potential 'at risk' group in areas receiving acidic deposition. *Id.* at 6-31.

57. *Id.* at 6-1, 6-10. This type of exposure is of particular concern to individuals who eat freshwater fish. *Id.* at 6-31 to 6-33, 6-61.

who uses her property, real or personal, in an unwarranted, unreasonable, or unlawful manner.⁵⁸ The law of nuisance requires that this use interfere with the rights of the plaintiff, "whether in person, property, or enjoyment of property or comfort."⁵⁹ In a pollution context, "nuisance" is an invasion of an individual's property by pollutants generated on another piece of property.

To have standing in a common law public nuisance action the private individual must show that there are damages to the public and that she has "special" damages, distinct from and more severe than those to the public generally.⁶⁰ Public nuisance standing requirements must be distinguished from the standing requirements of a private nuisance action, which requires only some minimal injury to plaintiff's property.⁶¹ If the private individual can show only that the damage complained of was limited to her or a small number of persons,⁶³ she will only have standing to bring a private nuisance action,⁶⁴ not a public nuisance action. Although some states today statutorily or constitutionally allow private citizens to bring public nuisance actions,⁶⁵ the problem is still significant because in most states standing is still a major bar to suits.⁶⁶

Assuming the private individual has overcome the standing hurdle, she still faces the problem of causation. The individual must be able to prove material harm was attributable to the defendant's unreasonable conduct.⁶⁷ In most cases she must show that absent the defendant's actions she would not have been injured.⁶⁸ Often the defendant's conduct was not the only cause of the plaintiff's injury.

When one defendant's action is not the only cause of the injury, the plaintiff may join two or more defendants. Most courts have held that when two or more actors are responsible for an injury, each actor is fully liable for the entire injury.⁶⁹ Establishing concurrent causation of an individual injury relieves the plaintiff of the need to establish

58. 66 C.J.S. *Nuisance* § 1 (1955). See *supra* note 8.

59. 66 C.J.S. *Nuisance* § 1 (1955).

60. *Id.* The special damage requirement is also applied in the context of a private individual's bringing of a public nuisance action when the public officials are hesitant to do so. *EPA Critical Assessment, supra* note 48, at 6-2. *Id.*

61. W. PROSSER & W. KEETON. *supra* note 8, at 714.

63. *Id.*

64. *Id.*

65. *Id.*

66. Note, *supra* note 13, at 659.

67. *Id.*

68. D. DOBBS, *HANDBOOK ON THE LAW OF REMEDIES* 148-49 (1973); W. PROSSER, *supra* note 8, at 236-39.

69. The old rule held that, absent action in concert, each tortfeasor was liable

a causal relationship between the particular damages and the conduct of any one or several defendants injuring her.⁷⁰ In such cases, the fact that the group participated in joint hazardous activity is considered the basis of liability.⁷¹

B. The Private Individual, the Common Law, and Acid Rain

Standing is the first major bar to suits brought by private individuals under common law nuisance. The requirement that the damage suffered by an individual be distinct from and more severe than that which the general public suffers can rarely be met in an

for only that part of the plaintiff's injuries caused by his own conduct. Apportioning the injuries among defendants with reasonable certainty was part of plaintiff's burden in proving damages. Where concurrent acts caused indivisible injuries, the plaintiff could not apportion damages.

Criticism of the old rule began with Wigmore's plea for its abandonment in a two page comment in the Illinois Law Review. The oft-quoted piece termed the rule a "piece of callous cruelty to innocent parties." Wigmore, *Joint-Tortfeasors and Severance of Damages: Making the Innocent Party Suffer Without Redress*, 17 ILL. L. REV. 458 (1923). In 1937, William Prosser reviewed the law on concurrent liability and concluded that Wigmore was correct. Prosser, *Joint and Several Liability*, 25 CAL. L. REV. 413 (1937).

When courts began to face multi-impact automobile accident cases, they shifted away from the old rule—with considerable difficulty—to the modern rule of concurrent causation. See, e.g., *Maddux v. Donaldson*, 362 Mich. 425, 108 N.W.2d 33 (1961).

70. See *Hall v. E.I. Du Pont De Nemours & Co.*, 345 F. Supp. 353, 372 (E.D.N.Y. 1972). See also Wigmore, *supra* note 69, at 458-59.

71. This principle of liability has been applied in many contexts, several of which are analogous to the acid rain case. *Rubi v. Transamerica Title & Insurance Co.*, 641 P.2d 891 (Ariz. App. 1981) (design defect implicated entire industry); *In Re Jascalevich*, 442 A.2d 356 (N.J. App. Div. 1981).

Two cases have addressed the principles of concurrent causation in the context of industrial air pollution. In *Michie v. Great Lakes Steel Division, National Steel Corporation*, 495 F.2d 213 (6th Cir. 1974), the court, applying Michigan common law, held that each of three air polluting plants could be held liable if their fumes traveled across the Detroit River and mingled to create an indivisible injury. *Id.* at 217. The plaintiffs could recover their entire damages from any defendant if the plaintiff could establish: (1) the defendant's conduct unreasonably polluted the air, (2) fumes from the defendants' plants were carried by the wind or otherwise drifted into the plaintiff's neighborhood, (3) the defendant's fumes were a significant factor in the deterioration of air quality in the plaintiff's neighborhood, (4) the levels of air pollution in the neighborhood interfered with the plaintiff's use and enjoyment interest of their property, and (5) the plaintiff's damages were indivisible as to which defendant caused the damage. These five criteria were the basis of the judgment for the plaintiff. That the Sixth Circuit properly predicted Michigan law is confirmed in *Oakwood Homeowners Ass'n v. Ford Motor Co.*, 77 Mich. App. 197, 258 N.W.2d 475 (1977).

In *Boomer v. Atlantic Cement Company*, 26 N.Y.2d 219, 309 N.Y.S.2d 312, 257 N.E.2d 870 (1974), the defendant was a large cement plant in New York State, and

action for public nuisance involving acid rain.⁷² Because the acid rain precursors travel a great distance and do not obey boundary lines,⁷³ one individual is unlikely to suffer from the acid rain to a greater

neighboring landowners sought an injunction against the continuation of property damage caused by dirt, smoke, and vibration emanating from the defendant's plant. The neighbors also sought compensatory damages for past injuries suffered.

The *Boomer* Court analyzed three remedial alternatives before deciding the merits of the case. The court first rejected an earlier rule laid down in *Whalen v. Union Bay and Paper Company*, 208 N.Y. 1, 101 N.E. 805 (1913), that required the court to grant immediate injunctive relief to the plaintiff no matter how slight the damage nor how great the defendant's expenses would be. The *Boomer* Court cited the fact that \$45,000,000 had been invested in the defendant plant, which employed 300 workers, as reason for not following the *Whalen* rule. The disposal of one alternative (immediate injunctive relief) left the other two alternatives open.

The court considered granting the plaintiff's request for an injunction but postponing it for a period of time to allow the defendant to develop technology sufficient to deal with the pollution. The court rejected this alternative because it was inequitable to burden one business in an industry with developing new technology without the aid of others' research and investment. The rest of the industry would have shared in the benefits of the new technology without paying for development. The result might have been different if the defendant was the only dirty cement plant in the country; then the burden could not be spread out to such an extent as to neutralize it. Although this alternative might have been an impetus for research into pollution control, it was more likely to bankrupt the pollution source. *Cogan*, *supra* note 6, at 34.

The alternative chosen by the court was to deny the injunction but force the defendant to pay damages of a special kind. *Boomer*, 26 N.Y.2d at 224, 309 N.Y.S.2d at 318, 257 N.E.2d at 872. These damages required the defendant to pay permanent damages to the plaintiffs rather than allowing the plaintiff to sue for past and present damages. A judgment for the plaintiff barred him from suing in the future for damages caused by the defendant. *Id.* This result could leave future land owners without a cause of action. For example, if A, the owner of Blackacre, sues X Corp., a polluter, and receives monetary damages and then sells Blackacre to B, B may be barred from suing X Corp. for damages that occur during B's ownership. The court was attempting to redress the loss to plaintiffs' properties without closing down the defendant's business.

The alternative which was adopted by the court was criticized because the payment of permanent damages was in reality licensing a permanent wrong. *Id.*, 26 N.Y.2d at 228, 309 N.Y.S.2d at 319, 257 N.E.2d at 875 (Jansen, J., dissenting). Justice Jansen stated that the court's holding in effect said that "you [pollution source] may continue to do harm to your neighbor so long as you pay a fee for it [the harm to plaintiffs land]." *Id.* Another problem with the *Boomer* holding that Justice Jansen pointed out was that after permanent damages are paid there is no incentive for the company to develop new technology to prevent future harm. If the defendant can be assured that no more actions will be brought for damages, he has little incentive to limit pollution.

72. D. CALVERT, *supra* note 5, at 4. *But see* Recent Developments, *Standing of Private Citizens to Sue for Nuisance Upheld*, 21 NAT. RESOURCES J. 895 (1981).

73. F. RECORD, *supra* note 2, at 127.

degree than any other individual. Therefore, standing remains a bar to common law suits claiming acid rain as a public nuisance. Actions claiming acid rain as a private nuisance rarely meet the particularized injury requirement because damage caused by the precipitation is widespread and the injury does not occur to the plaintiff alone.⁷⁴

Causation is difficult to prove in acid rain cases because of the long dispersal distances and the large number of sources of the precursors.⁷⁵ The major sources of the sulfur dioxide emissions that contribute to acid rain in the Northeast are the electric utilities of the midwest and eastern United States.⁷⁶ There are over one hundred utilities in those two regions of the nation. Singling out only one of the sources of acid rain to serve as defendant would be futile, for it is easily understood that particulates are not readily identified as coming from one specific source.⁷⁷

Assuming the private individual has successfully joined the emission sources,⁷⁸ she must still prove that her damage is greater than the benefit gained by the defendant's actions. The defendants in an acid rain suit would maintain that the utility of their conduct is so great as to outweigh the harm inflicted on the plaintiffs. This is known as the "balancing of utilities."⁷⁹ This is an appealing argument given the value of a ready supply of electric power. However, even if the "balancing of utilities" doctrine is applied in an action for damage caused by acid rain, the plaintiff can argue that a proper "balancing" actually favors an actionable nuisance.⁸¹ By bringing the nuisance suit, the private individual is asking the court to balance the harms and benefits of acid rain.⁸² This allows the court to decide what relief could

74. *Id.*

75. *Id.*

76. Acid rain precursor pollutants are concentrated in a nine state area: Illinois, Indiana, Kentucky, Michigan, Missouri, Ohio, and Pennsylvania. Most serious acid rain injury is downwind from this region. Note, *supra* note 13, at 658 n.8.

77. The emissions from one source blend with others to form acid rain. F. RECORD, *supra* note 2, at 157.

78. Not all possible defendants need be joined, *see supra* text accompanying notes 82-83.

79. "Balancing the utilities" means weighing the benefit of the defendant's services against the damage caused directly or indirectly by those services.

80. *Boomer*, 26 N.Y.2d at 219, 309 N.Y.S.2d at 312, 257 N.E.2d at 870.

81. A balance of the need for industry and electricity against the extensive damage indirectly caused by production must be reached.

82. Some industry spokesmen have commented that acid rain is beneficial to tourism in the Northeast. The argument is that when the fish and vegetation die out of a lake, crystal clear blue water replaces the original brown water. *See generally Reply*, 5 CAN-U.S. L.J. 46 (1982) (part of the *Candamian—United States Law Institute Proceedings: The Transnational Implications of Acid Rain*. Conference held March 28, 1981).

help restore the balance lost in the damage to the plaintiff's property.⁸³

C. *The Clean Air Act*

The Clean Air Act (CAA) was passed by Congress in 1955 in an effort to control the rise in air pollution.⁸⁴ It does not directly deal with acid rain.⁸⁵ Although recent attempts have been made by members of Congress to amend the CAA to include provisions dealing with the acid rain problem,⁸⁶ none have passed. Sulfites and nitrites are controlled by the CAA, but not as the precursors of acid rain. Although the CAA is an important part of the fight against air pollution, it does not presently lend itself to the solution of the acid rain problem. Attempts to use the CAA in resolving the acid rain problem have not been effective.

1. History of the Clean Air Act

The history of the Clean Air Act began in 1955 when Congress enacted the first piece of legislation dealing with air pollution: the Air Pollution Control Act of 1955.⁸⁷ The Act did not grant regulatory or enforcement powers to the federal government.⁸⁸ In fact, it specifically declared state and local governments the proper agents for pollution control.⁸⁹ Similarly, no provisions for a federal solution to the interstate air pollution disputes were included in the Act. Instead, the role of the federal government was seen as merely coordinating the efforts of state and local agencies by disseminating information valuable to their pollution abatement programs.⁹⁰ The perceived weakness of the 1955 CAA led to its revision a few years later.

83. Cogan, *supra* note 6, at 7.

84. *Id.*

85. *Id.*

86. Senators Mitchell, Byrd, Randolph, Stafford, Gregg, Germain, Rahall, Sikorski, and Waxman have all sponsored bills designed to control acid rain. Cogan, *supra* note 6, at Appendix B.

87. Pub. L. No. 84-159, 69 Stat. 322 (1955). Under the Act the Surgeon General, acting in the name of the Secretary of the HEW, was authorized to prepare or recommend research programs for devising and developing methods for eliminating or reducing air pollution." *Id.*

88. "The bill does not propose any exercise of police power by the Federal Government and no provision in it invades the sovereignty of the States, counties, or cities. There is no attempt to impose standards of purity." S. Rep. No. 389, 84th Cong., 1st Sess., reprinted in 1955 U.S. CODE CONG. & AD. NEWS 2457, 2459.

89. Pub. L. No. 84-159, 69 Stat. 322 (1955).

90. S. Rep. No. 399, 84th Cong., 1st Sess., reprinted in 1955 U.S. CODE CONG. & AD. NEWS 2457, 2457.

Congress replaced the Act of 1955 with a second major anti-air pollution measure, the Clean Air Act of 1963.⁹¹ This Act contained two changes distinguishing it from the Act of 1955; it was a federal grant-in-aid system to help finance state, local, and regional air pollution control agencies and it was a federal program to abate particularly difficult pollution control problems.⁹²

91. Pub. L. No. 88-206, 77 Stat. 396 (1963). See Comment, *A History of Federal Air Pollution Control*, 30 OHIO ST. L.J. 516, 520 (1969) for a comparison of the 1955 and 1963 CAA.

92. See H.R. Rep. No. 508, 88th Cong., 1st Sess., reprinted in 1963 U.S. CODE CONG. & AD. NEWS 1260, 1262.

Included in the federal abatement program were specific provisions for remedying interstate air pollution which threatened the health and welfare of the citizens of the receiving state. The Clean Air Act of 1963, Pub. L. No. 88-206, 77 Stat. 392, 396 (1963). Where such interstate pollution existed The Secretary of Health, Education, and Welfare (HEW) was authorized to call a pollution abatement conference in order to attempt a cooperative reconciliation of the states positions. *Id.* Participants at such a conference would include representatives of the Air Pollution Control Boards from each of the state, local, and regional governments involved as well as federal government spokesmen. *Id.* Based on information gathered from the conference, the Secretary could recommend any appropriate remedial action. H.R. Rep. No. 508, 88th Cong., 1st Sess., reprinted in 1963 U.S. CODE CONG. & AD. NEWS 1260, 1267. If the offending state did not respond to cooperative measures, the Secretary could, as a last resort, request the Attorney General to bring an abatement suit against the state. *Id.* The conference procedure was intended to be a "practical remedy," a balance between a State's right to control interstate pollution and a downwind state's right not to be polluted by sources from outside the state. *Id.* The legislative history of the 1963 Act makes clear that the primary role given the states in the Air Pollution Control Act of 1955 was not diminished by the new interstate air pollution abatement provisions. Two interim amendments to the 1963 Act were passed before 1967. The first was the Motor Vehicle Air Pollution Control Act of 1965, Pub. L. No. 89-272, 79 Stat. 992 (1965). This Act authorized the Secretary of the HEW to promulgate national emissions standards for motor vehicles. The second amendment was an extension of Congressional authorization of funds to implement the Act. The Clean Air Act Amendments of 1966, Pub. L. No. 89-675, 80 Stat. 954 (1966).

Four years later, Congress passed a second major revision of the 1955 Act entitled "The Air Quality Act of 1967." Pub. L. No. 90-148, 81 Stat. 485 (1967). For detailed discussions of the 1967 Act, see Martin & Symington, *A Guide to the Air Quality Act of 1967*, 33 LAW AND CONTEMP. PROB. 239 (1968); O'Fallon, *Deficiencies in the Air Quality Act of 1967*, 33 LAW AND CONTEMP. PROB. 275 (1968). With this Act, Congress attempted to bring some uniformity to state efforts at air pollution control by authorizing the Secretary of HEW to establish Air Quality Criteria. These criteria were intended to specify the danger to public health and welfare posed by pollutants at various levels of concentration. *Id.* at 490.

It is essential, then that there be no confusion about the purpose of the air quality criteria. They are not regulation. . . . [T]hey define the health and welfare considerations that must be taken into account in the development of standards and regulations. Economic and technical considerations

2. The CAA and the Problem of Acid Rain

Although there are no specific references to acid rain in the CAA, there are numerous provisions which address the problem by implication. Further, there are several references in the legislative history which demonstrate Congress' intent to control the problem.⁹³ Sulfur dioxide and nitrogen dioxide are pollutants that frequently migrate across state lines and are transformed en route into sulfate and nitrate particulates. The Environmental Protection Agency (EPA), which administers the CAA, has established national standards for sulfur dioxide, nitrogen oxide, and total suspended particulates.⁹⁴ These standards are often exceeded in certain areas located downwind from high emission density areas of the Midwest. Sulfate and nitrate particulates

have a place in the pattern of control activity but not in the development of criteria.

H.R. Rep. No. 728, 90th Cong., 1st Sess., reprinted in 1967 U.S. CODE CONG. & AD. NEWS 1938, 1951.

The states were required to use these criteria as guidelines for the promulgation and enforcement of air quality standards "adequate for the protection of public health" *id.* at 1953, and achievable through the application of feasible control techniques. *Id.* The possibility of conflicting state standards for the emissions was to be further alleviated by the power of the Secretary of HEW to create Air Quality Control Regions (AQCR) within which pollution control would be uniform. Air Quality Control Act of 1967, Pub. L. No. 90-148, 81 Stat. 485, 490 (1967). Since the AQCR's were supposed to reflect a logical regulatory scheme, their boundaries could include parts of different states. *Id.* If a state failed to establish an air quality standard, the Secretary of the HEW could do so in its stead. "Failure of the federal government to issue air quality criteria, provide data on control techniques, or designate air quality regions was inexcusable in light of the congressional mandate in 1967." Trumbull, *Federal Control of Stationary Source Air Pollution*, 2 *ECOLOGY L.Q.* 283, 293 (1972). See also H.R. Rep. No. 91-1146, 91st Cong., 2d Sess., reprinted in 1970 U.S. CODE CONG. & AD. NEWS 5356, 5357.

The 1967 attempt to establish national standards for air pollution control was a failure. The establishment of AQCR's, a step required before the states were obliged to promulgate air quality standards, did not take place within a reasonable time. *Id.* Even where timely federal action was taken, the separate evaluation and promulgation of emission standards by several states caused a wasteful duplication of effort. D. CALVERT, *supra* note 5, at 12. In 1970, therefore, Congress once again undertook the task of amending the CAA. The result was a much stronger federal role in establishing and enforcing air pollution standards. Note, *Clean Air Act Amendments of 1970: A Congressional Cosmetic*, 61 *GEO. L.J.* 153, 157 (1972). The 1970 amendments included a provision for national ambient air standards.

93. See e.g., Pub. L. No. 84-159, 69 Stat. 322 (1955).

94. See generally Clean Air Act § 110. These are implemented in each air quality control region by the strategies prescribed in the SIP, which must be approved by the EPA. Each region is designated non-attainment with respect to each NAAQS pollutant based on whether it currently violates an ambient standard. See Lutz, *Managing a Boundless Resource: U.S. Approaches to Transboundary Air Quality Control*, 11 *ENVTL L.* 321 (1981).

are included in the downwind states' measurements of air quality.⁹⁵ Downwind states in the Northeast are receiving such large quantities of particulates from outside sources that their ability to meet the national standards for such pollutants is impaired, thus violating the mandates of the CAA.⁹⁶ These states are therefore entitled under section 126 to require the EPA, and the upwind sources, to reduce the amount of pollution being exported. This is true regardless of the distances involved and regardless of the existence of state boundaries between the source of emission and the point of precipitation.⁹⁷

3. Acid Rain Escapes the General Regulatory Scheme of the Clean Air Act

Although some sections of the CAA address the acid rain problem by implication, the CAA, under which the federal government regulates and controls air pollution, is currently inadequate to deal with acid rain and its precursor sulfates.⁹⁸ These inadequacies occur in three areas. First, the Act only allows for local control of sources. Thus, a damaged area downwind in another state has no authority to control the source of its damage. Second, in order to abate the pollution, the source and its contributing amount must be identified. However, it is difficult to establish the degree of correlation between an emission source and a downwind concentration. Finally, air quality standards set on a national scale do not take into account the local geological sensitivities to acid rain or the regional nature of the long-range transportation of pollutants.

Thus, despite the enactment of the CAA, the unique characteristics of acid rain, the difficulty in identifying each contributing source and the long-range transportability of its precursor sulfates and nitrates, continue to present political, economic, and legal interstate problems. The states downwind from emission sources are claiming that these emissions are imposing unfair burdens downwind. The New England states, for example, say that being downwind from the sources of acid rain precursors is like being at the "end of the

95. When the sulfates and nitrates cross into the receiving state, any later measure of air quality in that state will include those particulates (until they fall to the earth). Cogan, *supra* note 6, at 44.

96. 42 U.S.C. § 7426 (1983) [CAA § 126].

97. 42 U.S.C. § 7401 (1983) [CAA § 110].

98. Since the major part of acid rain is sulfuric acid, the remainder of this note, like the current debate, will focus upon sulfur dioxide; however, legal issues and principles that are discussed are fully applicable to the problem of nitric acid as a component of acid rain.

pipng."⁹⁹ They charge that these upwind emissions make it more difficult for them to attain the national ambient air quality standards (NAAQS).¹⁰⁰ These states further claim that the upwind sources are actually contributing to their own violations of the NAAQS.¹⁰¹ This has forced the New England states to set even more stringent limitation on emissions within their own states.¹⁰² These same states claim that this environmental-legal chain of events has an adverse economic impact upon them. Because the downwind states have more difficulty meeting the NAAQS, one consequence is that they are forced to restrict their own industrial development.¹⁰³

Despite these concerns of downwind states, the CAA utilizes a decentralized approach to achieve national goals. The federal government, through the EPA Administrator, sets national uniform standards for criteria pollutants in order to protect the public health and welfare.¹⁰⁴ These standards, National Ambient Air Quality Standards (NAAQS), define the permissible concentration levels of a pollutant in the air. Each state then devises a plan to implement, maintain, and enforce these standards.¹⁰⁵ Once the national standard has been set, the state has the primary responsibility of identifying the pollutant sources within the state and setting the limitation for each source or group of sources. This results in controlling pollution at its source so that the state as a whole can meet the NAAQS.¹⁰⁶

Unfortunately, the environmental effect of acid rain is dependent upon the nature of the particular locale. The extent of acid rain damage depends upon the buffering capacities of the lakes, the soil

99. [Current Developments 11] ENVTL REP. (BNA) 305 (June 27, 1980).

100. 42 U.S.C. § 7409 (1983).

101. [Current Developments 12] ENVTL REP. (BNA) 286 (June 26, 1981).

102. For example, in February 1980, it was charged that power plants in New York emit less than one pound of sulfur dioxide per million British thermal units (Btu.) while power plants in Ohio emit as much as 91 pounds sulfur dioxide per million Btu.. [Current Developments 10] ENVTL REP. (BNA) 2055 (Feb. 1, 1980). Pennsylvania is one example. The Pennsylvania Department of Environmental Resources argues that their stricter air quality standards increase the cost of doing business within the state. This reduces the state's ability to attract new industry and, in effect, "Pennsylvanian industry ... [subsidizes] its competition because of the unjust air pollution control burden." *Id.*

103. *Id.*

104. 42 U.S.C. § 7409 (1983).

105. 42 U.S.C. § 7401 (1983) [CAA § 110].

106. See 42 U.S.C. § 7401 (1983) (Congressional findings and declaration of purpose). One finding states "that the prevention and control of air pollution at its source is the primary responsibility of States and local governments. . . ." 42 U.S.C. § 7401(a)(3) (1983).

composition, the type of vegetation, and amount of rainfall in a particular area.¹⁰⁷ On the other hand, the national ambient primary and secondary standards are uniform throughout the country. Thus, a national ambient standard for sulfur dioxide which does not take into account local sensitivity to acid rain¹⁰⁸ may prove too strict for some areas and not strict enough for others.¹⁰⁹ Furthermore, the Administrator is only authorized to set *national* standards.¹¹⁰ Any argument that the environmental damage is not widespread would certainly be a factor in determining that sulfates or acid rain are not serious enough to require a more stringent national standard for sulfur dioxide.¹¹¹ The current CAA is not an effective means of control for the acid rain problem because of the inadequacies of the CAA's interstate provisions and because of the long-range transportability of the precursors of acid rain. The CAA could be an effective means of control if it were amended to incorporate the common law.

IV. A COMMON LAW SOLUTION TO THE ACID RAIN PROBLEM

Although the CAA is not an effective means of remedying private acid rain damage, it is a national regulatory scheme that is already in place with the express purpose of controlling air pollution. Therefore, if an effective mechanism for controlling acid rain were amended to the CAA, administration problems would be minimal. The Administrator of the EPA would still oversee the CAA but have as an additional function the responsibility of recommending a remedy when an acid rain nuisance is found. This common law amendment to the CAA would make suits by private individual victims of acid rain more feasible and make application of the CAA more effective.

Under the proposed amendment, the threshold issue for a private individual's cause of action would still be standing, but this cause of action would require a lesser showing than that required for public nuisance.¹¹² Although a private individual would still have to show standing, the requirement that she show special damages would no longer apply. To further facilitate suits by private individual victims of acid rain, the amendment could be written so as to simply grant

107. See *infra* text accompanying notes 40-53.

108. There are no federal standards for sulfates or acid rain nor do the current standards for sulfur dioxide take into account the effects of sulfates or acid rain.

109. See Lee, *supra* note 36.

110. 42 U.S.C. § 7409 (1983).

111. *Id.*

112. See *supra* text accompanying note 16.

standing to any individual or state that could show that its property has been damaged by acid rain.¹¹³

The causation section of the amendment would follow the *Michie* holding. That is, the plaintiff would have to show that: (1) the defendant emitted acid rain precursors into the air in an unreasonable amount, (2) the defendant's emissions were a significant factor in the increase of acid rain in the plaintiff's neighborhood, (3) the levels of acid rain in the neighborhood interfered with the plaintiff's use and enjoyment of her property, and (4) the plaintiff could not easily trace which defendant caused the damage.¹¹⁴ Under this amendment, a defendant would not escape liability even if he could show that unnamed sources contributed to the precursors. The defendant could escape liability only if he could show that, in light of their contribution, his emissions could not have been a significant factor in the plaintiff's damages. The defendant would, however, be allowed to join other sources as additional defendants.

This amendment, besides being demonstrably effective, is called for because of Congress' enactment of the CAA, a complex and extensive pollution control plan, which shows the intent to take progressive action against pollution on the federal level. For example, the CAA contains the most extensive provisions for interstate cooperation and protection of any of the major federal pollution control laws.¹¹⁵ To insure effectiveness, the proposed amendment, which would reenact the common law of nuisance, should not extend to pollutants regulated under the present CAA because the NAAQS are effective for these pollutants. Pollutant by-products, such as acid rain, which are not directly regulated by the CAA, however, present a different situation. A uniform federal rule is necessary to help remedy damage caused by acid rain.

In enacting such a uniform rule, the strong need for the common law to control interstate acid rain should be balanced against the relatively weak interest of each state in applying its own laws. Such a balancing will be simple because interstate acid rain is not one of the areas of traditional local concern for which federal supervision would disrupt the operation of local government sovereignty.

113. Standing could be granted to any interested person, even if he were not a landowner.

114. This is the *Michie* holding adapted to the special needs of the acid rain problem.

115. See 2 F. GRAD. TREATISE ON ENVIRONMENTAL LAW 2-215 (1981).

On balance, common law of pollution should be available to remedy the effects of acid rain. The amendment, by incorporating the common law into the CAA, would alleviate the problems faced in a nuisance action for injury caused by acid rain because it would shift the burden of proof regarding causation onto the defendant.

Additionally, courts under the proposed amendment would not be required to apply any specific remedy where liability is found. Instead, the courts could pick from many different alternatives. The courts could, for example, require a defendant who is found liable to pay monetary damages into a superfund.¹¹⁶ The superfund could dispense research grants to scientists studying acid rain control. Another possible remedy is to require the defendant to develop new technology to scrub the precursors out of his emissions; if the defendant did not develop new technology, the court could enjoin further production. Yet another alternative could be to require the defendant to pay compensatory and punitive damages to the injured plaintiff; the compensatory damages would pay for the acid rain effects, the punitive damages would serve as a warning to the defendant and all sources that the new amendment was in place to solve the acid rain problem even if it places an economic burden upon major industry.

The economic impact of these possible remedies will probably make this proposed amendment politically unpopular, because whichever remedy the court chooses, adverse economic impact will fall on industry and industrial workers. Foreseeably, the manufacturing lobby will fight hard against the amendment. However, the economic costs to victims of acid rain and the growing concern among private citizens about the acid rain problem, should counteract any hesitation on the part of congressmen in passing such an amendment.

Another problem with the proposed amendment is that it forces courts to make scientific determinations. A court must determine which of the sources caused the damage to plaintiff's property through emission of the precursors of acid rain. This is a good argument against the proposed amendment; however, it does not take into account the fact that courts are often called upon to determine difficult questions of causation in tort actions.¹¹⁷ Besides, scientists involved in acid rain research will be available as expert witnesses.

116. Stewart, *Interstate Resource Conflicts: The Role of the Federal Courts*, 6 HARV. ENVTL L. REV. 241, 261 (1982). See generally 42 U.S.C. § 9601 *et. seq.* (1983), Comprehensive Env'tl Response, Compensation, and Liability Act.

117. Note, *supra* note 19, at 568. Even if effective pollution devices were

V. CONCLUSION

Acid rain is formed from sulfates and nitrates which are emitted throughout the United States. Acid rain is a serious health risk to wildlife, fish, and humans. The common law is not an effective means of controlling acid rain because the remedy that has traditionally been applied does not allow the plaintiff to recover damages in the future. Congress passed the CAA in an effort to control air pollution; however, the current CAA, unamended, does not control acid rain because it does not adequately consider the downwind effects of the regulated pollutants.

This note proposes an amendment to the CAA allowing a common law cause of action in nuisance for damages caused by acid rain. While this amendment may be politically unpopular and economically burdensome on the sources, it would begin work to alleviate the acid rain problem. This amendment would internalize the costs of pollution by shifting the costs of acid rain from downwind victim states and individuals onto the polluters.

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available, industries would still shift the cost of the devices; however, this shift would be to a large class of consumers and would not fall on one private individual whose property is irreparably damaged by acid rain.

