

August 1982

## Controlling Acid Rain: The Clean Air Act and Federal Common Law Nuisance

Debra G. Archer  
*West Virginia University College of Law*

Follow this and additional works at: <https://researchrepository.wvu.edu/wvlr>



Part of the [Environmental Law Commons](#), and the [Torts Commons](#)

---

### Recommended Citation

Debra G. Archer, *Controlling Acid Rain: The Clean Air Act and Federal Common Law Nuisance*, 84 W. Va. L. Rev. (1982).

Available at: <https://researchrepository.wvu.edu/wvlr/vol84/iss5/8>

This Student Note is brought to you for free and open access by the WVU College of Law at The Research Repository @ WVU. It has been accepted for inclusion in West Virginia Law Review by an authorized editor of The Research Repository @ WVU. For more information, please contact [ian.harmon@mail.wvu.edu](mailto:ian.harmon@mail.wvu.edu).

# CONTROLLING ACID RAIN: THE CLEAN AIR ACT AND FEDERAL COMMON LAW NUISANCE

## I. INTRODUCTION

Rain is nature's way of cleaning the air. Through complex chemical processes which vary according to weather patterns and local topography, precipitation removes particles from the atmosphere.<sup>1</sup> After it rains, everyone can attest to the freshness of the air. But as technology has progressed and energy demands have increased, an increasing amount of man-made pollutants have filled the atmosphere. When it rains, these pollutants are washed out of the air. With increased air pollution, rain, a natural cleansing agent, thus itself becomes a pollutant. Because the rain is one of many elements determining and maintaining nature's ecological balance, a change in its composition or character can cause subtle and cumulative effects throughout the environment.

## II. THE FORMATION AND ENVIRONMENTAL DAMAGE OF ACID RAIN

"Acid rain" is rain or any type of precipitation that is more acidic than normal.<sup>2</sup> "Pure" rain is normally acidic; that is, the moisture in the atmosphere that absorbs and dissolves naturally occurring levels of carbon dioxide produces precipitation with a pH value between 5.6 and 5.7.<sup>3</sup> Rain with a lower pH value is termed "acid rain." Potential hydrogen values (pH) represent logarithmic units and each whole unit change on the scale

---

<sup>1</sup> See 2 V. YANNAKONE & B. COHEN, ENVIRONMENTAL RIGHTS AND REMEDIES 126 (1972) [hereinafter cited as YANNAKONE & COHEN].

<sup>2</sup> Acid rain is a general term which includes not only rain, but also snow, fog, sleet, hail, etc. There are also instances where sulfates or nitrates may precipitate out of the atmosphere and later mix with moisture in the soil, vegetation, etc. to form sulfuric and nitric acids. This is called dry deposition and is also included under the term "acid rain."

<sup>3</sup> Neutral or distilled water has a pH value of 7.0. See generally OFFICE OF RESEARCH AND DEVELOPMENT, U.S. ENVIRONMENTAL PROTECTION AGENCY, ACID RAIN 5 (1980) [hereinafter cited as EPA, ACID RAIN]; Ferenbaugh, *Acid Rain: Biological Effects and Implications*, 4 ENVTL. AFF. 745 (1975) [hereinafter cited as Ferenbaugh, *Biological Effects*].

represents a tenfold actual change. A change from pH 5 to pH 4 indicates that the presence of an acidic substance has increased acidity by ten, and a change from pH 5 to pH 3 represents a hundredfold increase in acidity.<sup>4</sup> Recent measurements of rainfall show that the average pH value of rain east of the Mississippi river is between pH 4 and pH 5.<sup>5</sup>

"Pure" rain of 5.6 pH reflects the dissolution of normal levels of carbon dioxide in the atmosphere, while rain with a lower pH value indicates the presence of other acidic substances. The major substances contributing to acid rain are sulfuric and nitric acids. These generally begin as sulfur oxide and nitrogen oxide emissions from fossil fuel combustion.<sup>6</sup> Thus, the major sources of sulfur oxide (SO<sub>x</sub>) and nitrogen oxide (NO<sub>x</sub>) emissions are coal and oil fired power plants and cars.<sup>7</sup> In the atmosphere these oxides are transformed to sulfates and nitrates which then combine with moisture in the air to form sulfuric or nitric acid mists. These acidic mists become part of the rain droplets and fall to earth as some form of precipitation.<sup>8</sup>

One of the difficulties in abating acid rain is the identification of the individual sources that produce the SO<sub>x</sub> and NO<sub>x</sub>. Generally, dispersal of a pollutant over distance result in dilution of that pollutant. As a concentrated emission of a pollutant mixes with the atmosphere, some of the pollutants will drop out, be absorbed, change in form, or spread out. This action lowers the concen-

---

<sup>4</sup> EPA, ACID RAIN, *supra* note 3, at 4.

<sup>5</sup> *Id.* at 5. Also, note that this is an average measurement. Individual storms can have pH values well below the average. Storms with pH values between 3.0 and 4.0 are not uncommon, *id.* at 8, and some have even reported rainfalls with a pH as low as 2.1. Ferenbaugh, *Biological Effects*, *supra* note 3, at 745.

Also, a particularly acidic storm may have more drastic effects than the averaging of pH measurements would reveal. For instance, a very acidic rainfall in the spring during fish spawning season may drastically effect the population of certain species even though the average pH value for that area is not especially abnormal. See note 14 *infra* and accompanying text.

<sup>6</sup> EPA, ACID RAIN, *supra* note 3, at 5. Sulfuric acid makes up 65-70% of the acidity, while nitric acid makes up 25-30%. *Id.*

<sup>7</sup> 10 ENV'T. REP. (BNA) 1342 (Current Developments Oct. 12, 1979).

<sup>8</sup> See generally YANNAKONE & COHEN, *supra* note 1, at 134; Williams, *Technical Aspects of Sulfur Oxide Emissions and Transport in AIR POLLUTION CONTROL: NATIONAL AND INTERNATIONAL PERSPECTIVES* 48 (Aspen-Berlin Conference 1979) [hereinafter cited as Williams, *Technical Aspects*].

tration of an emission in a particular area.<sup>9</sup> But with respect to acid rain, the effect of dispersal is a key factor contributing to the problem of identifying the source of any one acid rainfall. It takes a certain amount of time for sulfates and nitrates to develop from  $\text{SO}_x$  and  $\text{NO}_x$ . Since  $\text{SO}_x$  and  $\text{NO}_x$  are gases, they remain in the air longer than heavier particles. Also, pollutants discharged at a higher elevation will remain in the air longer than those discharged at lower elevations.<sup>10</sup> Thus a certain amount of  $\text{SO}_x$  and  $\text{NO}_x$  emissions, especially those discharged from high elevation sources (i.e., tall stacks), will change to sulfates and nitrates. However, this transformation will occur downwind from the source and, because of dispersal concentrations of sulfates and nitrates are only likely to become significant far from a particular source. This means that a single significant concentration of sulfates and nitrates can be caused by any or all of the upwind sources. Currently, there is no way to accurately identify the particular  $\text{SO}_x$  or  $\text{NO}_x$  source and the amount it contributes to a single concentration of sulfates or nitrates.<sup>11</sup> These concentrations of sulfates and nitrates are then washed out of the atmosphere many miles and many states removed from the sources. Correlating the damage from acid rain to the emission source is even more difficult.

The acidification of lakes and streams is perhaps the most commonly known damage caused by acid rain. As lakes in certain areas collect acid rain and their pH levels begin to drop, there is a corresponding biological effect upon aquatic life. Some species of fish will fail to reproduce when pH levels begin to decrease. Low acidity will also kill eggs or affect development. When the pH drop is gradual, the susceptible members of a species may be replaced by more tolerant members. But when conditions become adverse enough, eventually all the fish will disappear.<sup>12</sup> All other life which occurs in lakes and streams is similarly affected so that aquatic life is endangered indirectly by way of the food chain.<sup>13</sup> Moreover, aquatic life can be greatly damaged by sudden acidic surges. Acid rain can accumulate in snow packs and

---

<sup>9</sup> See generally Williams, *Technical Aspects*, *supra* note 8, at 48.

<sup>10</sup> See generally YANNAcone & COHEN, *supra* note 1, at 123.

<sup>11</sup> See Williams, *Technical Aspects*, *supra* note 8, at 49.

<sup>12</sup> Ferenbaugh, *Biological Effects*, *supra* note 3, at 748.

<sup>13</sup> *Id.*

at spring thaw a surge of snow melt into a lake can result in a sudden pH drop killing large numbers of fish.<sup>14</sup>

Lake acidification, however, is a naturally occurring event. Under the proper conditions, this can happen to lakes without acid rain. The susceptibility of a lake to pH changes is largely determined by the soil composition of the surrounding watershed and the ratio of watershed to lake surface area.<sup>15</sup> This is known as a lake's buffering capacity. If the soil of the watershed surrounding the lake contains alkaline elements (usually limestone), then the acid rain will be neutralized in the soil before it runs to the lake. Furthermore, the larger the area of watershed (as compared to the surface area of the lake), the greater the chance that the lake will acidify less rapidly, or not at all. A larger watershed provides more opportunity for the rain to be neutralized in the soil. But, a lake with a low watershed to surface area receives runoff that has less exposure time to alkaline elements. If the surrounding soil is low in limestone or other neutralizing agents, the susceptibility of a lake to acidification is greatly increased.<sup>16</sup> Thus, because pure rain is normally acidic, it is to be expected that lakes with abnormally low buffering capacities will acidify.<sup>17</sup>

---

<sup>14</sup> *Id.* at 747; See also EPA, ACID RAIN, *supra* note 3, at 16.

Even though aquatic life is somewhat resistant to lower pH levels, rapid changes in pH can have severe effects. Studies are showing that recent pH changes have been too rapid to allow aquatic life to adapt. See 10 ENV'T. REP. (BNA) 1168 (Current Developments Sept. 14, 1979).

Probably the Adirondack lakes in upstate New York are the most studied lakes. One report says that of 2,877 lakes, 264 no longer contain life. 11 ENV'T. REP. (BNA) 732 (Current Developments 1980).

<sup>15</sup> EPA, ACID RAIN, *supra* note 3, at 14.

<sup>16</sup> See generally *id.*

In some areas lime has been added directly to lakes to increase their buffering capacities and to reverse the acidifying process. The liming of lakes in Sweden and Norway has had some success but it is expensive. EPA, ACID RAIN, *supra* note 3, at 15. One source reports that these liming programs in Scandinavia "are proving that corrective action instead of prevention is too costly and difficult." 12 ENV'T. REP. (BNA) 282 (Current Developments June 26, 1981).

Currently, lime is being used to neutralize some Adirondack lakes, but it is also believed that if the liming does not continue, the lakes will revert back to previous acidic levels. 11 ENV'T. REP. (BNA) 1406 (Current Developments, Jan. 9, 1981).

<sup>17</sup> The lakes in the Adirondack mountains are particularly susceptible to acidification. These lakes are surrounded by hard, infertile bedrock with little or no limestone. Also, because they are located in mountainous terrain, the watershed to surface area ratio is low. *Id.*

What is alarming, however, is the apparent increased rate at which these and other lakes with greater buffering capacities have been acidifying. Recent studies are linking these increases to the greater acidity of rain.<sup>18</sup>

Acid rain damage is not limited to isolated killings of aquatic life. Rain pervades every aspects of our environment and the direct and indirect damage from acid rain is present throughout our environment. Eventually this environmental damage is translated into economic losses. First, lake kills disrupt local fishing and resort industries. Second, acid rain affects the soil system by reducing the availability of nutrients to plants, which, in turn, may decrease plant productivity.<sup>19</sup> Furthermore, the decrease in plant productivity can affect forest and farming industries by reducing timber and crop yields.<sup>20</sup> Acid rain also directly damages plant and vegetation by decreasing their survivability. This type of damage further reduces crop yields and reduces the marketability of those damaged crops that do survive.<sup>21</sup> In addition, acid rain has been implicated in the corrosion of steel

---

<sup>18</sup> Studies in Canada show that in the past 10 years lake acidity in the area surrounding the Sudbury smelters has increased one hundred times. EPA, ACID RAIN, *supra* note 3, at 15. Data collected from Adirondack mountain lakes shows that of 320 lakes studied in 1930-1938 the mean pH value was 6.5 and less than 5% of the lakes had pH values of 5.5 or less. But out of the 216 lakes studied between 1969 and 1975 the mean pH was 4.8. This is a significant increase in acidification. *Id.* at 16 (chart of frequency distribution of pH in Adirondack lakes).

<sup>19</sup> See Ferenbaugh, *Biological Effects*, *supra* note 3, at 748-49; EPA, ACID RAIN, *supra* note 3, at 19-20.

Studies have also shown that chemical reactions in soil are related to decreases in aquatic life. After an acid rain, the sulfuric and nitric acids change to toxic aluminum acid in the soil, run to the lakes and poison the fish. See 12 ENV'T. REP. (BNA) 441-42 (Current Developments July 31, 1981); see also EPA, ACID RAIN, *supra* note 3, at 17-18.

<sup>20</sup> Ferenbaugh, *Biological Effects*, *supra* note 3, at 751-52. Ferenbaugh also cites a study which reports that a "significant decline" in forest productivity in the U.S. may have already occurred as a result of acid rain. *Id.* at 751.

One report says that crop yields in the Ohio River Valley in 1976 were reduced by acid deposition as follows: 8% for corn, 14% for soybeans and 16% for wheat. 11 ENV'T. REP. (BNA) 732 (Current Developments Sept. 26, 1980).

Another report has estimated annual economic loss from the decline of plant productivity caused by acid rain in the eastern third of the U.S. These figures, based on 1978 values, attribute a 1.75 billion dollar loss in the forest industries and a 1 billion dollar loss from direct agricultural damage. *Id.*

<sup>21</sup> Ferenbaugh, *Biological Effects*, *supra* note 3, at 750-51; EPA, ACID RAIN, *supra* note 3, at 20-22.

and stone structures. Acid rain accelerates the weathering process. Structural replacements may have to be made sooner than anticipated. There is also irreplaceable aesthetic damage as statues and buildings corrode. On a more individualized scale, acid rain has been shown to damage paint—especially automobile finishes.<sup>22</sup>

Acid rain also affects human health. Sulfuric acid can occur as part of smog. Exposure to sulfur dioxide has been shown to cause lung damage, and there is speculation that the same sort of lung damage would result from exposure to sulfuric acid smogs. Thus, the elderly and persons with asthma and other chronic respiratory conditions may be particularly affected during acid smogs.<sup>23</sup> Moreover, acid rain may be contaminating drinking water. As reservoirs acidify, the acidic water running through the pipes may be corroding the pipes and releasing toxic metals into the water.<sup>24</sup>

The damage caused by the acid rain is not limited "to a few hundred lakes in upstate New York."<sup>25</sup> The relationship between SO<sub>x</sub> and NO<sub>x</sub> emissions and the resulting environmental and economic damage may seem subtle and attenuated, but, the damage is nonetheless real. This damage is pervasive and results in private and social economic costs. At a time in history when food and energy supplies need to be conserved and augmented to meet the needs of a growing world population, damage to crops and aquatic life should be minimized.

---

<sup>22</sup> See generally EPA, ACID RAIN, *supra* note 3, at 22-23.

<sup>23</sup> See Ferenbaugh, *Biological Effects*, *supra* note 3, at 746-47.

<sup>24</sup> See EPA, ACID RAIN, *supra* note 3, at 23. It is reported that in New York one reservoir has become so acidic that lead released from household plumbing has exceeded the New York Department of Health's maximum recommendation levels. *Id.*

<sup>25</sup> 12 ENV'T. REP. (BNA) 749 (Current Development Oct. 16, 1981).

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. *Id.* States in the western U.S. are also beginning to record significant changes in pH value of rainfall and lakes. See 11 ENV'T. REP. (BNA) 1859 (Current Developments Jan. 30, 1981). The EPA has also funded a study to determine if there is any relationship between emissions from coal-fired plants and acid rain in the Seattle-Tacoma area. *Id.*

### III. THE INTERSTATE PROBLEMS AND THE REGULATORY INADEQUACY OF THE CLEAN AIR ACT

The unique characteristics of acid rain—the difficulty in identifying each contributing source and the long-range transportability of its precursor sulfates and nitrates—are presenting political, economic and legal interstate problems. The states downwind from emission sources in other states are claiming that these emissions are imposing unfair burdens. The New England states say that it is like being at the “end of the pipeline.”<sup>26</sup> They charge that these upwind emissions make it more difficult for them to attain the national ambient air quality standards (NAAQS).<sup>27</sup> These states further claim that the upwind sources are actually contributing to their own violations of the NAAQS.<sup>28</sup> This forces the New England states to set more stringent limitations on emissions within their own states.<sup>29</sup> These same states claim that this environmental-legal chain of events has an adverse economic impact upon the downwind states. Because the downwind states have more difficulty meeting the NAAQS, they are forced to restrict their own industrial development.<sup>30</sup> Pennsylvania is one example. The Pennsylvania Department of Environmental Resources argues

<sup>26</sup> 11 ENV'T. REP. (BNA) 305 (Current Developments June 27, 1980).

<sup>27</sup> Generally under the Clean Air Act, 42 U.S.C. §§ 7401-7626 (Supp. II 1978), the EPA sets primary and secondary national ambient air quality standard (NAAQS) for pollutants. See 42 U.S.C. § 7409 (Supp. II 1978). The states are required to adopt implementation plans which include limitations upon the discharge of these pollutants and ensure that the state will meet the NAAQS. See 42 U.S.C. § 7410 (Supp. II 1978). See also note 34 *infra* and accompanying text.

<sup>28</sup> 12 ENV'T. REP. (BNA) 286 (Current Developments June 26, 1981).

<sup>29</sup> For example, in Feb. 1980, it was charged that power plants in New York and Pennsylvania emit less than 1 lb. sulfur dioxide (SO<sub>2</sub>) per million British thermal units (Btu) while power plants in Ohio emit as much as 9 lbs. SO<sub>2</sub>/million Btu. 10 ENV'T. REP. (BNA) 2055 (Current Developments Feb. 29, 1980).

One study reports that emissions from sources along the Ohio river tend to accumulate in the valley rather than disperse. These emissions are blown north-east by prevailing winds making a regional air pollution transport corridor. It is further claimed that in 1978, Illinois, Indiana, Michigan, Ohio, Tennessee, Kentucky and West Virginia discharged approximately 11.3 million tons of SO<sub>2</sub>/year while New York, New Jersey and all the New England states totaled only 2 million tons/year. 12 ENV'T. REP. (BNA) 286 (Current Developments June 26, 1981). Yet it is the northeastern states that are being damaged by acid rain. It is by pointing to the disparity in emissions that the northeastern states attempt to demonstrate the present legal, environmental and economic inequities.

<sup>30</sup> 10 ENV'T. REP. (BNA) 1928 (Current Developments Feb. 1, 1980).



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, "Pennsylvania industry . . . [subsidizes] its competition because of the unjust air pollution control burden."<sup>31</sup>

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

The Clean Air Act,<sup>32</sup> under which the Federal government regulates and controls air pollution, is currently inadequate to deal with acid rain and its precursor sulfates.<sup>33</sup> 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. It is, at best, 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.

Generally the Clean Air Act 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.<sup>34</sup> These

<sup>31</sup> 12 ENV'T. REP. (BNA) 286 (Current Developments June 26, 1981).

<sup>32</sup> 42 U.S.C. §§ 7401-7626 (Supp. II 1978).

<sup>33</sup> Since the major part of acid rain is sulfuric acid, the remainder of this note, like current debate, will focus upon sulfur oxides but the legal issues and principles that are discussed are fully applicable to the problem of nitric acid as a component of acid rain.

<sup>34</sup> 42 U.S.C. § 7409 (Supp. II 1978). The Administrator establishes regulations for "national primary ambient air quality standard[s]" and "national secondary ambient air quality standard[s]." 42 U.S.C. § 7409(a)(1)(A) (Supp. II 1978). The primary NAAQS are designed "to protect the public health." 42 U.S.C. § 7409 (b)(1). Secondary NAAQS are designed "to protect the public welfare." 42 U.S.C. § 7409(b)(2). With respect to defining welfare:

All language referring to effects on welfare includes, but is not limited to, effects on soils, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility, and climate, damage to and deterioration of property, and hazard to transportation, as well as effects on economic values and on personal comfort and well being.

42 U.S. § 7602(h) (Supp. II 1978).

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.<sup>35</sup> Once the national standard for a pollutant has been set, the state has the primary responsibility of identifying the pollutant sources within the state and setting the limitations for each source or group of sources, thereby controlling pollution at its source so that the state as a whole can meet the NAAQS.<sup>36</sup>

Unfortunately, acid rain does not fit neatly into this regulatory approach. Even though the pollution control scheme may be premised on state-by-state control, air pollution recognizes no borders. Individual sources emitting sulfur oxides may all be in compliance with their limitations and the local air quality surrounding a source may be within the NAAQS, but because of the transportability of the sulfur oxides, areas far removed from a source and the source's regulatory authority are affected. The Clean Air Act provides that the primary responsibility of control of emissions at the source lies with the states and local governments.<sup>37</sup> Furthermore, principles of state sovereignty prohibit a downwind state from reaching into an upwind state to control the activities within the upwind state. Thus, with interstate pollution, the area adversely affected has no direct authority over the source of the damage. Instead, the downwind state must pursue less effective, indirect means in attempting to abate pollution spilling across its borders.<sup>38</sup>

Controlling the discharge of a pollutant under the Clean Air Act requires that the source be identified. The national air quality standards are expressed as ground level concentrations of a pollutant in the ambient air.<sup>39</sup> Since the states are only charged with controlling pollution sources to meet NAAQS, the techniques

---

<sup>35</sup> 42 U.S.C. § 7410 (Supp. II 1978). These state implementation plans must also be reviewed by the Administrator to make sure they meet enumerated statutory requirements. 42 U.S.C. § 7410(2) (Supp. II 1978).

<sup>36</sup> See 42 U.S.C. § 7401 (Supp. II 1978) (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) (Supp. II 1978).

<sup>37</sup> *Id.*

<sup>38</sup> See *infra* note 50 and accompanying text.

<sup>39</sup> Lee, *Interstate Sulfate Pollution: Proposed Amendments to the Clean Air Act*, 5 HARV. ENV'TL. L. REV. 71, 78 n.69 (1981) [hereinafter cited as Lee, *Interstate Sulfate Pollution*].

used to measure air quality are only designed to measure local concentrations of pollutants in relation to individual or groups of sources. The states use methods, or "models," of dispersion and diffusion that trace pollutants from a source and measure their concentrations at distances usually no greater than 50 kilometers.<sup>40</sup> But as has been pointed out, sulfates, because of their transportability, may not reach significant concentration levels until far removed from the source.<sup>41</sup> These concentration areas are outside the dispersion models used to relate the pollutants to the sources, and, therefore, the sulfates cannot be traced with certainty to a particular source in order to establish a limitation. In addition, these significant concentrations may be the result of several sources and presently there is no method which can reliably determine the exact amount an individual source may contribute to a downwind concentration. Thus, to the extent that the current regulatory approach of the Clean Air Act depends upon a direct causal link between an area of ambient concentration and the emission source in order to identify the source and establish limitations, there is no way to force a state to set more stringent limitations where the link cannot be made.<sup>42</sup>

Finally, the environmental effect of acid rain is dependent

---

<sup>40</sup> *Id.* at 78 n.68, 79 n.79. A brief filed in the third circuit in a case concerning interstate pollution has a good description of a "modeling" technique:

Dispersion models are mathematical equations that derive expected ambient concentrations caused by a pollutant source's emissions [*sic*]. Using actual data such as a plant's operating conditions, meteorological measurements, and stack emission characteristics, the dispersion analysis predicts anticipated ambient concentrations for an array of points various geographic distances from the plant. The readout establishes whether SO<sub>2</sub> "[sulphur dioxide] emissions at the analyzed rate will cause ground level ambient concentrations at any of the plants that exceed the national standards. If the predicted values are higher than the standards, the plant needs a lower SO<sub>2</sub> emission limitation; if the standards are not exceeded, the analyzed SO<sub>2</sub> emission level becomes the plant's allowable emission rate.

Respondent's Brief at 11, *Pennsylvania v. Costle*, No. 79-1026 (3rd Cir., filed March, 1981) (citations omitted).

See also 40 C.F.R. § 51 App. A (1981) (allows ambient pollutant levels to be measured on the basis of dispersion and diffusion modeling and sets forth general procedures).

<sup>41</sup> See *supra* notes 9-11 and accompanying text.

<sup>42</sup> See generally Lee, *supra* note 39, at 76-78; Williams, *Technical Aspects*, *supra* note 8, at 49; Post, *Federal Common Law Suits to Abate Interstate Pollution*, 4 HARV. ENVTL. L. REV. 117, 119 (1980).

upon the nature of the locale. The extent of acid rain damage depends upon the buffering capacities of the lakes, the soil composition, the type of vegetation, and the amount of rainfall in a particular area.<sup>43</sup> The national ambient primary and secondary standards are uniform throughout the country. Thus, a national ambient standard for sulfur dioxide (SO<sub>2</sub>) which does not take into account local sensitivity to acid rain<sup>44</sup> may prove too strict for some areas and not strict enough for others.<sup>45</sup> The secondary national ambient standards, which do not allow for variation based upon a locale's peculiar sensitivity to environmental damage, are inherently inadequate when dealing with acid rain which becomes a problem precisely because of local sensitivity.<sup>46</sup> Furthermore,

---

<sup>43</sup> See *supra* note 16 and accompanying text.

<sup>44</sup> NAAQS have been promulgated for SO<sub>2</sub>, 40 C.F.R. § 50.4 (1981) (primary); 40 C.F.R. § 50.5 (1981) (secondary). There are no standards for sulfates or acid rain, nor do the current standards for SO<sub>2</sub> take into account the effects of sulfates or acid rain.

<sup>45</sup> See Lee, *Interstate Sulfate Pollution*, *supra* note 39, at 80.

<sup>46</sup> This inadequacy, of course, can characterize all the primary and secondary NAAQS. However, with respect to the primary NAAQS which are set in relation to public health, it is difficult to argue that there is a wide variation in the health effects of pollutants due to geography. The secondary standards based upon protection of the public welfare probably should be more closely related to local environments. However, the national standards were expressly designed by Congress to reflect national minimums rather than to reflect local needs and conditions.

Under the Clean Air Act before the 1972 amendments, states set their own primary and secondary standards, but the states were lax in adopting and implementing the standards and there was some evidence the states were using the standards to bargain for industry. Congress therefore expressly shifted responsibility from the states to the national government to set air quality standards. See Stewart, *Air Quality Standards, Interstate Conflicts, and the Role of the Judiciary in Air Pollution Control Policy in the United States* in AIR POLLUTION CONTROL: NATIONAL AND INTERNATIONAL PERSPECTIVES 46 (Aspen-Berlin Conference 1979). If the standards were now allowed to vary with local environmental conditions, this could indirectly allow what Congress sought to avoid—economic bargaining and lobbying for variances with the federal government.

However, there are statutory exceptions to the national standards. The Act provides for permissible percentages of pollution increase for areas with air cleaner than the national standards in order to prevent significant deterioration of these areas (PSD program). 42 U.S.C. §§ 7470-7491(g) (Supp. II 1978). Under the new source performance standards (NSPS), national limitations are set based upon categories of new sources, *Id.* at § 7411. Standards are also based upon the discharge of certain pollutants classified as hazardous (NESHAP). *Id.* at § 7412. Further, a state may set limitations to meet ambient standards more stringent than the federal standards.

the Administrator is only authorized to set *national* standards.<sup>47</sup> Any argument that the environmental damage is not widespread would certainly be a factor in determination that sulfates or acid rain are not serious enough to require a more stringent national standard for SO<sub>2</sub>.<sup>48</sup>

<sup>47</sup> *Id.* at § 7409.

<sup>48</sup> The general procedure by which an air pollutant becomes translated to a NAAQS involves discretionary and mandatory duties of the Administrator.

Under the Act, the Administrator is required to establish a list of air pollutants the:

(A) emissions of which, in his judgment, cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare;

(B) the presence of which in the ambient air results from numerous or diverse mobile or stationary sources; and

(C) for which air quality criteria had not been issued before December 31, 1970 but for which he plans to issue air quality criteria under his section. . . .

*Id.* at § 7408.

Once a pollutant makes the list, within twelve months, the Administrator must issue "air quality criteria." This criteria "shall accurately reflect the latest scientific knowledge useful in indicating the kind and extent of all identifiable effects of public health and welfare which can be expected from the presence of such pollutant in the ambient air, in varying quantities." *Id.* at § 7408(a)(2). In addition, the criteria:

shall include information on—

(A) those variable factors (including atmospheric conditions) which of themselves or in combination with other factors may alter the effects on public health or welfare of such air pollutant;

(B) the types of air pollutants which, when present in the atmosphere, may interact with such pollutant to produce an adverse effect on public health or welfare; and

(C) any known or anticipated adverse effect on welfare. . . .

*Id.* at § 7408(2).

Finally, along with the issuance of the criteria for a pollutant, the Administrator is required to issue the "national primary and secondary ambient air quality standards for any such pollutant." *Id.* at § 7409(a)(2).

The Second Circuit has interpreted the language of these sections and held that once the Administrator determines that a pollutant (1) causes or "may reasonably be anticipated to endanger public health and welfare" and (2) such pollutant "results from numerous or diverse mobile or stationary sources," then the Administrator is required to issue the criteria document and the national standards. Once the Administrator determines in his judgment that the two requirements of section 7408 are met, then the listing, the criteria document and the promulgation of NAAQS are mandatory. *Natural Resources Defense Council, Inc. v. Train*, 545 F.2d 320 (2d Cir. 1976) (where petitioner was successful in forcing the Administrator to list lead after the Administrator conceded the section

## B. *The Inadequacy of the Interstate Provisions*

The Clean Air Act contains specific provisions for dealing with interstate pollution, but these provisions are generally vague and toothless. The provisions do not provide guidelines to allocate the legal and economic burdens of control between the polluting state and the receptor state. Inasmuch as sulfates and acid rain escape direct regulatory control, they also fall outside the indirect control of the interstate provisions.

### 1. *Section 7410(a)(2)(E): The Interstate Impact of State Implementation Plans*

The Administrator cannot give approval to a state implementation plan (SIP) until s/he determines that it meets the section 7410(a)(2) requirements.<sup>49</sup> Included in these requirements is consideration of interstate effects of pollutants. A SIP must contain provisions which set limits upon those sources within the state and would (if not limited) (1) prevent another state from attaining or maintaining primary or secondary NAAQS, or (2) interfere with other statutory provisions for interstate pollution abatement.<sup>50</sup>

---

7408 requirements had been met); *accord*, *Lead Indus. Ass'n. v. EPA*, 647 F.2d 1130 (D.C. Cir.), *cert. denied*, 101 S. Ct. 621 (1980).

At any rate, since it is within the Administrator's judgment whether a pollutant may reasonably be anticipated to endanger public health or welfare, and since the listing of a pollutant will trigger the setting of national, rather than regional or local standards, it is perhaps implicit in the Administrator's determination that he must consider the *national* effects on the health or welfare. Thus, if damages to the environment can be shown to be isolated and localized, an Administrator's judgment that there is no reasonable endangerment to the *national* welfare cannot be said to be an unreasonable or capricious determination.

<sup>49</sup> 42 U.S.C. § 7410(a)(2) (Supp. II 1978).

<sup>50</sup> With respect to interstate spillover pollutants, a SIP must: [contain] adequate provisions (i) prohibiting any stationary source within the State from emitting any air pollutant in amounts which will . . . prevent attainment or maintenance by any other State or any such national primary or secondary ambient air quality standard, or . . . interfere with measures required to be included in the applicable implementation plan for any other State . . . to prevent significant deterioration . . . and (ii) insuring compliance with the requirements of section 7426 of this title, relating to interstate pollution abatement. . . .

42 U.S.C. § 7410(a)(2)(E) (Supp. II 1978).

The Administrator can also designate interstate or intrastate air quality control regions for which each state through its SIP must assure attainment and maintenance of the portion of the region within its borders. 42 U.S.C. § 7407 (Supp. II 1978).

Several problems may arise when a downwind state receiving sulfates or acid rain attempts to use section 7410. First, a receptor state can only indirectly influence the polluting state through section 7410. In order to force an upwind polluting state to impose more stringent limitations on the sources within its borders, the downwind state must challenge the limitations in the upwind state's SIP. Since the Administrator is required to approve or disapprove of a SIP with respect to the section 7410 requirements, a downwind state must bring an action against the Administrator.<sup>51</sup> A state could charge that the Administrator failed to perform an affirmative duty under section 7410 in approving a plan where it was shown that such SIP does not contain adequate provisions prohibiting a source from preventing the attainment or maintenance of the NAAQS in the receptor state and that the record does not indicate that such a determination was made or in the alternative, that the Administrator's approval in light of the record is arbitrary and capricious.<sup>52</sup> Such a suit chal-

---

<sup>51</sup> It appears settled that the requirements of section 7410(a)(2) are substantive and procedural requirements that must be met before the Administrator can approve a SIP. See *Train v. Natural Resources Defense Council*, 421 U.S. 60, 65 (1975) (dicta describing the promulgation and implementation of NAAQS). Conversely, the Ninth Circuit has held that the Administrator must disapprove "any state implementation plan that he 'determines' fails to meet any of the requirements of [42 U.S.C. § 7410(a)(2) (Supp. II 1978)]." *Bunker Hill Co. v. EPA*, 572 F.2d 1286, 1293 (9th Cir. 1977).

See also 42 U.S.C. § 7410(c) (Administrator is directed to promulgate a SIP when the state fails to submit an adequate plan.)

<sup>52</sup> Issues concerning the discretionary/non-discretionary nature of the Administrator's duties under section 7410(a)(2) have been and are currently being litigated. The Ninth Circuit has held that the Administrator's determination as to whether the requirements of section 7410(a)(2) are met is discretionary but once the determination is made the Administrator has an affirmative duty to act upon the decision by either approving or rejecting the SIP. *Kennecott v. Copper Corp., Nevada Mines Division v. Costle*, 572 F.2d 1349, 1354-55 (9th Cir. 1978).

In *New England Legal Found. v. Costle*, 475 F. Supp. 425 (D. Conn. 1979) citizens of Connecticut claimed, *inter alia*, that the Administrator's approval of a variance from New York's SIP for a power plant was in violation of a non-discretionary duty to "[appraise] the effects of the variance on interstate pollution." *Id.* at 435. The court agreed that section 7410(a)(2)(E) imposed a non-discretionary duty to consider interstate impact of emissions, but in the posture of this case, the statutory time for considering the New York proposals had not yet expired; therefore a breach of duty had not yet occurred. *Id.* at 435-36.

In an action recently filed in the Third Circuit, Pennsylvania claims that the Administrator's approval of West Virginia's SIP (which allows an increase in SO<sub>2</sub> emissions for two power plants) is in violation of section 7410(a)(2). Brief for

lenges an administrative action and is therefore reviewed according to specific provisions in the Clean Air Act<sup>53</sup> and the Administrative Procedure Act.<sup>54</sup>

It appears from section 7410(a)(2)(E) that a SIP need only consider those spillover pollutants which would prevent the maintenance or attainment of national primary or secondary standards in the receptor state.<sup>55</sup> If there is no national standard for a particular pollutant, it can be argued that a SIP is not required to consider the interstate impact of this pollutant. Since there is no NAAQS for acid rain or sulfates, there is no duty to determine the effect of SO<sub>2</sub> emissions on concentrations of sulfates or the extent of acid rain damages.<sup>56</sup> An argument to the contrary

---

Petitioner, *Pennsylvania v. Costle*, No. 79-1025 (3rd Cir., filed Mar., 1981). Pennsylvania argues that section 7410(a)(2) requires affirmative determinations to be made on each of the points in the section and that the record fails to demonstrate "explicit affirmative determinations on all [the] provisions." *Id.* at 19. Specifically, Pennsylvania charges that the Administrator did not consider the interstate impact of the long-range transport of SO<sub>2</sub> on the attainment and maintenance of SO<sub>2</sub> NAAQS in Pennsylvania. *Id.* at 12.

<sup>53</sup> 42 U.S.C. § 7607(d)(9)(Supp. II 1978) provides the scope of judicial review for these type of actions as follows:

the court may reverse any such action found to be—

- (A) arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law;
- (B) contrary to constitutional right, power, privilege, or immunity;
- (C) in excess of statutory jurisdiction, authority, or limitations, or short of statutory right; or
- (D) without observance of procedure required by law, of (i) such failure to observe such procedure is arbitrary or capricious . . . .

*See also* 42 U.S.C. § 7606(b)(1) (Supp. II 1978) (jurisdiction for review of Administrator's action with respect to a SIP lies in appropriate United States Court of Appeals).

<sup>54</sup> 5 U.S.C. §§ 701-706 (1976).

Under the Clean Air Act, the promulgation of a SIP is a rulemaking function of the agency. 42 U.S.C. § 7607(d)(1)(B) (Supp. II 1978). Thus, provisions of the Administrative Procedure Act and case law regarding reasoned decision making and the support of an adequate record are applicable. *See* 5 U.S.C. § 553 (1976); *Alabama Power Co. v. Costle*, 606 F.2d 1068 (D.C. Cir. 1979); *Bunker Hill Co. v. EPA*, 572 F.2d 1286 (9th Cir. 1977).

<sup>55</sup> The SIP must have "adequate provisions (i) prohibiting any stationary source within the State from emitting any air pollutant . . . which will (I) prevent attainment or maintenance . . . of any such national primary or secondary ambient air quality standard. . . ." 42 U.S.C. § 7410(a)(2)(E) (Supp. II 1978).

<sup>56</sup> *See* Brief for Petitioner at 22, *Pennsylvania v. Costle*, No. 79-1025 (3rd Cir., filed Mar., 1981) (Citing the Rationale Documents the EPA prepared to support the approval of the W. Va. SIP, Pennsylvania contends that the only reference the EPA makes with respect to the consideration of interstate impact is "a state-



asserts that the transportation of SO<sub>2</sub> emissions is the "common link" between four types of pollutants. These include SO<sub>2</sub> in the air, particulates, sulfates (which are a form of particulates), and acid rain (which is caused by sulfates).<sup>57</sup> Since sulfates are particulates and NAAQS for particulates have been promulgated,<sup>58</sup> the Administrator has a duty to measure sulfate emissions to determine the effect upon the receptor state's particulate standard.<sup>59</sup> Also, the argument continues, the Administrator has discretion, in light of the legislative history surrounding the enactment of the 1977 amendments, to consider the long-range transportability of SO<sub>2</sub> and its impact upon sulfates and acid rain.<sup>60</sup> However, this argument depends upon accepting the premise that the legislative purpose in rewriting section 7410(a)(2)(E) and in adding section 7426 on interstate pollution abatement<sup>61</sup> was not only to strengthen the law on interstate pollution but also to strengthen "the resolve of the Administrator" in dealing with interstate pollution.<sup>62</sup> In other words, the Administrator should consider the broad policy of the statutory provisions to resolve all pollution spillover conflicts. Thus, the Administrator should determine, within his discretion, the effect of the state's SIP upon the overall pollution problem in another state. The major impediment in resolving interstate pollution conflicts, then, is the Administrator's own inaction.<sup>63</sup> Whether this argument is accepted remains to be

---

ment of EPA's opinion that it has no duty to consider interstate transport of sulfates.")

The EPA states in its responding brief that it evaluated the impact of the SO<sub>2</sub> limitations in the W. Va. SIP upon the attainment and maintenance of the primary and secondary SO<sub>2</sub> NAAQS in Pennsylvania Respondent's Brief at 13, *Pennsylvania v. Costle*, No. 79-1026 (3rd Cir., filed Mar., 1981). Thus, only the spillover effects of SO<sub>2</sub> itself was considered.

<sup>57</sup> Brief for Petitioner at 12, *Pennsylvania v. Costle*, No. 79-1025 (3rd Cir., filed Mar., 1981).

<sup>58</sup> 40 C.F.R. § 50.7 (1981).

<sup>59</sup> Brief for Petitioner at 21, *Pennsylvania v. Costle*, No. 79-1025 (3rd Cir., filed Mar., 1981).

<sup>60</sup> *Id.* at 22-25.

<sup>61</sup> 42 U.S.C. § 7426 (Supp. III 1978).

<sup>62</sup> Brief for Petitioner at 24, *Pennsylvania v. Costle*, No. 79-1025 (3rd Cir., filed Mar., 1981).

<sup>63</sup> See *id.* at 22 where the petitioner claims that according to the legislative history surrounding the 1977 amendments "the major impediment to the abatement of interstate pollution was EPA's own reluctance to deal with the issue" (citing H.R. REP. NO. 95-294, 95th Cong., 1st Sess. 1977, 2 U.S. CODE CONG. AND AD. NEWS 1077 (1977)).

seen.<sup>64</sup> It does seem, however, that the Administrator may have the stronger position. Under the plain statutory language, if the spillover pollutant does not prevent the attainment or maintenance of a NAAQS, then there is no violation of section 7410(a)(2)(E), no violation by the Administrator of a non-discretionary duty, and no abuse of discretion by the Administrator.

There are other language interpretation problems in section 7410(a)(2)(E) which need to be resolved before a showing can be made of an administrative violation of a non-discretionary duty or an abuse of discretion. The section states that a SIP must contain "adequate" provisions. Most likely, whatever is determined "adequate" will be considered a discretionary function of the Administrator and subject to reversal only if arbitrary or capricious.<sup>65</sup> Problems may also arise over what amount of interstate spillover is necessary to amount to a "prevention" of another state's NAAQS,<sup>66</sup> or what amount is necessary to "interfere" with a plan

---

<sup>64</sup> As of the date of writing this note, no decision has yet been rendered in *Pennsylvania v. Costle*, No. 79-1025 (3rd Cir., filed Mar., 1981) (*Pennsylvania v. Costle* asserts the arguments concerning the extent of the Administrator's duty and discretion in determining the interstate impact of SO<sub>2</sub> emissions).

<sup>65</sup> Case law interpreting similar language of the interstate provision of the Clean Air Act before 1977 indicates deference will be accorded to administrative determinations of what is necessary for states to do to meet the interstate requirements.

The 1970 Clean Air Act requires SIPs to contain:

adequate provisions for intergovernmental cooperation including measures necessary to insure that emissions of air pollutants from sources locate in any air quality control region will not interfere with the attainment or maintenance of such primary or secondary standard in any portion of such region outside of such State or in any other air quality control region.

42 U.S.C. § 1857(c)-5(a)(2)(E) (1976). See *Natural Resources Defense Council, Inc. v. EPA*, 494 F.2d 519 (2d Cir. 1974) where the court rejected the argument that "the requirement for adequate provisions for intergovernmental cooperation . . . was not met" when the SIP only provided for an exchange of information between the states instead of binding and enforceable agreements. *Id.* at 526. The court held this was adequate provision under the Act to meet "interstate controversies." *Id.* See also *Natural Resources Defense Council, Inc. v. EPA*, 483 F.2d 690 (8th Cir. 1973) where the court, in rejecting the argument that there must be binding interstate agreements, held that it is within the Administrator's discretion to determine "what degree of governmental cooperation and other measures are necessary to insure non-interference with the attainment and maintenance of national standards." *Id.* at 692-93.

<sup>66</sup> 42 U.S.C. § 7410(a)(2)(E)(i)(I) (Supp. II 1978).

for the prevention of significant deterioration.<sup>67</sup> One author points out that a receptor state may set its own SIP limitations without regard to possible spillover from another state. In this case, any spillover from another state would amount to a "prevention" of a NAAQS. Could the Administrator, within his discretion, look at both states' SIPs and determine that the receptor state should first set more stringent controls on its own sources and that there is only a "prevention" of a receptor states' NAAQS when it is infeasible for the receptor state to set more stringent controls? Or should the two states share the control burdens?<sup>68</sup> These questions are left unanswered by the statute. In addition, these same questions arise in determining what amount of spillover is necessary to interfere with a program of prevention of significant deterioration. These issues will probably be resolved as matters within administrative discretion since there is no clear statutory definition of these items. Presumably, the allocation of the economic and environmental burdens of pollution and its control will be left to the Administrator's discretion.

Finally, the language of section 7410(a)(2)(E) appears to require that the offending source be identified before it can be held that a SIP inadequately deals with spillover pollution.<sup>69</sup> Because the effect of this section is to require the polluting states to impose more stringent controls on sources within its state, it seems reasonable, given the statutory scheme, that the complaining state should identify the source so that the polluting state can impose the necessary limitations.<sup>70</sup> However, given the unique characteristics of long-range transport pollutants and the resulting inability to determine with preciseness the particular source contributing to the pollution, an attempt to use section 7410(a)(2)(E) may be difficult unless the receptor state can meet the burden of proof.<sup>71</sup>

---

<sup>67</sup> 42 U.S.C. § 7410(a)(2)(E)(i)(II) (Supp. II 1978).

<sup>68</sup> See Post, *Federal Common Law Suits to Abate Interstate Air Pollution*, 4 HARV. ENVTL. L. REV. 117, 121 n.42 (1980) [hereinafter cited as Post, *Federal Common Law Suits*].

<sup>69</sup> The SIP must contain "adequate provision (i) prohibiting any stationary source within the State from emitting any air pollutant . . ." 42 U.S.C. § 7410(a)(2)(E) (Supp. II 1978) (emphasis added). Note this language also excludes mobile sources—such as automobiles.

<sup>70</sup> See Lee, *supra* note 39, at 79-80 where the author argues that the statutory language "any stationary source" could be interpreted to include "any group of sources" and this could include the group of all sources in a region.

<sup>71</sup> See *infra* text accompanying note 126 (proposed amendment to the Clean Air Act suggests proof can be shown on the basis of total emissions of each state).

## 2. Section 7426: Interstate Pollution Abatement

Part of the section 7410(a)(2)(E) elements for SIP approval also require adequate provisions to insure compliance with the section 7426 requirements "relating to interstate pollution abatement."<sup>72</sup> This section requires that written notice be sent to nearby states when a "major proposed new (or modified) source" is subject to the requirements of the prevention of significant deterioration program (PSD) or when such source may "significantly contribute to levels of air pollution in excess of the national ambient air quality standards . . . outside the State in which such source intends to locate. . . ."<sup>73</sup> The SIP identifies those *existing* sources which may "significantly contribute to levels of air pollution in excess of the [NAAQS]" outside the state and requires the proposed new sources to provide written notice to those states.<sup>74</sup> In addition, "[a]ny state or political subdivision may petition the Administrator for a finding that any major source emits or would emit any air pollutant in violation of the prohibition of section 7410(a)(2)(E)(i) [relating to the SIP interstate requirements for approval]. . . ."<sup>75</sup>

The shortcomings arising when section 7410 is used to try to control long-range pollutants also occur when the section 7426 abatement provision is used. The notice to the nearby states is only required when those emissions may significantly contribute

---

*But see* 12 ENV'T. RPT. (BNA) 275 (June 26, 1981) (where EPA proposes the burden of proof to be greater for the complaining state). *See infra* note 78.

<sup>72</sup> 42 U.S.C. § 7410(a)(2)(E)(ii) (Supp. II 1978).

<sup>73</sup> 42 U.S.C. § 7426(a) (Supp. II 1978).

<sup>74</sup> *Id.* The section provides:

Each applicable implementation plan shall—

(1) require each major proposed new (or modified) source—

(A) subject to part C . . . (relating to significant deterioration or air quality) or

(B) which may significantly contribute to levels of air pollution in excess of the national ambient air quality standards in any air quality control region outside the State in which such source intends to locate . . . to provide written notice to all nearby States the air pollution levels of which may be affected by such source . . . and,

(2) identify all major existing stationary sources which may have the impact described in paragraph (1) . . . and provide notice to all nearby States of the identity of such sources. . . .

<sup>75</sup> 42 U.S.C. § 7426(b) (Supp. II 1978). This section further provides that upon the receipt of the petition there shall be a public hearing after which the Administrator will either make a finding or deny the petition.

to excesses of the NAAQSs. If there is no NAAQS, no notice is required. The language of this section also seems to imply that the sources causing the excess levels of pollution be identified by the complaining state.<sup>76</sup> This interpretation would be consistent with section 7410 (which is tied to the petition procedure of this section) and would also be consistent with the general regulatory scheme of the Act. Therefore, with respect to the long-range transport of sulfates and the difficulty of reliably linking a particular source to a downwind concentration, receptor states are effectively precluded from forcing upwind states to control these emissions.<sup>77</sup>

Finally, administrative abatement fails to provide any guidelines for resolving interstate pollution conflicts. Although a receptor state may petition for a finding that an upwind source prevents the attainment and maintenance of NAAQSs in the receptor state, this is actually a claimed violation of the section 7410 interstate SIP provision and therefore suffers from the same ambiguities as section 7410(a)(2)(E). The Administrator is free to determine in his discretion what amount of spillover rises to a "prevention" of the attainment or maintenance of a NAAQS. Since section 7410(a)(2)(E) requires that a more stringent limitation be set once there is a finding that an emission "prevents" attainment of maintenance, the Administrator implicitly weighs the burdens of control against possible environmental damage in determining whether the emission has "prevented" the attainment or maintenance of a NAAQS. Thus, the Administrator allocates the economic burdens between the states as a matter of discretionary judgment and the states cannot really challenge that decision unless it is shown to be unreasonable, arbitrary or capricious.<sup>78</sup>

---

<sup>76</sup> Each new source is to provide notice; the SIP must identify existing sources which might have interstate impacts and, in the petition procedure, any state (and thus, the receptor state) "may petition . . . for a finding that any major source emits or would emit. . ." 42 U.S.C. § 7426(a)-(b) (Supp. II 1978) (emphasis added).

<sup>77</sup> See Lee, *supra* note 40, at 79.

<sup>78</sup> In December, 1980, New York and Pennsylvania filed separate petitions with the Administrator under section 7426 requesting that the Administrator make finding that emissions from named sources in Ohio, West Virginia, Illinois, Indiana, Michigan and Tennessee are contributing to their violations of the particulate standards and to elevated levels of SO<sub>2</sub>. The petitioning states also requested that the aggregate impact of the source emissions be considered rather than attempt to determine limitations on a case-by-case basis. New York further

#### IV. ABATING ACID RAIN UNDER A FEDERAL COMMON LAW NUISANCE ACTION

##### A. *Illinois v. City of Milwaukee and City of Milwaukee v. Illinois*

A state adversely affected by spillover pollutants may also consider an action for abatement based upon federal common law nuisance. Under this theory, a state claims that there is an unreasonable interference with its public health and welfare. Once an unreasonable interference has been shown, the federal court equitably weighs the benefits of the activity complained of against the burdens of the environmental damage. In the decision of the United States Supreme Court in *Illinois v. City of Milwaukee*,<sup>79</sup> it was held that pollution of interstate waters "creates actions arising under the 'laws' of the United States," therefore being an action within federal question jurisdiction.<sup>80</sup> The court, however, declined jurisdiction recognizing instead that its jurisdiction was not exclusive. Although both parties were sovereign powers, both parties were not states,<sup>81</sup> and the Court reasoned that there was

---

requested that the EPA require that long-range dispersion models be used by states when determining the interstate impact of SIPs. In issuing the notice for hearing, the EPA noted that these issues would be considered but expressly excluded any discussion of sulfates and acid rain on the grounds the EPA has no authority to regulate the impact of emissions upon these pollutants because there are no NAAQSs for them. 46 Fed. Reg. 24602, 24602-603 (1981).

In the June 1981 hearings on these petitions, the alleged polluting states and sources claimed that the charges were based on erroneous data and were "more theoretical than factual." See 12 ENV'T. RPT. (BNA) 286 (June 26, 1981).

On July 30, 1981, the Administrator made a proposed determination in its first ruling in an interstate abatement case under section 7426. The Administrator found the SO<sub>2</sub> emissions from a specific power plant in Indiana were not preventing the attainment or maintenance of NAAQS in Jefferson City, Kentucky. 12 ENV'T. RPT. (BNA) 465 (Aug. 7, 1981). See also 46 Fed. Reg. 38937 (1981).

Perhaps sensing a deluge of petitions under § 7426, a recent draft by the EPA to amend the Clean Air Act proposes that a greater burden of proof be placed on states which petition to have upwind states reduce their pollution. 12 ENV'T. RPT. (BNA) 275, 276 (June 26, 1981).

<sup>79</sup> 406 U.S. 91 (1972). Illinois brought action under the original jurisdiction of the Supreme Court claiming that there was inadequate treatment by entities in Wisconsin of the sewage being dumped into Lake Michigan.

<sup>80</sup> *Id.* at 99-100. The Court also found the requirement of amount in controversy was met because "[t]he considerable interests involved in the purity of interstate waters . . . put beyond question the jurisdictional amount. *Id.* at 98. See also 28 U.S.C. § 1331(a) (Supp. II 1978).

<sup>81</sup> Illinois brought action against the City of Milwaukee, three other Wisconsin cities, and Milwaukee's city and county sewage commissions.

another available forum. The action was remitted to the appropriate federal district court where federal common law nuisance would be the appropriate substantive law to apply.<sup>82</sup>

It should be noted that the decision in *Illinois v. City of Milwaukee* did not create federal common law nuisance, but only named a body of law which had developed with respect to interstate matters.<sup>83</sup> This case recognized as interstate pollution conflict as one arising under federal law and thereby recognized this as an action within federal question jurisdiction.<sup>84</sup>

<sup>82</sup> *Id.* at 101.

<sup>83</sup> After *Erie v. Tompkins*, 304 U.S. 64 (1938), federal common law continued to develop in special areas "where there is an overriding federal interest in the need for a uniform rule of decision or where the controversy touches basic interests of federalism . . ." *Illinois v. Milwaukee*, 406 U.S. 91, 105 n.6 (1972). Interstate environmental litigation presents such a special area. In fact, before *Illinois*, the Supreme Court had applied federal common law in several cases involving interstate spillover pollution. See, e.g., *New Jersey v. City of New York*, 283 U.S. 473 (1931); *New York v. New Jersey*, 256 U.S. 296 (1921); *Georgia v. Tennessee Copper Co.*, 206 U.S. 230 (1907); *Missouri v. Illinois*, 180 U.S. 208 (1901).

Through the federal statutes enacted by Congress concerning interstate waters and through those statutes concerning environmental protection (including the Federal Water Pollution Control Act, 33 U.S.C. § 1151 (1970)), the Court in *Illinois* found evidence that interstate pollution touched on matters where federal interest had already been expressed. Furthermore, because sovereign powers were involved, the Court found that there was a federal interest in providing a neutral forum to solve such conflicts.

When the States by their union made the forcible abatement of outside nuisances impossible to each, they did not thereby agree to submit to whatever might be done. They did not renounce the possibility of making reasonable demands on the ground of their still remaining quasi-sovereign interests; and the alternative force is a suit in this court.

*Illinois*, 406 U.S. at 104 (citing *Missouri v. Illinois*, 180 U.S. 208, 241 (1901)).

Stating the controlling principle that the "ecological rights of a State in the improper impairment of them from sources outside the [State] . . . should be held to be a matter having basis and standard in federal common law," *Illinois*, 406 U.S. at 99-100 (citing *Texas v. Pankey*, 441 F.2d 236, 240 (10th Cir. 1971)), the Court further reasoned that federal common law rather than "varying state law" is necessary to provide a uniform standard in dealing with the environmental rights of states. *Illinois* at 107, n.9 (citing *Texas v. Pankey*, 441 F.2d 236, 241-42 (10th Cir. 1971)).

In this manner the Court found federal common law nuisance provided the substantive law for deciding interstate spillover matters not only because of the character of the parties involved but because the subject matter touched upon an area within the "basic interests of federalism" and because of a need for a "uniform rule of decision."

<sup>84</sup> See generally Ford, *The Necessary Demise of Federal Common Law Nuisance*, 12 Loy. U. Chi. L.J. 131, 132-39 (1981) [hereinafter cited as Ford, *The Necessary Demise*]; Post, *Federal Common Law Suits*, *supra* note 69, at 123-27.

However, the Court also indicated that in some instances federal common law may be pre-empted, or "displaced," by federal statutory law. Inasmuch as federal common law is a body of law which furthers interests in federalism (and such evidence of interest is derived from congressional enactments relating to the subject matter), "[i]t may happen that new federal laws and new federal regulations may in time pre-empt the field of federal common law nuisance."<sup>85</sup> Six months after the Supreme Court's decision in *Illinois v. City of Milwaukee*, Congress amended the Federal Water Pollution Control Act.<sup>86</sup> Milwaukee and the co-defendants then argued in the federal district court that Illinois' action under federal common law nuisance theory was now pre-empted. This issue of pre-emption reached the Supreme Court in *City of Milwaukee v. Illinois*.<sup>87</sup> This time, the Court decided that Illinois' previously recognized federal law claims had indeed been pre-empted, or "displaced," by the 1972 Amendments to the Federal Water Pollution Control Act. The impact of this decision is that in a case of a state requesting abatement of sulfates and acid rain originating from outside sources, the state will now have to overcome the argument that its federal common law claim has been pre-empted by the Clean Air Act.

---

<sup>85</sup> *Illinois v. Milwaukee*, 406 U.S. 91, 107 (1972). See *supra* note 83. The Court also stated that even though federal common law would provide the applicable rule of law, state law would still be relevant and "a State . . . may well ask that its strict standards be honored and that it not be compelled to lower itself to the more degrading standards of a neighbor." *Illinois* at 107.

<sup>86</sup> 86 Stat. 816, 33 U.S.C. § 1251 (Supp. III 1973).

<sup>87</sup> 451 U.S. 304 (1981). Following the Supreme Court's remittance to the district court in *Illinois*, Illinois pursued its action which resulted in the Seventh Circuit Court of Appeals upholding the trial court's finding that the 1972 Amendments to the Federal Water Pollution Control Act did not pre-empt all of Illinois' claims. The circuit court affirmed the district court's holding that all untreated overflow sewage must cease, but reversed the district court's holding that Illinois could impose a more strict effluent limitation than what was allowed in accordance with the permitting system of the Federal Water Pollution Control Act. Although the circuit court recognized that such effluent limitations may provide guidelines for decision, the court further noted that compliance with these limitations was not a defense. In this case, the circuit court simply found that the evidence did not support the stronger standard that Illinois requested. 599 F.2d 151, 176 (1979).

The Supreme Court, *per* J. Rehnquist, held that the 1972 Amendments to the Federal Water Pollution Control Act which established a new and more comprehensive regulatory scheme "displaced" the federal common law nuisance action with respect to the more stringent effluent limitations and the overflow sewage discharge. 451 U.S. 304 (1981).



Justice Rehnquist's opinion for the majority was premised in part on the distinction between federal statutory pre-emption of state law and federal statutory pre-emption of federal common law. (The latter is now termed "displacement.") Where there is a question of state law pre-emption, analysis would focus upon principles of diffusion of power and state police powers to traditionally regulate in the field in question. In addition, there must be a showing of clear legislative intent, express or implied, that a state law has been pre-empted by federal law.<sup>88</sup> When the question is whether federal statutory law displaces federal common law, however, the Court reasoned that since the same concerns for federalism were not involved, there need not be the "same sort of evidence of a clear and manifest purpose" in order to displace federal common law.<sup>89</sup> The Court went on to say that "'we start with the assumption' that it is for Congress, not federal courts to articulate the appropriate standards to be applied as a matter of federal law."<sup>90</sup> Thus, deference and a presumption of congressional intent to displace underscored the majority's analysis of the issues. The standard of inquiry for questions of displacement suggested by the Court was "whether the legislative scheme 'spoke directly to a question' [and] not whether Congress has affirmatively proscribed the use of federal common law."<sup>91</sup>

The Court found congressional intent to displace federal common law nuisance in the 1972 Amendments to the Federal Water Pollution Control Act as expressed in the legislative history surrounding its enactment. Since the amendments were designed to establish a new and comprehensive regulatory scheme for controlling water pollution, the Court concluded this "strongly suggests" Congress has occupied the field.<sup>92</sup> Further, the Court rejected the argument that congressional intent to preserve federal law nuisance was expressed in the citizen suit provision of the Federal Water Pollution Control Act.<sup>93</sup> Purporting to read the section as written, the Court said this section means that nothing in *this particular section* (the citizen suit provision) should be read

---

<sup>88</sup> 451 U.S. 304, 316 (1981).

<sup>89</sup> *Id.* at 317.

<sup>90</sup> *Id.*

<sup>91</sup> *Id.* at 315.

<sup>92</sup> *Id.* at 316-19.

<sup>93</sup> See 33 U.S.C. § 1365(e) (Supp. II 1978).

as limiting any other remedies available to private citizens.<sup>94</sup> "It most assuredly cannot be read to mean that the Act as a whole does not supplant formerly available federal common law actions . . . ."<sup>95</sup>

In addition, since one of the interests of federal common law is to provide a neutral forum, the Court thought it "significant" that the Federal Water Pollution Control Act provided an administrative procedure where the interstate effects of discharges were considered before a permit issued.<sup>96</sup> This was considered evidence relevant to finding congressional intent to displace federal common law nuisance. Finally, the Court felt the subject matter—water pollution control—was a complex, technical area which was better left to the agencies with expertise. Congress' delegation of the regulatory power to the EPA was even more evidence that Congress recognized the inadequacy of the courts to develop uniform standards in a highly complex field.<sup>97</sup> Thus, evidence of congressional intent to displace federal common law was found in the legislative history, the administrative procedure providing a forum for considering interstate impacts of discharges and because the complex nature of the subject which requires agency expertise to develop uniform rules.

Despite the broad language used in *City of Milwaukee v. Illinois*, the Supreme Court did not hold that the 1972 Amendments to the Federal Water Pollution Control Act displaced the whole field of water pollution control. Rather, the finding of displacement of federal common law nuisance was limited to the two particular claims at issue. First, Illinois claimed that the effluent limitations set by Wisconsin under the authority of the EPA and the National Pollution Discharge Elimination System (NPDES) of the Federal Water Pollution Control Act were not stringent enough. Such discharge, argued Illinois, amounts under federal common law to an unreasonable interference with the Illinois public health and welfare. The Court held, however, that the NPDES permitting system, which sets limitations for discharges,

---

<sup>94</sup> 451 U.S. 304, 329. This interpretation of the statutory language is buttressed by the Court's interpretation of the legislative history of this section. *Id.* at 329-32.

<sup>95</sup> *Id.* at 329.

<sup>96</sup> *Id.* at 325-26. See also 33 U.S.C. § 1342(b)(3), § 1342(d)(2)(A).

<sup>97</sup> 451 U.S. 304, 325.

clearly supplants the federal common law in this area.<sup>98</sup> Moreover, the Court held that “[f]ederal courts lack authority to impose more stringent effluent limitations under federal common law than those imposed by the agency. . . .”<sup>99</sup>

Second, Illinois requested that all discharge of Milwaukee’s untreated overflow sewage cease. Because the Wisconsin state agency, under the authority of the EPA, had devised a program of monitoring and controlling the overflow sewage, the court nevertheless determined that the problem had already been specifically addressed. This program was enough to supplant a federal common law remedy.

With this holding in respect to overflow discharges, the Court rebutted the argument that federal common law would have filled a “gap” in the regulatory scheme by imposing effluent limitations on overflows where there were no statutory limitations. Stressing the fact that the particular problem, or subject, had been specifically considered by the agency, the Court held there was no gap, and hence no room for a federal common law remedy.<sup>100</sup> Thus, once the court finds that an agency has “specifically addressed” a problem, then the issue reduces to one of “degrees” or “manner” of control—and this, according to the Court, is not the proper inquiry. Rather, “[t]he question is whether the field has been occupied, not whether it has been occupied in a particular manner.”<sup>101</sup>

#### B. *Whether the Clean Air Act Displaces a Federal Common Law Action to Abate Sulfates and Acid Rain*

A good case can still be made that, with respect to sulfates, acid rain, and the general problem of long-range transport pollutants, the Clean Air Act has not displaced nuisance remedies under federal common law. Under the *Illinois v. Milwaukee* standard, the environmental damage caused by the long-range transport of

<sup>98</sup> *Id.* at 319-20. “There is thus no question that the problem of effluent limitation has been thoroughly addressed through the administrative scheme established by Congress. . . .” *Id.* at 320.

<sup>99</sup> *Id.*

<sup>100</sup> *Id.* at 323.

<sup>101</sup> *Id.* at 324. Presumably, then, a “field” is not as broad as the whole subject matter of the federal statute and relates instead to a particular problem area. The Court did not say just how narrow—or broad—this field should be.

sulfates and the resulting acid rain clearly touches on matters of federal interest as expressed by Congress' enactment of the Clean Air Act. With this Act and the subsequent amendments, Congress has expressed federal concern in air pollution control and has further expressed its intent to provide federal leadership and direction.<sup>102</sup> The interstate nature of the conflict also demands a neutral forum and a neutral substantive law. If it can be shown that because of SO<sub>2</sub> emissions from sources in upwind states the ambient concentration of sulfates and/or the resulting acid rain is an unreasonable interference with common rights in the air and environment, then a federal common law nuisance action may be upheld.

It could further be argued that with respect to the particular problems of sulfates, acid rain, and long-range transport pollutants, neither Congress nor the EPA has specifically addressed the problems; therefore, federal common law has not been displaced. Although the Clean Air Act is a comprehensive, regulatory scheme analogous to the Federal Water Pollution Control Act, the specific problems at issue, in fact, escape control under the regulatory scheme.<sup>103</sup> Thus, even though the 1977 Amendments to the Clean Air Act were conceived with the interstate impact of pollutants in mind and the statute provides for an administrative interstate abatement procedure,<sup>104</sup> to the extent that sulfates and acid rain escape regulatory control, they also escape control under the interstate provisions.

Thus, there is a gap in the Clean Air Act with respect to acid rain and its precursor sulfates. In fact, because there are no national standards for sulfates or acid rain, the EPA has taken the position that it need not consider the interstate impact of SO<sub>2</sub> upon downwind sulfate concentrations or its effect on acid rain in receptor states.<sup>105</sup> However, given the fact that Congress is clearly concerned with the problem of interstate air pollution control (as evidenced by the 1977 amendments), a judicial response under federal common law may actually supplement and effectuate legislative intent.<sup>106</sup> The court would not be rendering "ad hoc"

---

<sup>102</sup> See 42 U.S.C. § 7401 (Supp. II 1978) (Congressional findings and declaration of purpose).

<sup>103</sup> See *supra* notes 33-48 and accompanying text.

<sup>104</sup> See *supra* notes 49-50 & 72-75 and accompanying text.

<sup>105</sup> See *supra* notes 56 and 78.

<sup>106</sup> See *Milwaukee v. Illinois*, 451 U.S. 304, 338-39 n.2, (1981) (Blackmun, J., dissenting).

or "sporadic" judgments in a technical, complex field reserved for administrative expertise. Instead, the federal court would be fashioning an equitable remedy where an unreasonable interference with a cognizable environmental interest has been shown to exist. Further, the court would be responding to an injury where the agency has claimed that it has no authority and has declined to act. In fashioning the remedy under nuisance theory, the federal court can equitably allocate the burdens of pollution and abatement between the states by balancing the benefit of the complained activity and the costs of control against the continuing and cumulative nature of the damage.

Arguments to the contrary would probably focus on the regulatory scheme of the Clean Air Act which requires listing, criteria documents, and control technology reports before promulgating a NAAQS for a pollutant.<sup>107</sup> These requirements imply that Congress intended that there be no limitations placed upon emissions until costs of control and the extent of adverse health and welfare effects are scientifically, economically, and politically determined by the agency. Congress has therefore specifically addressed the question of which pollutants to control and how to achieve this control. This field has thus been occupied, and to allow a federal common law action would allow courts to fashion a remedy differing only in manner. It might also be argued that continued congressional activity, as demonstrated by the recent amendments to the Act,<sup>108</sup> "reflects a policy of continued legislative presence and statutory development in this area."<sup>109</sup> Moreover, pollution control has really become a political question<sup>110</sup> which Congress and the administrative agencies, not the courts, are better suited to handle.<sup>111</sup>

---

<sup>107</sup> 42 U.S.C. §§ 7408-7409 (Supp. II 1978). See also note 48 *supra* and accompanying text.

<sup>108</sup> The Clean Air Act must be reauthorized every five years. Congress is considering amendments to the Act for the reauthorization vote which must come before 1982.

<sup>109</sup> Ford, *The Necessary Demise*, *supra* note 84, at 165.

<sup>110</sup> *Id.* at 166.

<sup>111</sup> In the only case to date dealing with displacement of federal common law by the Clean Air Act, the court held that it would not impose standards more strict than provided for by EPA regulations. *New England Legal Foundation v. Costle*, 475 F.Supp. 425 (D. Conn. 1979), *aff'd in part, rev'd in part*, 632 F.2d 936 (2d Cir. 1980) (decision rev'd on the federal common law claims pending the outcome of the Supreme Court in *Milwaukee v. Illinois*, 451 U.S. 304 (1981)).

### C. *Problems When a State is a Defendant*

A major procedural problem exists when one state seeks damages or an injunction against another state under federal common law nuisance. It is generally accepted that a state may bring an action to protect common rights of the people as *parens patriae*. But, when private sources inside a state are emitting pollutants that are contributing to sulfate concentrations hundreds of miles downwind and these sources cannot be identified with reasonable certainty, it is unclear whether a receptor state can bring an action against the pollutor state. In other words, can the pollutor state be held liable for the emissions from private sources within its borders? The current answer appears to be negative. A doctrine of "reverse *parens patriae*" has been suggested,<sup>112</sup> but is not yet accepted by the courts.

In addition, there is a problem of remedies available when a state is made a defendant. The state's sovereign immunity under the eleventh amendment<sup>113</sup> prohibits the federal courts from awarding monetary damages against the state unless the state waives immunity.<sup>114</sup> The tenth amendment<sup>115</sup> may also present problems when injunctive relief is sought against a state. If the injunction sought is really aimed at private parties within the state, the

---

<sup>112</sup> See Stewart, *Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy*, 86 YALE L.J. 1196, 1248 (1977). Stewart argues that the same principles which justify *parens patriae* should also justify holding a defendant state liable.

Since states can obtain an award for relief for pollution-related injuries suffered by their citizens, they should be reciprocally liable for comparable damage attributable to their citizens. Accordingly, injured states should be permitted to invoke a reverse *parens patriae* principle by requiring an originating state to control private sources of spillover pollution.

*Id.*

<sup>113</sup> U.S. CONST. amend. XI. "The Judicial power of the United States shall not be construed to extend to any suit in law or equity, commenced or prosecuted against one of the United States by Citizens of another State, or by Citizens or Subjects of any Foreign State."

<sup>114</sup> See *Great N. Ins. Co. v. Read*, 322 U.S. 47 (1944) (suit against an official of the state is a suit against the state and cannot be maintained); See also *Ford Motor Co. v. Department of Treasury of Indiana*, 323 U.S. 459 (1945) ("[w]hen the action is in essence one for recovery of money from the state, the state is the real, substantial party in interest and is entitled to invoke its sovereign immunity from suit. . . ."). *Id.* at 464.

<sup>115</sup> U.S. CONST. amend. X.

federal court would, in effect, be imposing on state enforcement resources to levy against private persons who violated federal law.<sup>116</sup> There is some doubt about the constitutionality under the tenth amendment of the power of federal courts to require states to call upon their own resources to enforce federal limitations upon private source emissions.<sup>117</sup>

Therefore, due to the doubt concerning a state's liability and the constitutionality of remedies sought from a state, it appears that, under federal common law nuisance, a receptor state should identify with reasonable certainty the sources of offending emissions and bring action against these private sources.<sup>118</sup> Thus, where a receptor state cannot show a causal link between the sources of the SO<sub>2</sub> emission, the ambient sulfate concentrations, and the damage caused by acid rain, a cause of action under federal common law nuisance probably cannot be maintained.

#### V. SOLUTIONS TO PROBLEMS OF CONTROL AND ABATEMENT OF SULFATES AND ACID RAIN

Because of the difficulties in bringing a federal common law nuisance action to abate acid rain or sulfates, and because of the unique characteristics of these pollutants which enable them to escape the regulatory framework of the Clean Air Act, the most direct solution for controlling these pollutants would be to amend the Clean Air Act.<sup>119</sup> In fact, the Clean Air Act is currently before Congress for amendment and whether and how to control acid

---

<sup>116</sup> See Post, *Federal Common Law Nuisance*, *supra* note 68 at 135-38.

<sup>117</sup> The controversy over the EPA's requirements for states to adopt a transportation control plan (TCP) to control emissions from cars involves this constitutional problem. Some federal courts had held that the EPA could not compel states to develop or administer details of a regulatory scheme which was promulgated by an agency. The Supreme Court never heard the issue, and in 1977 Congress sidestepped the issue by requiring states that received federal funds to comply with the TCP requirements in the Act or lose funding. See Post, *Federal Common Law Suits*, *supra* note 68, at 137-38. See also 42 U.S.C. §§ 7521-7551 (Supp. II 1978).

<sup>118</sup> Municipal corporations are sometimes considered private defendants and are not always able to invoke sovereign immunity. See *Illinois v. Milwaukee*, 406 U.S. 91, 108 n.10 ("it is generally held that a municipality, like a private individual may be enjoined from maintaining a nuisance").

<sup>119</sup> The Clean Air Act must be reauthorized by Congress before 1982. Hearings on the Act were scheduled to begin Sept. 14, 1981. 12 ENV'T. RPT. (BNA) 550 (Current Developments Aug. 28, 1981).

rain is now a political issue.<sup>120</sup> Many plans have been suggested ranging from doing nothing, to strengthening current provisions of the Act, to adding provisions that will specifically deal with long-range transport pollutants and local environmental sensitivities to acid rain.

Those who argue that nothing should be done to the Clean Air Act with respect to acid rain point to all the research projects underway and claim that not enough is known. For example, it is not known exactly how much SO<sub>2</sub> emissions result in particular amounts of acid rain or acid rain damage. A "clear link" has not been scientifically established between man-made emissions and acid rain.<sup>121</sup> Others contend that the current data is contradictory and suspect, and that the acidity in soils and lakes could be developing for other reasons.<sup>122</sup> They say that current modeling techniques cannot accurately predict the long-range transportation of pollutants and that such measurements are therefore unreliable.<sup>123</sup> Indeed, a panel of scientists testifying about acid rain could only agree that the "long-range transport of pollutants is largely responsible for acid rain."<sup>124</sup> Thus, those who are concerned about the lack of technical data would conclude that until all the research is complete and proves otherwise, it cannot be shown that further control of SO<sub>2</sub> emissions will significantly reduce

---

<sup>120</sup> Senator Robert T. Stafford (R-Vt.) said that reauthorization will only "fine-tune" the Act and there will be no major changes. 11 ENV'T. RPT. (BNA) 1860 (Current Developments Jan. 30, 1981) (Stafford is chairman of the Senate Environmental and Public Works Committee where review of the Clean Air Act is taking place). However, there is some evidence that the Reagan Administration would like to change the Clean Air Act to reflect the Administration's policy on deregulation and federalism. See 12 ENV'T. RPT. (BNA) 147 (Current Developments May 29, 1981) (report of Office of Management and Budget staff paper entitled "Federalism and Clean Air").

<sup>121</sup> 12 ENV'T. RPT. (BNA) 282 (Current Developments 1981) (Feins Webster, assistant administrator for research and development at the National Oceanic and Atmospheric Administration reports that there is not enough data to justify emission standards to control acid rain).

<sup>122</sup> See, e.g., 11 ENV'T. RPT. (BNA) 766 (Current Developments Oct. 30, 1980) (researcher from Battelle Laboratories reporting on a study for American Electric Power Service Co. of Ohio says that lake kills of N.Y. could be caused by past use of pesticides).

<sup>123</sup> See 12 ENV'T. RPT. (BNA) 313 (Current Developments July 3, 1981) (research by Energy Impact Associates).

<sup>124</sup> 12 ENV'T. RPT. (BNA) 709 (Current Developments Oct. 9, 1981) (testifying before the Senate Environment and Public Works Committee where review and reauthorization of the Clean Air Act is taking place).



sulfates and acid rain. They maintain that, currently, it cannot be shown that the cost of control will justify the health and welfare benefits desired.

Those who contend that the Clean Air Act must somehow be made an effective tool to deal with acid rain recognize that there are still many technical and chemical unknowns. However, they argue that enough is known to demonstrate that increasing SO<sub>2</sub> emissions in the atmosphere from man-made emissions results in more frequent sulfate concentrations and more acid rain. It is also known that sulfate concentrations and acid rain are largely caused by distant, out-of-state sources. Therefore, proposals for strengthening the current Act focus on the interstate impact of SO<sub>2</sub> emissions and the interstate provisions of the Act.

Perhaps one of the most significant proposals for strengthening the interstate provisions of the Clean Air Act is one that is designed to make section 7426 "workable."<sup>125</sup> A SIP is required to control emissions that "interfere" or prevent another state's maintenance or attainment of ambient air quality standards. This proposal provides that proof of "interference" need not be made solely by modeling but also by the "total emissions from each state, meteorological conditions, reasonable estimates of pollution from one state to the other and comparative economic effect on both states of requiring the controls or allowing the existing level of interstate pollution to continue."<sup>126</sup> These criteria appear to make the EPA's finding of spillover pollution less discretionary and make the burden of proof on the petitioning state less stringent. The Administrator may consider the allocation of economic and environmental benefits and burdens, but, in addition, the petitioning state need only point to "total" emission and "reasonable" estimates of spillover pollution. Thus, the problem of identifying the particular source is eliminated and there are at least some guidelines for the Administrator to consider when determining whether there is an interference or prevention of another state's standards. However, if this proposal is dependent upon NAAQSs (that is, if a receptor state must show an interference or prevention of NAAQSs), the proposal may not be very effective. As long

---

<sup>125</sup> See *supra* notes 72-78 and accompanying text (discussing inadequacy of section 7426).

<sup>126</sup> 12 ENV'T. RPT. (BNA) 745, 746 (Current Developments Oct. 16, 1981) (report of a bill proposed by Sen. Christopher Dodd (D-Conn.) Oct. 7, 1981 (S. 1718)).

as there are no national ambient standards for sulfates and acid rain, they may not be controllable under the Clean Air Act.<sup>127</sup>

Others wishing to strengthen the Act suggest that the tall stack regulations<sup>128</sup> be more stringent, since the greater the altitude of discharge, the longer a pollutant will remain in the air. In the case of SO<sub>2</sub>, this means greater opportunity for conversion to sulfates.<sup>129</sup> Finally, many others suggest that the secondary NAAQS for SO<sub>2</sub> could simply be more stringent.<sup>130</sup> This is probably the most limited solution since it does not take into account the fact that all areas are not equally affected by acid rain. Further, such a standard under the regulatory scheme of the Clean Air Act would still require accurate identification of the sources which is impossible to do with downwind concentration of sulfates.

Those proposals which seem to hold the most promise for dealing effectively with acid rain are those suggesting some type of regional approach. This approach would be more responsive to the special problems of identifying the particular sources of long-range transport pollutants and of recognizing the local nature of acid rain damage. Most of the plans suggest that the federal government identify regional transport corridors, including both polluting states and receptor states. The plans differ, however, on how or by whom the regional air quality standards for sulfates or acid rain should be set. Some think the states within the regions should negotiate among themselves, set the standards and then decide how best to meet the standards.<sup>131</sup> Others think that the regional standards should be set by the EPA or that the EPA should at least specify the percentage of emission reductions to

---

<sup>127</sup> See *supra* notes 55-56 and accompanying text.

<sup>128</sup> 42 U.S.C. § 7423(a) (Supp. II 1978) (stack heights in excess of good engineering practices).

<sup>129</sup> See *supra* notes 9-11 and accompanying text.

<sup>130</sup> See, e.g., 11 ENV'T. RPT. (BNA) 2244 (Current Developments April 4, 1980) (Sen. Edmund Muskie outlines proposals for controlling acid rain).

It is also pointed out that much SO<sub>2</sub> could be eliminated if those coal burning sources required to be in compliance with applicable SIPs were in compliance with them, if variances from the current SIPs were not granted, and if monitoring procedures of sources were strengthened to ensure SIP compliance. 11 ENV'T. RPT. (BNA) 328 (Current Developments July 4, 1980).

<sup>131</sup> See, e.g., 12 ENV'T. RPT. (BNA) 437, 438 (Current Developments July 31, 1981) (proposal by National Governor's Association). See also 11 ENV'T. RPT. (BNA) 2050, 2051 (Current Developments Feb. 27, 1981).

take place over a period of time.<sup>132</sup> However, allowing the states to decide themselves how to meet the standards, might encourage the development of other methods of control besides the source-by-source limitations.

Finally, in order to ensure that states comply with these proposed regional amendments, one commentator recommends that the Clean Air Act be amended to expressly allow states to sue other states to force them to revise their SIPs to meet the regional limits.<sup>133</sup> This plan would not only bypass the cumbersome section 7426 petitioning procedure,<sup>134</sup> but might also cure any general reluctance to the setting of regional standards. Since the 1977 amendments to the Act (which established federal air quality standards) were a direct response to the states' failure to set and achieve emission limits,<sup>135</sup> there might be reluctance to return this power to the states. However, if the receptor states were given a right of action against pollutor states and if total emissions of the polluting state into a region could be enough to establish liability, the aggrieved state might obtain a "stick" and thereby ensure compliance with the regional standards.

## VI. CONCLUSION

Many respond to the acid rain problem by facetiously asking if we should simply stop burning all fossil fuels. Of course we should not and cannot, but this does not mean that we continue burning fossil fuels without considering the consequences. Acid rain has become a major environmental problem and the cost of controlling such pollution should be considered part of the cost of burning fossil fuels.

Acid rain and the extent of its environmental damage is just beginning to surface. Although all the technical aspects of acid rain formation and its damage are not known, it is known that acid rain is largely caused by SO<sub>2</sub> emissions. Accordingly, reductions in SO<sub>2</sub> emissions will reduce the acidity of rain.

---

<sup>132</sup> See Lee, *Interstate Sulfate Pollution*, *supra* note 39, at 85; 12 ENV'T. RPT. (BNA) 560 (Current Developments Sept. 4, 1981) (part of a bill to be introduced by Sen. George J. Mitchell (D-Maine)); 11 ENV'T. RPT. (BNA) 1863, 1864 (Current Developments Jan. 30, 1981).

<sup>133</sup> See Lee, *Interstate Sulfate Pollution*, *supra* note 39, at 86.

<sup>134</sup> See *supra* notes 72-75 and accompanying text.

<sup>135</sup> See *supra* note 46.

The long-range interstate transportability of acid rain and the difficulty in identifying acid rain damage with a particular emission source enables acid rain to escape direct regulatory control under the Clean Air Act. As a result, serious inequities have developed. Upwind states can emit large amounts of SO<sub>2</sub> while downwind states receiving these emissions must set lower emission limits to meet their own NAAQSs. These downwind states must also bear the cost of acid rain damage caused by out-of-state sources. Several states are trying to use the interstate provisions of the Clean Air Act to remedy this situation, but, as yet, to no avail.

A federal common law nuisance action to abate acid rain caused by another state may be effective, but, first, the issue of displacement must be faced. The Clean Air Act has not specifically addressed the problem of controlling acid rain, and therefore a federal nuisance remedy, should supplement the "gaps" of the federal Act. However, there may be difficulty in maintaining a federal nuisance action if a causal link cannot be established between the acid rain damage and the polluting source, since there are constitutional bars against bringing an action against a state for damage done by private sources within that state.

In summary, because of the inadequacy of the current Clean Air Act and the difficulties in maintaining a federal common law nuisance action, the most effective solution for controlling acid rain appears to be amending the Clean Air Act. Those proposed amendments which seem most promising are those based on a regional approach. These approaches reflect the difficulty in identifying particular sources of acid rain and also reflect the fact that the extent of acid rain damage depends upon local sensitivities.

*Debra G. Archer*

