Clearing the Air: Some Legal Aspects of Interstate Air Pollution Problems

Kenneth L. Hirsch
Steven Abramovitz

Follow this and additional works at: https://dsc.duq.edu/dlr

Part of the Law Commons

Recommended Citation
Available at: https://dsc.duq.edu/dlr/vol18/iss1/10

This Article is brought to you for free and open access by Duquesne Scholarship Collection. It has been accepted for inclusion in Duquesne Law Review by an authorized editor of Duquesne Scholarship Collection.
Clearing the Air: Some Legal Aspects of Interstate Air Pollution Problems*

By Kenneth L. Hirsch**
and Steven Abramovitz***

I. INTRODUCTION

Firm traditions of American federalism maintain that the maintenance of health and safety is primarily a state, not federal function.1 Congress has honored those traditions in legislating against air pollution. Beginning with the first federal clean air legislation in 1955 Congress recognized the states' primary interest in air pollution regulation.2 Even today, Congress leaves the states much leeway in ascertaining local air quality and in framing and enforcing implementation plans to achieve prescribed National Ambient Air Quality Standards.3 Allocating these functions to the states is both politically and

---

*This article is an outgrowth of an inter-university research study involving faculty and students of the Duquesne University School of Law and of the Carnegie-Mellon University Department of Engineering and Public Policy, and Graduate School of Urban and Public Affairs. The study was supported by a grant, obtained by the late Professor Robert Broughton of the School of Law, from MPC Corporation. The MPC Corporation fund for Air Pollution Studies in Allegheny County comes from a payment by the United States Steel Corporation as part of a local air pollution dispute settlement. We acknowledge the assistance of the following Duquesne Law School Alumni who participated in the study. James Baggett, Craig Bluestein, Stephen Capone, Vincent deFalice, Michael Foreman, Lynette Norton, Larry Silverman, Dr. Chere Winnek-Shawer. Their work and their enthusiasm are reflected at numerous points in this article.

**Professor of Law, Duquesne University School of Law.

***J.D., Duquesne University School of Law (1979).


2. That first statute provided that "it is hereby declared to be the policy of Congress to preserve and protect the primary responsibilities and rights of the States and local governments in controlling air pollution. . . ." Act of July 14, 1955, Pub. L. No. 159, §11, 69 Stat. 322. The present Clean Air Act expresses the same idea: "[T]he prevention and control of air pollution at its source is the primary responsibility of States and local governments. . . ." Clean Air Act, 42 U.S.C. § 7401(a)(3) (Supp. I 1977).

administratively sensible. Meaningful air pollution regulation requires a local administrative presence and decisions which consider the unique circumstances of each locality. There is little reason to suppose a purely federal agency would perform these local tasks better than the present combined federal-state system; however, the present allocation of functions clearly exalts political and administrative needs at the cost of technical efficiency.

Air pollution problems cannot be confined within political boundaries. Where major industrial and population centers straddle state lines, as in the Chicago area, the Ohio River Valley and the Pennsylvania, Delaware, New Jersey and New York region, the present allocation of functions invites upwind states to benefit at the expense of their downwind neighbors. The airborne pollution entering each Air Quality Region is beyond the physical control of the Region's government. Such "background pollution" may greatly affect the pollution abatement cost and prosperity of a region. This article considers two aspects of the problem of controllable background pollution: first, what assumptions regarding future levels of background pollution must be made in framing revised implementation plans; second, what legal alternatives are available to downwind states or their residents to reduce background pollution from adjacent states?

The first question to be considered is whether the federal law requires revised State Implementation Plans to assume a continuation of existing "background" pollution levels. If it does not, some more favorable assumptions become possible. Plans might assume that the air entering an Air Quality Control Region will be in minimal compliance with the established ambient air quality standards, or they might assume minimal compliance with those standards at points within the adjacent Regions which would result in better than minimal quality at the border of the affected Region. Application of acceptable modeling techniques to these assumptions may suggest that plans may legitimately assume a quantifiable improvement in "background" levels of air pollution, at least with respect to Total Suspended Particulates.

Second, since the design and the cost of the local abatement effort depends on the success of the effort in adjacent jurisdictions, the question arises as to the availability of legal devices to permit the participation of local government, industry, and citizen groups in the formulation and implementation of pollution control plans in the adjacent Air Quality Control Regions. The greater portion of this article attempts to answer this question. It explores the possibility of regulating air quality in an interstate "airshed" by means of an interstate compact, by participation in available administrative proceedings, and by direct action in the courts.
II. **INTERSTATE ASPECTS OF AIR QUALITY PLANNING**

The Clean Air Act Amendments of 1977 required a revision of prior State Implementation Plans in areas which had not attained the National Ambient Air Quality Standards. The affected states are required to revise their planned abatement measures to assure that the Standards will be met on a set schedule. The degree of abatement required to attain the Standards depends upon the predicted prevailing background pollution. What does the law permit planners to assume about background emissions?

The term "background" pollution refers generally to prevailing pollution which is beyond the regulatory reach of local authorities. Such pollution may usefully be considered in two categories: uncontrollable emissions and controllable emissions from beyond the jurisdiction. Uncontrollable emissions in turn may be divided into two categories: particulates and gaseous pollutants. Uncontrollable particulate pollutants include such things as wind-raised dust, and pollen and particulates generated by farming activities. Among the regulated pollutants, Total Suspended Particulates is likely to present the most serious uncontrollable emissions problem. Studies suggest that in most areas, uncontrollable gaseous pollutants pose less of a problem. Table 1 shows an estimate of the relative importance of natural sources and man-made (hence, controllable) sources of gaseous pollutants.

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>COMPARISON OF GASEOUS POLLUTANT CONCENTRATIONS*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clean Air*</td>
</tr>
<tr>
<td>CO</td>
<td>0.1</td>
</tr>
<tr>
<td>SO₂</td>
<td>0.0002</td>
</tr>
<tr>
<td>NOₓ (NOₓ)</td>
<td>0.001</td>
</tr>
<tr>
<td>O₃</td>
<td>0.02</td>
</tr>
</tbody>
</table>

*parts per million

These data are intended to be only suggestive. No rigorous definition of "clean air" or "polluted air" is offered. Even so, the magnitude of the disparities between naturally occurring levels and levels in "polluted air" is striking. One could safely infer that if the background level of gaseous pollutants is high, the problem is man-made. Hence, it is theoretically controllable.

If the background level of pollutants is largely controllable, two practical consequences follow. First, federally-mandated abatement programs in other states will predictably result in a significant improvement in background levels over time. Second, in some instances local authorities or residents may benefit from efforts to influence the conduct of their upwind neighbors.

To suggest that high background pollution levels derive principally from controllable sources is to suggest that they will be reduced by abatement efforts in adjacent states. The Clean Air Act (CAA or the Act) can and should be interpreted to permit the inclusion of responsibly estimated improvements in background pollution levels. The Act does not expressly address the problem of background pollution. It does require State Implementation Plans to provide for the expeditious attainment of national primary ambient air quality standards, and the attainment of secondary standards within a reasonable time. To meet this requirement, State Implementation Plans must be designed to attain the standards while making some appropriate allowances for continued background pollution.

The regulations promulgated by the Environmental Protection Agency (EPA) under the Act, dealing with Air Quality Maintenance Planning, evidence that agency’s recognition of the problems associated with background pollution. The Control Strategy Regulations for criteria pollutants dealing with the “adequacy of control strategy” require that:

The plan shall demonstrate that the control strategy for each national standard . . . is adequate for attainment and maintenance of such standard. . . .

. . . If such demonstration is made by use of a proportional model, such model shall be one in which the following equation is employed to calculate the degree of improvement in air quality needed for attainment of a national standard:

\[
\frac{A-C}{A-B} \times 100 = \text{percent reduction needed}
\]

Where:

A = Existing air quality at the location having the highest measured or estimated concentration in the region.
B = Background concentration.
C = National Standard.

This formula does not define "background concentration." The term could plausibly be read to mean predicted background concentration where the formula is used to calculate future abatement needs.

Mr. Brian McLean, a staff attorney with the EPA Region Three office who works in evaluation of State Implementation Plans, reports that an internal policy memorandum was circulated during the spring of 1978 which is consistent with this understanding of the Act. The policy established in the memorandum is to permit State Implementation Plans to predict background emissions on the assumption that emissions sources in adjacent states will have attained compliance with their local Plans. It further provides that predictions of future background pollution levels should be based on predicted growth patterns evolved in the Air Quality Maintenance Plan for adjacent states.  

This policy means that local planning should include an analysis of background data and modeling of predicted background levels. To base local planning on current background levels might be administratively easier and cheaper, but such a policy may cause needless, expensive increases in the local abatement effort and may ultimately hurt the local economy.

Another practical consequence follows from the observation that background pollution is largely manageable; namely, that state air pollution authorities, individuals and industries may benefit by participating in Implementation Planning and enforcement in adjacent states. This consequence, however, is neither self-evident nor certain. The arguments against taking initiatives outside one's own region are plausible. They assert that efforts to influence enforcement elsewhere are unnecessary and are likely to be unproductive. They are unnecessary because the strategy of the Clean Air Act is to compartmentalize the problem and to make agencies in each region responsible for local enforcement. If each Agency does its part—and the EPA is there to compel it to do so—the job of abating pollution will be completed and background pollution will diminish without the rancor and the expense of intervention. Efforts to influence enforcement elsewhere are unlikely to be productive because most types of pollutants are capable of long range transport in the atmosphere.  

If proof that a neighboring

---

8. Telephone conversation with Brian McLean, EPA Region III (August 1, 1978).
9. The atmospheric residence times for SO₂, CO, NO, NOₓ and hydrocarbons all exceed four days. Urone, supra note 4, at 38. This permits long range transport of pollutants. Therefore, proving the source of pollution episodes would seem difficult. A slightly different problem is presented for background particulate emissions. The atmospheric residence times of the large particulates is brief. Their origin can be proved with greater certainty. But the level of natural particulate pollution is relatively high. This may make proof of unlawful conduct in the source region difficult.
region's emissions *cause* local violations is essential to a successful ini-
tiative, success is apt to prove elusive in most cases.

Several replies are also plausible. As to the necessity of initiatives one can argue that current EPA policies may be insufficient to assure effective efforts toward compliance with the Air Quality Standards in other regions. For example, a Carnegie-Mellon University Study tested two EPA-approved air quality models, the Air Quality Display Model (AQDM) and the revised Climatological Dispersion Model (CDMQC) against monitored SO$_2$ data in Allegheny County, Pennsylvania. The study reports "a linear regression [of the modeling results] was per-
formed and it was found that any value of AQDM is equal to double that of CDMQC plus 10.6 . . . AQDM typically exceeded CDMQC by two times because of the differences between the Briggs and Holland plume rises."

Similarly, Dr. James Mahoney of Environmental Research & Technology, Inc., stated that choices of models and choices of input data may lead to prediction variations of two to ten times. If the EPA accepts as adequate predictions from a variety of approved models, a local initiative to affect enforcement policies in a neighboring state might serve to require the use of input data or of a model which is less permissive than others which the EPA would allow. This would force a neighboring state to adopt a less permissive Implementation Plan and would permit the inclusion of a lower predicted background pollution level in the local Plan.

A second potential benefit from local initiative relates to the timing of efforts to attain compliance with State Implementation Plans. Local enforcement resources are limited, and to the extent that emitting sources refuse speedy and voluntary compliance with local plans, en-
forcement actions must be taken. Priorities for enforcement must be chosen, and without outside pressure the scheme of priorities may delay enforcement efforts against some sources whose victims are mostly in other states. Local initiative may seek direct enforcement against such sources or may seek to compel the EPA or the appropriate enforcement agency to act. While the 1977 Clean Air Act Amendments contain new penalty provisions designed to remove the

10. *See* Air Pollution Control Analysis for State Implementation Plan Revisions in Allegheny County 63 (1978) (an unpublished study by students and faculty of the Depart-
ment of Engineering and Public Policy and the Graduate School of Urban and Public Af-
fairs of Carnegie Mellon University) [hereinafter cited as CMU Study].


profit from recalcitrance, there is as yet insufficient experience with the operation of those sections to justify complete reliance upon them.

The 1977 Amendments to the Clean Air Act expressly recognize the possibility of interstate compacts and provide an administrative mechanism for local initiatives. Section 110(a)(2)(E) requires Implementation Plans to prohibit stationary sources from "emitting any air pollutant in amounts which will (I) prevent attainment or maintenance by any other state with any . . . national . . . ambient air quality standard . . . [and to insure] compliance with the requirements of section [126], relating to interstate pollution abatement." Section 126 has two functions. It provides for the interstate exchange of information about sources which may significantly contribute to air pollution standard violations in other states, and provides an EPA review mechanism: "Any State 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 110(a)(2)(E)(i)." If the Administrator makes such a finding, the construction or operation of the subject source is declared to "be a violation of the applicable implementation plan." The interpretation of these sections will be discussed later. The point to emphasize here is that the Act itself recognizes a limited set of potential cases where local initiatives would be productive.

The reply to the argument that local initiatives are apt to prove technically infeasible is to emphasize the word "apt." Where proof of causation of harm is legally essential—and it is not always essential since contribution to harm causation may be sufficient—technical problems of proof may rule out a local initiative. However, there may be cases in which the technical proof can be assembled; a single source near a state line contributes excessively to pollution in the adjacent state; or the aggregate of emissions from sources in one state do so.

Where the proof is available, it may be useful to proceed. The question of the availability of the necessary proof is a mixed question of law and technology. Proof of excessive emissions or of excessive contributions to an aggregate excess is simple for sources required to maintain continuous monitoring of stack emissions. Once the proof is found, the questions of whether and how to proceed arise. These are questions of law and politics. The following sections will consider the

16. Id.
available legal alternatives for proceeding against regulator agencies and against individual sources of pollution. In order to achieve a clear understanding of these alternatives, it is first necessary to consider air pollution modeling, monitoring and data analysis.

III. MODELING AND MONITORING

The problem of limiting "background" pollution is bound up with problems of monitoring and modeling air quality. "Monitoring" refers to the activity of physically measuring the amount of specified pollutants at a particular time and place. "Modeling" refers to projective mathematical techniques used to estimate existing air quality at places where there are no monitors on the basis of data monitored elsewhere. "Modeling" is also used projectively to estimate the effect of planned changes in emission patterns on air quality throughout a region.

Measurement of existing "background" pollution may use both techniques. Data from monitors positioned upwind (according to prevailing winds) from a region's population and industrial centers will approximate the "background" rate of various pollutants. Analysis of the data to factor out portions monitored on days when the wind shifted, leaving the selected monitors downwind of the population and industrial centers, will improve the approximation. The inclusion of downwind monitored data from adjacent upwind regions will further improve the approximation. Even this resulting estimate of "background" pollution will not provide an accurate estimate of "background" pollution which is subject to control in adjacent states. The estimate includes controllable industrial and vehicular components from adjacent regions. It also includes natural and agricultural components which are not controllable. The estimation of the contribution of these components to the existing "background" levels, and the estimation of the influence of future control measures in adjacent regions upon local "background" pollution levels, depend upon modeling.18

18. The related Carnegie-Mellon University study illustrates the application of these principles. The study used data from the Fayette monitoring stations in Allegheny County, Pennsylvania as the principal indicator of the level of background pollution. These data were selected because the Fayette stations lie to the west (upwind) of the major sources of air pollution within Allegheny County. These data reflect industrial and vehicular air pollution from adjacent states, along with pollution attributable to local farming and to natural causes. Time constraints prevented the elaboration of the Carnegie-Mellon University study by the inclusion of air quality data from points in West Virginia and Ohio. Analysis of the Fayette data indicates that the present background concentrations of Total Suspended Particulates attributable to interstate pollution range from 30 to
According to Dr. James Mahoney, the acceptable modeling of air pollution is one of the most troublesome problems in environmental law. Ideally a model should be a mathematical representation of how pollution carries through the air. An ideal pollution model would state that given specified emissions of pollutants at particular points under stated pertinent conditions, the resulting downwind air quality at points A through Z will be \( A_p \) through \( Z_p \). In practice, of course, things are hardly so simple. Even assuming an ideal model, the predicted air quality levels would have to be expressed in terms of a predicted range of values allowing for a stated tolerance of uncertainty due to two factors: uncertainty in the measurement of the relevant input data, and uncertainty which recognizes the potential, limited effects of marginally pertinent factors that are excluded from the model.

In practice models fall considerably short of the ideal. Modeling aims at simplification. Models are designed to abstract the most relevant features and relations in air pollution and to quantify the relationships. For example, a very simple model might ignore all factors except the tendency of pollutants to disperse in the atmosphere. Such a model would predict that without allowance for other pertinent factors, a stated emission of a pollutant at a particular place and time would be dissipated by dispersion at a stated rate so that the air quality would be uniformly affected in patterns of concentric circles with the least concentration the farthest from the emitting source. Assuming a single, momentary discharge, the model would predict that over time, dispersion would decrease the concentration in the center until eventually it reached an insignificant or unmeasurable amount.

More complex models seek to calculate the effect upon the simple dispersion principle of other important variables such as varying weather conditions, local terrain, the height of the point of discharge above ground level (stack height), chemical interactions among pollutants in the atmosphere, sunlight effects, and the effect of simultaneous emissions from multiple sources. All of these factors

---

50 \( \text{ug/m}^3 \). The inference of this data from the physical measurements at the monitoring sites was relatively direct and simple. Further inferences concerning the proportion of measured background pollution attributable to West Virginia and the proportion attributable to Ohio, and inferences concerning the probable effects of changes in emission patterns in those states upon the background level in Allegheny County are neither direct nor simple. They depend upon mathematical modeling. See CMU Study, supra note 10, at 10-57.

seem to bear significantly upon predicting the effect of the emissions of air pollutants on air quality.

Quantifying these effects to make the model accurate poses two problems. The first problem is uncertainty in the relations of the factors. Just how, and how many, pollutants will react chemically in the atmosphere remains uncertain. The effect on dispersion of a particular wind pattern over a particular terrain is also uncertain. The statistical techniques for resolving the latter problem require elaborate, expensive study. Since these factors would appear to depend more upon particular local features than upon physical laws of general applicability, research on this problem must be piecemeal, or else the terrain features must be abstracted and treated by generalized categories with a resulting sacrifice in accuracy. The numbers included in a model to reflect these features are likely to reflect an informed guess rather than "hard" data. Stated more abstractly, simple models are plainly insufficient because of their unrealistic assumptions. The insufficiency of complex models is of a different sort; it rests upon the disguised uncertainty of measurements and of the numbers inserted as reasonable guesses concerning several of the key variables. This is not to say that the complex models are as unreliable as the simple ones. However, their predictions cannot sensibly be understood as a definite, reliable figure. Instead, the predictions of the complex models are reliable only if they are understood as expressing a prediction in terms of a range of foreseeable values.

The second problem with the complex models is empirical and economic. As more factors are brought into the model, more information is required in order to apply the model. Weather information, detailed chemical analysis of the constituents of emissions, information about seasonable variations in emission patterns, and similar matters all become pertinent data for use in the complex models. Acquisition of some of these data will be difficult and expensive. Furthermore, the Clean Air Act imposes an additional level of difficulty. The Act requires states to formulate Implementation Plans which will assure that the National Ambient Air Quality Standards are not exceeded. Those Standards express permissible levels of designated pollutants for three hour, twenty-four hour, and annual levels. To verify the adequacy of an Implementation Plan, the state must be able to demonstrate by modeling techniques that its plan will lead to the attainment of the standards. Given the nature of the short term standards, this assurance requirement means that the state must employ modeling to demonstrate the predictable "worst case" in order to show that the standards will be met. The question then becomes what worst case assumptions are
appropriate. Is the state required to accumulate worst cases with respect to predicted weather and emissions from a single source, from all sources operating at once, or from some sources operating at a maximum and others at an average level? Finally, depending upon the character of the assumptions, the probability of “the worst case” actually occurring varies. The same problem is encountered in another, more familiar area, relating to flood prediction. Flood intensities and potential flood damages are customarily expressed in terms of probability over years. Thus, the “one hundred year flood” is one of a height and intensity expected only once every hundred years. A similar expression may be used with respect to air pollution. Since air pollution models are valid only in terms of the probability of their result, one can sensibly say of a particular model that the assumed abatement program will probably result in a violation of the twenty-four hour standard for a particular pollutant during two days a year every single year, or one year out of five, or one year out of a hundred.

Neither the Act nor the regulations deal with this issue, although the current proposed rule on National Ambient Air Quality Standards for Ozone provides for the problem by stipulating a “worst case” formula for meteorology based upon the second-worst monitored weather conditions over a “floating” three year period.20 Dr. Roger Westman of the Allegheny County Bureau of Air Pollution Control reports that EPA Region Three officials have informally advised him that the problem of SO$_2$ and particulates should be resolved by designing the plan using data from the second-worst day of the past five years or the worst day of the past year.21 This policy seeks to assure that the Implementation Plan will be adequate to attain the Air Quality Standards. It incidentally redefines those standards to conform them to the physical character of the pollution problem.

A further problem may be caused by the use of different models from state to state. For example, Ohio uses diffusion modeling while West Virginia uses a roll back model.22 The differences in the models

---

21. Telephone conversation with Dr. Roger Westman, Director of Allegheny County Bureau of Air Pollution Control, Pittsburgh, Pennsylvania (July 28, 1978).
22. Roll back models use proportional scaling. A simple roll back model for an area would calculate the degree of improvement in air quality required to conform to legal standards by assessing the percentage by which existing pollution exceeds those standards and “rolling back” by that percentage. This model suggests but does not require a pollution control strategy based on a uniform percentage abatement of all controllable sources. See Johnson, Sklarew & Turner, supra note 19, at 505-06; 40 C.F.R. § 51.13(3)(2) (1978). Diffusion models emphasize the separate contributors of individual sources to the aggregate problem. They rely on more detailed and individualized data and they invite
may confuse and complicate interstate proceedings to control interstate emissions problems. Each model uses different variables and/or a different interpretation of the same variables. The use of different models by different states requires special efforts to reduce the modeling results to a common standard, and to understand the strengths and the weaknesses of unfamiliar models in dealing with interstate problems. In an attempt to limit the problem and to assure the reliability of modeling prediction, EPA uses a reference list of approved models which limits the types of models that states may use.23

IV. DATA INTERPRETATION

The control of interstate air pollution requires more technical work than is suggested by the terms modeling and monitoring. Administrative agencies and courts require a claimant in an abatement proceeding to show that the emissions of his opponent are excessive24 and that they cause or contribute to the claimant’s harm. Proof of excessive emissions requires evidence of the quantity of emissions and of the relevant surrounding circumstances. Proving the quantity of emissions may be difficult.25 So may proving that the emissions cause or contribute to the claimant’s harm. That proof rests upon data interpretation: marshalling known facts concerning emissions, meteorology, engineering and topographical effects on dispersion, and atmospheric causation. The expense of an abatement proceeding and the prospect for its success depend upon the availability of data. The availability of such data may influence the choice of the form of the proceeding, the legal theory and the selection of the defendant. Specificity in terms of quantity, type and source of pollutants is essential for court actions to abate particular sources. But such specificity may not be necessary where suit is being brought to compel agency actions. For example,

strategies of abatement by individualized analysis of source emissions, abatement potentials and related abatement costs. See Johnson, Sklarew & Turner, supra note 19, at 510-23.


24. “Excessive” as used here means unlawful in the broadest sense. Currently courts and administrative agencies apply different standards derived from different bodies of law to judge permissible emissions.

25. Emissions sources subject to New Source Performance Standards or Standards for Hazardous Air Pollutants must maintain continuous, in-stack monitoring. 40 C.F.R. §§ 61.33-.34, .43-.44, .54-.55, .67-.68 (1978) (hazardous pollutants); 40 C.F.R. § 60.13 (1978) (new sources). Proof of emissions is simple. But sources not subject to those regulations are not required to monitor and to report their own emissions. Proof of their emissions would rest on agency spot checks, analysis of data from off-site agency monitors, and on indirect proof by inquiry into the nature and extent of source operations and pollution controls. This sort of proof may be expensive and may leave serious doubts.
section 110(a)(2)(E) of the CAA provides that a State Implementation Plan must contain adequate provisions to insure that local pollutants will not prevent the attainment and maintenance of the air quality standards in other states. 26 An aggrieved citizen, corporation or state could bring suit against the EPA Administrator under the review provisions 27 for approving a plan which fails to meet the standard. In this type of suit general proof will establish a prima facie case. The mere fact that under the plan pollutants will emanate from one state and will impermissibly interfere with the attainment and maintenance of air quality standards in another state should be sufficient to establish that the Administrator has approved an inadequate plan.

Whether data must be analyzed in general or specific terms, various empirical factors may interfere with an accurate assessment of a state’s responsibility for some types of airborne pollutants. Those pollutants such as \( \text{SO}_2 \) and \( \text{NO}_x \) with atmospheric residence times of four days or more may travel far and affect the air quality of many states. 28 An example of the difficulties inherent in data interpretation can be seen in a study of long-range transport of sulfates. According to Dr. James Mahoney, in one forty-eight hour period, a particular air mass transporting sulfates which originated somewhere southeast of New York State took four different approaches to Albany, New York. It would be extremely difficult, perhaps impossible, to pinpoint the source of those sulfates. It may even be impossible to establish from which state the sulfates originated. 29 The difficulty in tracing air masses on successive days and the variability of sulfate concentration with meteorological conditions illustrates some of the problems associated with data interpretation.

Assessment of data pertaining to particulate matter is complicated by various natural processes. Removal of particulates from the air before the particles can be monitored adds an unknown factor to particulate assessment. The important removal processes are: 1) Wet removal by precipitation; 2) Dry removal by sedimentation, and 3) Dry

28. Particulates have relatively brief atmospheric residence times. Large particles fall to earth or deposit on buildings and plants. Small particles may condense with others or serve as condensation nuclei for water vapor resulting in settling or washing from the air. Their short atmospheric residence time limits their potential travel and makes the proof of their source, or of at least their regional source, relatively simple. Gaseous pollutants have longer atmospheric residence times and, thus, may travel farther. This makes proof of their source more difficult. See A. Stern, H. Wohlers, R. Boubel & W. Lowry, Fundamentals of Air Pollution 25-30 (1973).
29. Mahoney Lecture, note 19 supra.
removal by impaction on vegetation. Factors such as these will have to be considered when attempting to prove violations of air quality standards by neighboring states.

Data interpretation also depends upon the methodology used to evaluate the available data. Different analytical methods applied to a single body of information may yield significantly different conclusions. Such a result may be illustrated by contrasting the "worst case" approach with a "seasonally adjusted" approach to data interpretation. An important consideration, therefore, is that an informed assessment of "background" pollution necessarily involves a critical analysis of the pitfalls associated with data interpretation.

V. BACKGROUND EMISSIONS IN STATE IMPLEMENTATION PLANNING: BURDENS AND BENEFITS

The foregoing discussion shows that background pollution must be considered when formulating a State Implementation Plan. The matrix question is how to do that. What assumptions may an agency make concerning future background pollution levels? Need it devise a plan based upon the assumption that the air at the state border will exactly conform to the minimum National Ambient Air Quality Standards? May it assume something better than minimal compliance? May it assume a continuation of present background levels? May it or must it make assumptions about future emissions patterns in adjacent states for good or for ill?

Existing statutes, regulations and administrative pronouncements do not answer these questions. The Clean Air Act only vaguely addresses the problem. Section 110(a)(2)(E) regulates transmitting states by requiring that state plans contain "adequate provisions (i) prohibiting any stationary source within the State from emitting any air pollutant in amounts which will (I) prevent attainment or maintenance by any other State of any ambient air quality standard . . . and (ii) insuring compliance with the requirements of [section 126] relating to interstate pollution abatement." Section 126, entitled "Interstate Pollution Abatement," provides that State Implementation Plans must require advance notice to affected downwind states of proposed construction or

31. A "worst case" approach takes into consideration the data for the worst instance of pollution, i.e. the day on which pollutant concentrations were the highest. A "seasonally adjusted" approach takes the data and adjusts it according to the highest seasonal concentrations of pollutants with the result that data from the "worst case" days may be disregarded entirely.
modification of significant sources of air pollution, and creates an EPA hearing mechanism to enforce section 110(a)(2)(E) against new or existing sources found by the Administrator to be in violation of the applicable implementation plan.33

The statutory goal is salutary; its meaning is doubtful. The important part of the two sections is the prohibition of emissions which will prevent the attainment or maintenance of air quality standards. What, if anything, does this mean? Two extreme interpretations will illustrate the difficulty of interpreting the mandate. First, a narrow reading emphasizing the word "prevent" might conclude that section 110(a)(2)(E) only requires Implementation Plan provisions which would prohibit an emitting state from causing a receiving state to be placed in violation of an Air Quality Standard, assuming that the receiving state was making no contributions to its own emission level for that Standard. In other words, interstate pollution is only prohibited to the extent that the interstate levels themselves are greater than the National Ambient Air Quality Standards. Such an interpretation is probably not harmonious with congressional intent. It is difficult to imagine a situation where an emitting state can simultaneously be in compliance with a Standard and still produce an interstate effect which would by itself exceed the applicable Standard. It is therefore unlikely that Congress would statutorily address such a rare circumstance.

Second, a broad reading of the same language might construe it to require Implementation Plan provisions which would prohibit a state from allowing emission levels which, when netted with a receiving state's emission level, would cause the receiving state to violate an Air Quality Standard. This interpretation would place an upwind state at a disadvantage. Merely because of the prevailing meteorological conditions an upwind state would be restricted from making maximum use of a Standard while a downwind state would not be so hampered. In fact, an upwind state could find it necessary to prohibit all emissions of a given pollutant where the receiving state has made maximum use of its permitted emission level for that pollutant. The legislative histories of the 1970 Clean Air Act Amendments, which added section 110(a)(2)(E), and of the 1977 Amendments, which added section 126, do not suggest any particular interpretation of the doubtful language. They merely note that a federal enforcement mechanism is important to the resolution of interstate problems.34

33. Id. § 7410(a), (b) and (c). Section 126(c)(2) provides a grace period for existing sources subject to the section.

The response of the EPA to the 1970 Amendments was trifling. It adopted a regulation calling upon the states to exchange information on factors "which may significantly affect air quality in any . . . adjoining state. . . ." In 1973 the National Resources Defense Council (NRDC) sought to compel the EPA to adopt an enforcement policy concerning interstate pollution provisions in State Implementation Plans. The occasion was a suit against the EPA to review its approval of portions of the Iowa Implementation Plan. NRDC argued that the mere exchange of information required by the regulation fell short of the "measures necessary to insure that emissions from sources [in any state] will not interfere with the attainment of [any] primary or secondary standard in any [other state]." The court disagreed, holding that Congress "left to the sound discretion of the Administrator the determination of what degree of governmental cooperation and other measures are necessary to insure noninterference with the attainment and maintenance of national standards."

Since the 1977 Amendments the EPA has acted to propose a regulation dealing with the interpretation problem. In guidelines for State Implementation Plan revisions for non-attainment areas the EPA declared:

Pollutants entering a state from sources in neighboring states . . . and contributing to a violation of a NAAQS . . . must be included in the demonstration of reasonable further progress and attainment. For purposes of SIP development . . . states may assume that the NAAQS will be attained by the appropriate deadlines under the act in neighboring states . . . and that all SIP requirements in neighboring states will be met. For interstate (and intrastate) urbanized areas that are non-attainment for ozone, the highest pollutant concentration for the entire area must be used in determining the necessary level of control.

Additionally, in a regulation declaring EPA requirements and policies for Implementation Plan approval for areas subject to the Prevention of Significant Deterioration Standards, the EPA adopted a Solomonic policy. At issue was the allocation of permissible "increments" of new pollution where the construction of new facilities in one state would cause a deterioration of air quality in an adjacent state.

If an interstate dispute arises before more definitive guidance can be prepared, the Administrator intends to restrict incremental amounts at

the State line. In other words, when two States are involved in an interstate dispute over increment consumption, no source or series of sources in either State can be approved for construction if they would consume over one-half of the total applicable increment at the State line. Applicable increment here refers to that increment applying in the State where such construction would occur.40

These two policies appear to mirror each other. Where there are "goods" to distribute—here, pollution increments—the affected states must share them equally. When there are "bads"—pollution beyond federal standards—they also must be shared. The regulation does not expressly state this, and the appearance may be misleading. The regulation seems to declare that upwind states are favored at the expense of downwind states. But this interpretation is illusory, for the prevailing winds are not invariable. Winds shift often enough that "upwind" states will be significantly affected by emissions from their "downwind" neighbors. Thus the policy that each state "may assume that NAAQS will be attained" in adjacent states will require "upwind" states to include anticipated background emissions from their "downwind" neighbors. The vital question is how the EPA policy is to be interpreted. Consider three possible interpretations: (1) "may" means "must"; (2) "may" is interpreted to allow an assumption that no new sources will be built in adjacent states near enough to the state line to produce a significant interstate effect; or (3) the regulation, as it comes to be enforced, includes an ongoing adjudicatory role for the EPA.

(1) If "may" means "must," the regulation is absurd. It could require each state to plan to achieve the National Ambient Air Quality Standards on the assumption that the air at the state border would be in minimal compliance with the Standards. On that assumption, only the natural processes of dispersion, chemical interaction and precipitation would improve the air quality to a point where additional emissions would be lawful. Those processes take time; and they occur as the winds disperse the polluted air. The result of the assumed interpretation would be this: Each state would be required to create a wide buffer zone along its borders where no emissions would be permitted. Chicago, Gary and all of Rhode Island would be outlawed! Further, this result would negate the mandated assumption; the mandated buffer zone would assure that the air quality at the state line would be better than the national standards, if those standards were achieved at distant points within the neighboring states. Obviously the assumption of something other than universal minimal compliance is necessary.

(2) If "may" is interpreted to allow an assumption that no new sources will be built in adjacent states near enough to the state line to produce a significant interstate effect, then something better than minimal compliance with the national standards at the state line could be assumed in drafting Implementation Plans in most areas. This assumes, in effect, a "grandfather clause" policy toward existing sources. This assumption is analytically useful, but not literally accurate. In areas not presently attaining the national standards, improvement is mandated. Section 110(a) requires the State Implementation Plan to be sufficient to achieve the national standards within the state, while section 202(b)(2) mandates that implementation plans for such areas require the implementation of all "reasonably available control technology." These two requirements applied to existing sources would produce predictable inventories of emissions sources and amounts as neighboring states enforce their plans. Each state could apply accepted modeling techniques to those inventories to derive a predictable pattern of air quality at the state line which would be the background emissions pattern assumed in the state's own implementation plan. In most areas this analytic technique would yield an assumed background emission level better than the national standards. It would therefore allow the state to plan for more emitting activities and for less emission control near the state lines than it could under our first interpretation.

(3) However, this analysis relies upon the crucial assumption of the "grandfather clause." Is that assumption warranted? If not, how are possible new source emissions to be dealt with? Initially, the assumption appears to be unwarranted. Section 203 and the related EPA regulations contemplate an emission offset policy in the states to permit economic development in nonattainment areas. Under that section, new sources may be built and existing sources may be modified if there is an offsetting reduction of pollution from other sources so that the operation of the new source will be compatible with reasonable further progress toward attainment of the national standards.\footnote{CAA § 173(1), 42 U.S.C. § 7503(1) (Supp. I 1977).} Section 203 reflects a congressional judgment that environmental goals may not completely stifle economic growth. Further, section 203 implies few geographic constraints on new source sites.\footnote{40 C.F.R. § 51 Appendix S (IV) (D) (1979). The location of offsetting emissions allows states broad discretion to locate new sources at a technically significant distance from the site of the offsetting reductions, so long as both sites are within the same Air Quality Control Region. The regulation regulates more closely the sites of offsets and new sources for carbon monoxides, sulfur oxides and particulates because "the air quality impact of [these pollutants] is site dependent." \textit{Id}.} Other regulations and
professional commentary also emphasize the need for flexibility in aspects of pollution regulation touching upon problems of site control. EPA has encouraged consideration of marketable permit programs, emission fees and emission density zoning as alternatives to first-come first-served permit allocation. These alternatives do not directly deal with the problem of interstate emissions, but they do emphasize the policy favoring state flexibility in source site control. The fact that they say nothing about interstate effects may reflect a current EPA policy against dealing with the interstate problem with regulations and guidelines.

Thus, there seems to be no broad federal prohibition of siting new sources where they will significantly affect the pollution control efforts in adjacent states. Neither is such a policy to be desired. Even in Air Quality Control Regions which have not attained the national standards there will be areas including some sites near state borders in attainment and capable of accommodating new emitting sources. A "grandfather clause" would prevent or impede construction at those sites.

If the "grandfather clause" assumption is unwarranted, how are the states to deal with possible new source emissions in calculating background levels for Implementation Plans? We are aware of no present EPA policy on this question. We would suggest that a policy should be evolved (and might be anticipated by State agencies) along the following lines:

A. Base line calculations

Existing national policy seeks to limit short run economic dislocation while implementing air quality standards. This policy is reflected in the distinction between existing and new sources in the law. Section 172(b)(2) of the Clean Air Act requires Implementation Plans for non-attainment areas to "provide for the implementation of all reasonably available control measures." New sources in non-attainment areas

---


44. Nor is there an EPA policy on new source siting control using case by case adjudication under § 126. The only § 126 action disposed of to date was a West Virginia complaint concerning emissions from an existing power plant in Ohio. That matter was resolved informally by the use of § 113 enforcement power because the plant was violating the existing Ohio requirements. The two § 126 actions pending at this writing also involve existing, rather than new, sources. Telephone conversation with Richard Rhodes, Director, EPA Control Programs Development Division, Research Triangle Park, N.C. (September 4, 1979).

must comply with the more stringent "lowest achievable emission rate." Similarly, section 111 imposes New Source Performance Standards on new sources while generally exempting existing sources. And the Prevention of Significant Deterioration requirements assume the legality of continued emissions levels based on emissions from existing sources while allowing only limited increments in emissions. New sources subject to the requirements must use the "best available control technology."

The pattern of existing sources thus forms a basis for future air quality requirements. The same policy should be used to aid the solution of the interstate emissions problem. As a first step, each state should be required to anticipate that its neighbors will continue their established pattern of emissions at each site significantly affecting interstate air quality. In the worst of areas this would result in a failure to attain national standards. Where this is true, and where sources in each state contribute significantly to the failure, a scheme of "decrement allocation" will be needed. Where the baseline concentration is better than national standards, some additional emissions affecting other states would be lawful and a scheme of "increment allocation" will be needed. The two schemes need not mirror each other.

B. Decrement Allocation

Where emissions from sources in more than one state contribute to a violation of national standards, no single state should bear the entire burden of abatement. Instead, allocation schemes should be available to determine the abatement obligations of each state. Several schemes are possible.

1. Equal decrements. Each state would be required to reduce emissions from sources within its borders by an equal amount. For example, each state might be required to reduce particulate emissions affecting the state border region by fifteen ug/m³. Such a scheme would be easy to propound but difficult and expensive to apply where most of the sources lie in one state or where the economics and technology make abatement on one side onerous.

2. Equal percentage decrements. Each state would be required to compel its sources to abate pollution in a way which would lead to a

---

48. This supposes the designation of a baseline date on which the pattern was established. See CAA § 169(4), 42 U.S.C. § 7479(4) (Supp. I 1977) (setting a baseline concentration date for Prevention of Significant Deterioration controls); CAA § 123(a), 42 U.S.C. § 7423(a) (Supp. I 1977) (setting cut-off date for "tall stack" limitations).
total percentage reduction of emissions equal to that of the neighboring state. For example, each state might be required to reduce particulate emissions along a particular segment of the border by fifteen percent of its baseline emissions. This scheme takes into account disparities in interstate emissions. The state which contributes more than its share to an interstate problem would bear a proportionately large share of the burden of abatement. Where there are multiple sources contributing to the problem, the state would be able to tailor its abatement effort to achieve the required proportionate reduction while minimizing the burdens to its economy, employment or tax revenues.

3. Technology-limited, cost-minimizing decrements. This scheme allocates decrements in light of available technology to minimize economic costs. Characteristically, the feasibility and the cost of similar abatement standards vary greatly, depending upon the type of source and its design. This scheme would require an analysis of different combinations of abatement measures. It would necessarily proceed on a case by case basis rather than by general regulation. It would require more agency work and expense than would the other schemes, but it could result in a reduced overall abatement cost. Such a scheme could be elaborated in the interest of fairness to require sources spared heavy abatement expenses to bear part of the cost of abatement borne by others. Finally, such a scheme could be agreed upon by affected states as an EPA approved modification of the results required under one of the other schemes.

C. Increment Allocation

To contrive a scheme allocating permissible increments of new emissions is easier and politically more tractable than to contrive a "decrement" allocation scheme. The precedent of equal division of increments was established for Prevention of Significant Deterioration areas in 1978.49 Other schemes could be contrived taking into account inequalities in population, existing economic developments and peculiar local circumstances such as a national park abutting a state line, making development in one state impossible. But here there are no compelling technical or economic reasons to avoid a general policy of equality. Variations from the general policy could be approved where neighboring states agree to them or could be imposed by the EPA in adjudicating proceedings under section 126(b) or as part of the EPA review of State Implementation Plans.

The use of this analysis, or of one like it, should clarify the role of state planning as part of the interstate pollution problem. The effect of this approach will be to further elaborate the division of the nation into independent compartments of states, control regions and areas for the administration of air quality controls. Until a regulatory structure such as this is adopted, the battles over interstate emissions will be fought case by case before the EPA or in the courts, or they will be resolved by interstate cooperation.

VI. ADMINISTRATIVE REMEDIES

States, local governments and residents afflicted by existing or planned pollution from adjacent states may seek administrative relief from the EPA or from appropriate state agencies. Three types of proceedings are available under the Clean Air Act: actions to abate excessive interstate emissions under section 126; actions to seek revision or disapproval of a State Implementation Plan under section 110; and actions to seek EPA enforcement proceedings under section 113. Each offers the prospect of a remedy and may offer active EPA assistance in establishing the case. Each is subject to statutory restrictions and uncertainties.

A. Section 126

Section 126(b) provides for EPA proceedings to determine whether emissions sources in other states unduly interfere with the attainment of national standards in the petitioner's state. If undue interference is found, the section provides for a declaration that the source violates the applicable implementation plan. That declaration opens the door for state enforcement proceedings and for EPA enforcement proceedings under section 113. The section 126 petition procedure is restricted to states and political subdivisions. Private parties and corporations have no separate right to invoke it. The subject of the hearing is the effect of emissions from a particular major source. The statutory use of the singular form, "any major source," invites an

52. Of course private parties may persuade public officials to petition. Once a petition is filed, the Act mandates a hearing and a determination within sixty days. CAA § 126(b), 42 U.S.C. § 7426(b) (Supp. I 1977). The so-called "Citizen suits" provision allows any "person" (including states, municipalities and corporations) to bring suit to compel EPA adherence to the statutory timetable. CAA § 304(a)(2), 42 U.S.C. § 7604(a)(2) (Supp. I 1977). But such a suit would not seem to entitle the plaintiff to participate in the hearing itself.
argument that a section 126 proceeding may deal with only one source. This interpretation would tend to favor the subject source because the statute requires a finding that the source emits or would emit any air pollutant in amounts which prevent attainment of national standards or interfere with required Prevention of Significant Deterioration measures in another state. Where the combined effect of several sources causes the problem in an adjacent state, this interpretation of section 126(b) would suggest that the petitioner or the EPA must establish that the named source is solely responsible. This interpretation would go far toward frustrating the statutory scheme. We doubt that the casual selection of the singular rather than plural form of expression can bear the substantive weight of this argument. The other choices would be to limit a petition proceeding to a consideration of a single source, or to allow multi-source petitioners. In either case the substantive question would be whether that source materially contributes to emissions which cumulatively violate section 110(a)(2)(E). We believe that a single comprehensive proceeding is the better choice. Section 126(c) allows sources in violation of section 110(a)(2)(E) to continue operations subject to emission limitations and compliance schedules. Where a violation is caused by the cumulative effects of several sources, the allocation of emission limitations necessarily will involve a consideration of all of the material sources. Efficiency and due process concerns both suggest that a single proceeding is preferable to multiple proceedings.

The foregoing discussion glosses a hard question by assuming that sources are in violation of section 110(a)(2)(E). The discussion in Part V of this article explored the uncertainties of that section. In effect, Congress enacted a platitude in section 110(a)(2)(E) derived from and only a small step removed from the Golden Rule. In 1977 Congress enacted section 126 directing the EPA to give the platitude teeth. Short of the use of the baseline and decrement analysis we set out in Part V, we do not see any principled way to apply the section. To base allocation upon the current or evolving status quo would be to encourage the kind of interstate competition for local economic advantage which the commerce clause of the United States Constitution seeks to prevent.

54. Id. (incorporating by reference § 110(a)(2)(E) standards).

55. Baldwin v. Seelig, 294 U.S. 511 (1935). See also H.P. Hood & Sons, Inc. v. Du Mond, 336 U.S. 525 (1949); Toomer v. Witsell, 334 U.S. 385 (1948); Foster-Foundation Packing Co. v. Haydel, 278 U.S. 1 (1928). These cases differ from the present problem in that they involved definite state-imposed limitations on interstate commerce. The present problem involves state efforts to permit emission limits. At some point a distinction must be drawn between "state inaction as a cause of pollution," a theory which the Ninth Circuit disapproved in Brown v. EPA, 566 F.2d 665 (9th Cir. 1977), and "state inaction as a means
A simple "equality is equity" approach would be too simple to be desirable. Ad hoc allocation decisions not founded upon a discernible rule of proper allocation would be arbitrary. Further, they would fall unpredictably. This discourages growth and encourages litigation.

B. Section 110

Section 110 of the CAA deals with State Implementation Plans. It provides for EPA approval of state plans which meet prescribed federal standards, including the interstate pollution standard of section 110(a)(2)(E). Alternatively, it provides for EPA promulgation of implementation plans or parts of plans when states do not submit plans meeting federal standards within required time limits. These requirements offer an administrative entree for private participation of right in the shaping of interstate pollution control policy.

The procedures for judicial review, affording private parties an opportunity to participate, appear in sections 304 and 307 of the Act. Section 304(a)(2) allows any "person" to sue the Administrator of the EPA in district court to compel the performance of any non-discretionary act or duty under the Act. Section 307(b) restricts judicial review of EPA regulations including the approval or the prom-
uligation of an implementation plan to the courts of appeal. A comparison of the two sections and the cases construing them suggests that section 304 offers procedural advantages to private parties, but that it is probably not available to compel useful action to control interstate air pollution. Table 2 illustrates the principal differences:

<table>
<thead>
<tr>
<th>Matter Reviewed</th>
<th>Substantive Test</th>
<th>Parties</th>
<th>Costs Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 304</td>
<td>Non-discretionary duty</td>
<td>Failure to perform duty</td>
<td>Any “person”</td>
</tr>
<tr>
<td>Section 307</td>
<td>Discretionary acts</td>
<td>Abused discretion; arbitrary, capricious act.</td>
<td>Aggrieved party</td>
</tr>
</tbody>
</table>

65. CAA § 304(a), 42 U.S.C. § 7604(a) (Supp. I 1977). Section 302(e), 42 U.S.C. § 7602(e) (Supp. I 1977), defines “person” to include “an individual, corporation, partnership, State, municipality, political subdivision of a State, and any agency, department or instrumentality of the United States and any officer, agent, or employee thereof.”
67. CAA § 304(d), 42 U.S.C. § 7604(d) (Supp. I 1977). The court’s power to award costs is not limited to cases in which the party seeking the award “prevails.” It extends to “split decisions,” see National Resources Defense Council, Inc. v. EPA, 484 F.2d 1331, 1338 (1st Cir. 1973), and it should extend to cases favorably resolved before judgment.
<table>
<thead>
<tr>
<th>Attorneys' and Witness Fees Awarded</th>
<th>Venue</th>
<th>Timing</th>
<th>Exclusivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 304</td>
<td>In discretion of court&lt;sup&gt;69&lt;/sup&gt;</td>
<td>Local District Court&lt;sup&gt;71&lt;/sup&gt;</td>
<td>Sixty Day Notice Before Suit&lt;sup&gt;73&lt;/sup&gt;</td>
</tr>
<tr>
<td>Section 307</td>
<td>Unclear&lt;sup&gt;70&lt;/sup&gt;</td>
<td>Court of Appeals&lt;sup&gt;72&lt;/sup&gt;</td>
<td>Sixty Day Limitation To Seek Review&lt;sup&gt;74&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

The language of the two sections suggests that only section 307(b) permits judicial review of the Administrator's actions under section 110(a)(2)(E). The crucial language which seems to exclude section 304 review is the limitation of claims against the Administrator to those which allege "a failure . . . to perform any act or duty under this chapter which is not discretionary with the Administrator."<sup>77</sup> The ques-

---

<sup>70</sup> On its face § 307, 42 U.S.C. § 7607 (Supp. I 1977), makes no provision for an award of attorneys' fees. However, in National Resources Defense Council, Inc. v. EPA, 484 F.2d 1331 (1st Cir. 1973), the court permitted recovery of attorneys' fees in a § 307 review proceeding, concluding that a petition for review is to be regarded as an action under § 304(a), and that an attorneys' fees award is therefore authorized by § 304(d), 42 U.S.C. § 7604(d) (Supp. I 1977).
<sup>75</sup> CAA § 304(e), 42 U.S.C. § 7604(e) (Supp. I 1977), would appear to preserve other remedies under both statutory and common law. In Kennecott Copper Corp. v. Costle, 572 F.2d 1349, 1356-57 (9th Cir. 1978), the court ruled that the Mandamus Act, 28 U.S.C. § 1361 (1976), and the Administrative Procedure Act, 5 U.S.C. §§ 701-707 (1976), were not available as supplements to § 304 jurisdiction. The court did imply, however, that in certain cases, federal question jurisdiction could be asserted under 28 U.S.C. § 1331 (1976). 572 F.2d at 1357.
tion of the manner of obtaining judicial review therefore turns on the word "discretionary." Section 110(a)(2)(E) provides, in pertinent part, that the Administrator "shall approve [a state plan] if he determines that . . . it contains adequate provisions (i) prohibiting any stationary source within the State from emitting any air pollutant in amounts which will (I) prevent attainment or maintenance by any other State of any . . . national . . . standard, or (II) interfere with [mandatory prevention of significant deterioration measures], and (ii) insuring compliance with the requirements of [section 126]." According to familiar doctrine, the introductory word "shall" suggests a non-discretionary duty. But the later language, conditioning the obligation on a determination of the adequacy of the state plan, calls for an exercise of judgment, if only because the Act furnishes no objective definition of adequacy. Two recent cases under section 304 illustrate this distinction. In *Natural Resources Defense Council, Inc. v. Train*, the plaintiff sued to compel the Administrator to list lead as a pollutant under section 108. That section provides:

> [The Administrator shall . . . publish . . . a list which includes each air pollutant—
>  
>  (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 ambient air results from numerous or diverse . . . sources; and
>  
>  (C) . . . for which he plans to issue air quality criteria under this section.]

The court first held that subsection C did not give the Administrator discretion to refuse to list pollutants after he had found the facts and exercised the judgment called for in subsections A and B. The court then held that after the Administrator had made the required findings and judgments under those subsections, he had a statutory duty to list lead as a pollutant. The court did not assert that the whole listing process was a non-discretionary duty. It only held that the Administrator's past exercise of lawful discretion to determine the health and welfare effects of airborne lead and its sources gave rise to a non-discretionary duty.

The Court of Appeals for the Ninth Circuit voiced a similar

---

82. 411 F. Supp. at 868. The reasons for this holding lay in the structure, purpose and legislative history of the section. *Id.*
understanding of the limits of the "not discretionary" language of section 304(a)(2) in Ojilato Chapter of Navajo Tribe v. EPA. There the plaintiffs had sued in district court under section 304(a)(2), inter alia, to compel the Administrator to revise the SO₂ standards of performance for new coal-fired generators. The court of appeals rejected the plaintiffs' argument that the revision was a non-discretionary duty under section 111. The court first observed that section 111 uses the mandatory word "shall" to direct the Administrator to propose new source performance standards, to allow written comments on them and to promulgate standards. It uses the word "may" rather than "shall" in connection with the Administrator's authority to revise the standards. The court next rejected the plaintiffs' argument that the legislative history showed that the Administrator had a duty to revise the standards periodically, declaring:

That may be so, but such a direction does not mean that the Administrator is without discretion in determining when action is necessary. We have no doubt that it would be an abuse of discretion for the Administrator to fail to revise a standard of performance when the evidence supporting revision became sufficiently compelling. However such abuses are not without judicial remedy. It is precisely the purpose of the new information provision of Section 307 to allow for review of this sort of abuse of discretion.

The court finally sought to define the relation between section 304 and section 307 to preserve the limited time for review of regulatory actions in section 307(b)(1) and to prevent an overlap of district court and court of appeals functions. Section 307(b)(1) requires parties to seek review of the Administrator's actions within sixty days from the date they are published in the Federal Register. Parties may petition for review of his actions beyond that time only if their petition is based solely on grounds arising after that time. The court believed that this limitation might be escaped if section 304 review were allowed whenever the Administrator refused a petition to revise a standard. It therefore held that challenges to promulgated standards, including claims that the failure to revise the standards is an abuse of discretion, must be raised under section 307 only.

This holding raised a practical difficulty. When a party seeks review

83. 515 F.2d 654 (D.C. Cir. 1975).
84. Id. at 662.
85. Id.
86. See Luneburg & Roselle, Judicial Review Under the Clean Air Amendments of 1970, 15 B.C. INDUS. & COM. L. REV. 667, 690-93 (1974). A similar distinction between §§ 307 and 304 was made the basis for the decisions in Kennecott Copper Corp. v. Costle, 572 F.2d 1349 (9th Cir. 1978) (EPA has discretion in finding that a state implementation plan
under section 307 of the Administrator's failure to act, the legal question is whether the Administrator abused his discretion. That question can only be resolved based upon some record. The court of appeals in *Oljato Chapter* held that the record must be compiled before the EPA by a petition for revision of the standard, and by submission of supporting documents. The EPA would then have to respond to the petition and set forth reasons.\(^87\)

This analysis of the relation of section 304 to section 307 was announced in review of the Administrator's role in revising new source performance standards under section 111. But it necessarily extends to decisions under section 110(a)(2) including those affecting interstate pollution controls. The structure of the two sections is similar. So is their sense. Section 111(b)(1)(B) declares "the Administrator shall publish proposed regulations . . . [He] shall afford interested persons an opportunity for written comment . . . [He] shall promulgate such standards with modifications he deems appropriate. . . . [He] shall . . . review and, if appropriate, revise such standards. . . ."\(^88\) The procedural steps are plainly mandatory. The choice of particular standards and their revision, resting on EPA expertise, are necessarily discretionary. Section 110(a) similarly mandates certain procedural steps: each state shall hold public meetings after reasonable notice; each state shall adopt and submit a plan for implementation, maintenance and enforcement of national standards.\(^89\) The Administrator is required to prepare and publish proposed regulations, conduct a public hearing and promulgate a plan if a state fails to act or acts inadequately.\(^90\) But the Administrator necessarily has broad discretion to employ technical expertise to interpret and to apply the standards of section 110(a)(2).

That subsection lists eleven standards. State plans must comply with all of them. But the standards are necessarily broadly phrased and incapable of application without the use of discretion. For example, the interstate pollution standard, section 110(a)(2)(E), requires the state plan to contain "appropriate provisions" to prevent in-state sources

---


\(^90\) CAA § 110(c), 42 U.S.C. § 7410(c) (Supp. I 1977).
from emitting pollutants in amounts which will "prevent attainment" of national standards in another state or "interfere with" Prevention of Significant Deterioration requirements. Most of the previous text of this article illustrates the necessity of discretion in applying this subsection. The discretionary aspect of the Administrator's role under section 110 also extends to his decision to promulgate his own regulations after finding a state plan to be insufficient.

In either situation, the need for administrative discretion means that judicial review of substantive decisions will be governed by section 307(b). It follows that persons or groups wishing to secure judicial review of the adequacy of state plan provisions dealing with interstate pollution must seek review within sixty days of the EPA approval (or promulgation) of the state plan. Those who meet the statutory deadlines must still bear the burdens relating to standing, venue (in the court of appeals for the circuit including the neighboring state), and expense detailed in Table 2.

Persons seeking to change EPA policy on interstate pollution controls after the sixty day appeal period will be required either to pursue the EPA petition route detailed in *Oljato Chapter*, enlist the participation of the state or a political subdivision to commence a section 126 petition, or seek a remedy outside of the Clean Air Act.

**VII. THE COMMON LAW ALTERNATIVE**

The possibility of a remedy outside of the Clean Air Act is preserved by section 304(e), which specifically saves common law remedies and proceedings from federal preemption. This raises the possibility that

---

92. CAA §§ 304(e) and (f) provide as follows:
   (e) Nonrestriction of other rights

   Nothing in this section shall restrict any right which any person (or class of persons) may have under any statute or common law to seek enforcement of any emission standard or limitation or to seek any other relief (including relief against the Administrator or a State agency). Nothing in this section or in any other law of the United States shall be construed to prohibit, exclude, or restrict any State, local, or interstate authority from—

   (1) bringing any enforcement action or obtaining any judicial remedy or sanction in any State or local court, or

   (2) bringing any administrative enforcement action or obtaining any administrative remedy or sanction in any State or local administrative agency, department or instrumentality, against the United States, any department, agency, or instrumentality thereof, or any officer, agent, or employee thereof under State or local law respecting control and abatement of air pollution. For provisions requiring compliance by the United States, departments, agencies, instrumentalities, officers, agents, and employees in
some form of common law nuisance action may prove preferable to proceedings under the Act. This section of the article explores some aspects of that possibility involving government suits against neighboring governments or polluters. It excludes other applications of nuisance law to air pollution control because they are well discussed elsewhere.  

The usefulness of common law nuisance claims depends upon the answers to a number of technical legal questions. Where does a state derive its right to bring such a suit? Who are the proper parties to the suit? In what forum should suit be brought? What law shall govern? What are the available remedies? Available cases will be examined for guidance in answering these questions. Most of these cases have dealt with water pollution problems, but their resolution will surely guide the resolution of air pollution suits.

Why consider an interstate suit in the first place? A state has the responsibility to protect the health, welfare and safety of its citizens. This includes a responsibility to protect the public from serious harm
States clearly have the power to control polluting activities within their borders. The problem lies in the fact that a state has no power to regulate outside of its own jurisdiction. If a state is to have relief from pollution originating in other states, the right to seek judicial remedies from outside interference must be recognized.

A. Source of Claim

Upon what theory should one proceed when bringing an action based on interstate air pollution? The choices appear to be three-fold: state law, federal common law or federal statute. Various consequences depend upon the choice.

State nuisance law could be used against a non-resident polluter to compel abatement. Such an action could be brought in a court in the polluter's state or in the victim's state. Each state has sufficient interest in the controversy to justify an application of its own law should there be a conflict. "Long arm" jurisdiction over the defendant can be obtained constitutionally where the defendant's existing emissions cause harm in the forum state. But a suit to control a new source before it begins operations may be beyond the reach of "long arm" jurisdiction, absent other contacts between the defendant and the forum state. Assuming that jurisdiction over the non-resident can be achieved, a nuisance action, like most tort actions, requires a showing of "injury in fact" and "injury causation." If long arm jurisdiction presents difficulty, the plaintiff may have to proceed in a neighboring state. If the establishment of a prima facie nuisance case presents difficulty, the plaintiff may have to generalize his action to one against the polluter's state.

Problems of jurisdiction or proof of injury causation might also be avoided by an enforcement action under section 304 of the Clean Air Act. That section of the Clean Air Act, discussed above in connection with actions against the EPA, also allows so-called citizen suits against polluters. This part of the section may prove to be a useful device for abating background pollution. Section 304 avoids the principal difficulties with state nuisance laws. Jurisdiction is no problem, and the plaintiff need not prove the defendant caused him harm. But it is limited in ways which prevent its use in most cases.

Section 304 creates a simply proved cause of action. It authorizes a civil action against any person (including a government entity) who is in violation of ""(A) an emission standard or limitation under the act, or (B) an order issued by the Administrator or a State with respect to such a standard or limitation,"" to the extent permitted by the

eleventh amendment. It avoids proof of the private harm requirement by permitting any "person" to sue. This illustrates the congressional determination that "any person" has sufficient interest to sue to protect a universal resource such as clean air.

Section 304(b) limits the citizen suit provision in three ways. It requires the plaintiff to give 60 days notice to the alleged violator, the state in which the violation occurred and to the Administrator, before the action is commenced. It forbids a citizens' suit where the Administrator or the state is diligently prosecuting a civil action to enforce compliance with "the standard, limitation or order" pursuant to the Clean Air Act. And the section only provides for suits to enforce existing emission standards or limitations. It thus cannot be used to enforce a stricter standard than that imposed in the state plan. Particular interstate pollution problems may require a stricter standard.

When the state is the plaintiff, it may rely on a separate body of substantive law—the federal common law derived from the common law of nuisance but elaborated to recognize the peculiar problems of interstate regulation. The federal common law differs from state law in several ways. One important difference concerns the immediacy and concreteness of the plaintiff's interest. When a citizen brings a nuisance suit, he must prove that the defendant caused a harm to the plaintiff's individual health or proprietary rights. By contrast, the federal common law approach to litigation in the area of interstate pollution finds its best expression in the concept of parens patriae. When suing in this capacity, the receiving state is bringing suit in order to protect the general health, welfare and property rights of its citizens. There is ample authority to support the states' right to sue in federal courts in this capacity on interstate pollution questions. When the state sues in this manner, it does so to protect a legitimate state interest, not just the rights of private parties. The United States Supreme Court made this clear some seventy years ago in Georgia v. Tennessee Copper Co. Georgia sued in its capacity as a "quasi-sovereign," asserting an interest in all the air and water within its domain. It sought to enjoin the defendant copper companies from discharging noxious gases from their works in Tennessee into

95. U.S. CONST. amend. XI.
96. See note 65 supra.
Georgian territory causing damage to the forests, most of which were privately owned. The Supreme Court there said:

It is a fair and reasonable demand on the part of a sovereign that the air over its territory should not be polluted on a great scale by sulphurous acid gas, that the forests on its mountains, be they better or worse, and whatever domestic destruction they have suffered, should not be further destroyed or threatened by the act of persons beyond its control.\(^{102}\)

The Court also referred to the abatement of pollution through the private nuisance doctrine and implied that this doctrine may be used in disputes involving a state as a plaintiff. Finally, the decision is notable for extending the *Missouri v. Illinois*\(^{103}\) remedy to private defendants who were beyond the reach of Georgia's courts.

Later, in *Pennsylvania v. West Virginia*,\(^ {104}\) the Supreme Court held that Pennsylvania's interest in preventing serious detriment to the health, welfare, and comfort of its citizens gave it standing to contest the court action of West Virginia which would have limited the supply of natural gas transported from West Virginia for use in Pennsylvania.

In these and other cases a state has successfully sued a party outside its borders to prevent environmental harm caused by actions over which the complaining state had no control. Two important developments resulted from these early cases. One was the recognition of a state's *parens patriae* interest as an analogue to private standing requirements. The second and probably more important development was the introduction of federal common law to the environmental field.

The federal common law is borne out by modern cases. For instance, in *Texas v. Pankey*,\(^ {105}\) Texas sought to enjoin New Mexico residents from using chlorinated camphene pesticide, which as a result of rainfall carriage, allegedly would pollute interstate waterways which were the source of water supply for eleven Texas municipalities. The court of appeals held that the state enjoys a federal common law right to have its waters flow free from improper impairment by sources outside the state.\(^ {106}\) In *Illinois v. City of Milwaukee*,\(^ {107}\) the Supreme Court declared that a state as *parens patriae* had a right under federal common law to be protected against water pollution arising from sources outside of its own border. Since the sewage discharge being contested in that case

---

102. *Id.* at 238.
103. 180 U.S. 208 (1901). For a discussion of this case see text accompanying notes 140-44 *infra.*
104. 262 U.S. 553 (1923).
105. 441 F.2d 236 (10th Cir. 1971).
106. *Id.* at 240.
would have resulted in a substantial impairment of the health and welfare of residents of the affected area, the state was the proper party to bring suit.

Federal common law in the area of environmental law originated long before the enactment of modern federal anti-pollution statutes. Those statutes allow states to promulgate their own pollution standards as long as they meet minimum federal standards. The problem that arises is to reconcile state standards with the rules of federal common law. In *Illinois v. Milwaukee*, the Court commented that a "state with a high water quality standard 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." This statement implies that the Court will apply federal common law in interstate suits to compel an offending state to take abatement action even if the offending state is within the limits of its own state plan, so long as it is causing a neighboring state to violate its chosen standards. This seems an extreme position; it remains unsupported by any holding in the cases. A less extreme position for the federal common law would be to compel abatement where the defendant state materially interfered with the plaintiff state's attainment of federal standards.

Clearly, judge-made federal common law will yield to federal statutes. Does this mean that causes of action dependent upon the Clean Air Act or the Federal Water Pollution Control Act cannot be asserted under the general federal question jurisdiction statute, but are bound by the limitations of the provisions in those statutes? In *Massachusetts v. United States Veterans Administration*, the court suggested just that. Massachusetts charged a Veterans Administration hospital with pollution discharge in violation of the Federal Water Pollution Control Act. The state sued under section 1365 of the Act, the "citizen suit" section which mirrors section 304 of the Clean Air Act, and under the general federal question statute. Massachusetts did not meet the time and notice requirements of the citizen suits section. Therefore, the suit failed under the Federal Water Act. The court dismissed the federal question claim because of sovereign immunity. But, the court remarked that the Federal Water Pollution Control Act may have preempted portions of the federal common law of nuisance. This doubt seems ill-founded. At least it seems so if the court meant to

---

108. Id. at 107.
110. 541 F.2d 119 (1st Cir. 1976).
113. 541 F.2d at 123.
limit stringently the federal common law. In dicta clear and considered the Supreme Court declared that the federal common law of nuisance was not undone by the Federal Water Pollution Control Act.\(^{114}\) Lower courts have so held, at least in water pollution cases.\(^{115}\) While they have not had occasion to consider the question in air pollution cases, nothing in the structure or purpose of the Clean Air Act suggests a different result. Moreover, Congress has amended the Federal Water Pollution Control Act and the Clean Air Act since these decisions without purporting to change the result of the cases. This at least suggests congressional acquiescence in their statement of the law.

Since federal statutes allow the states to promulgate their own pollution standards, there are different pollution requirements throughout the nation. Each state may insist that its standards are to govern disputes in its courts. Each has a notable economic interest in shifting the burden of environmental improvement to other states and to their residents. Their motives are suspect. Moreover, the mechanisms of state statutory control, consisting of administrative permits and enforcement mechanisms, cannot well apply in neighboring states. Thus for constitutional\(^{116}\) and practical reasons, federal standards should apply to resolve interstate environmental disputes. Those federal standards may still be evolved by common law decision. As the court said in *Texas v. Pankey*:

> Until the field has been made the subject of comprehensive legislation or authorized administrative standards only a federal common law basis can provide the adequate means for dealing with such claims as alleged federal rights. And the logic and practicality of regarding such claims as being entitled to be asserted within the federal question jurisdiction of § 1331(a) would seem to be self-evident."\(^{117}\)

Although there has been much federal legislation in the field since this statement, it has not developed sufficiently to warrant a court to place complete reliance upon federal statutes and to eliminate the federal environmental common law.

### B. Remedies

The next major problem encountered in interstate pollution suits

\(^{114}\) See Illinois v. Milwaukee, 406 U.S. at 104.


\(^{116}\) See note 95 and accompanying text *supra*.

\(^{117}\) 441 F.2d at 242.
concerns the molding of an adequate remedy. Most environmental suits involve a request for injunctive relief. The plaintiff asks the court to order the offending party to immediately cease polluting or to meet a court-ordered abatement schedule. Injunctive relief is available against public and private nuisances, and to enforce statutes and ordinances.

The major obstacle in obtaining injunctive relief is the plaintiff's burden of proof. The plaintiff must show that material harm has occurred or is reasonably certain to occur. In public health cases tried on common law nuisance theories this is often hard to do. Usually there is a long period between the initial exposure to the pollutant and the subsequent discovery of a health hazard. Proof of a causal link between the pollutant and the harm is also difficult. The amount of exposure to the pollutant necessary to cause injury is likewise hard to prove. That the defendant can usually show some immediate financial loss if he is forced to cease operation causes additional complications.118

Compounding these difficulties, a more stringent burden of proof applies in suits between two states. In such suits a greater burden is imposed on the complainant than in an ordinary environmental suit. In New York v. New Jersey119 the Court stated: “Before this court can be moved to exercise its extraordinary power under the Constitution to control the conduct of one state at the suit of another, the threatened invasion of rights must be of serious magnitude, and it must be established by clear and convincing evidence.”120 The Court also held in North Dakota v. Minnesota that “the burden of proof that the state... must carry in this case is much greater than that imposed on the ordinary plaintiff in a suit between private individuals.”121 For the injunction to be a useful tool for the abatement of pollution it may be necessary for the courts to relax the usual burden of proof required before an injunction may issue. It has been forcefully argued that “existing concepts of cause-in-fact place potentially severe restraints upon the ability of the legal system to respond to the need to minimize the risks of future environmental injury.”122 Where evidence, even of a predictive nature, demonstrates a potential risk to human health it should not be slighted merely because it fails to clearly establish a causal link between the defendant's alleged conduct and the resultant

118. For a further discussion of this problem see Note, Updating the Injunction to Protect Human Health and Safety, 11 SUFFOLK U. L. REV. 114 (1976).
119. 256 U.S. 296 (1921).
120. Id. at 309.
121. 263 U.S. 365, 387 (1923).
harm. The classic judicial device of reallocating the burden of proof could achieve this. It may be practical to presume injury causation when the plaintiff shows the defendant to be emitting some pollutants. Such a presumption would cast upon the defendant (the alleged injuring party) the responsibility of demonstrating that his emissions have not caused injury to the public. Such a presumption seems warranted at least with respect to pollutants listed by the EPA under section 108 of the CAA, where the plaintiff proves that the defendant’s emissions contribute to a level of listed pollutants in the ambient air in excess of national standards.

As modeling and monitoring techniques become more refined and therefore more reliable, the courts will place increased evidentiary value upon the results of such methods as meeting some of the plaintiff’s burdens of proof. A recent decision by the United States Court of Appeals for the Sixth Circuit provides a useful example of how the results of modeling and monitoring techniques can be used as evidence to establish the source, type and amount of interstate pollutants and their effect upon background concentration levels in a receiving state. In Cleveland Electric Illuminating Co. v. EPA, the court had to decide whether EPA’s adoption of the Real-Time Air Quality Simulation Model (RAM) for predicting sulfur dioxide emissions and for fixing maximum levels of sulfur dioxide emissions by specific sources was arbitrary and capricious or beyond the agency’s authority under the Clean Air Act. RAM is a dispersion model, and the court approved its use because of the many relevant factors that the model considers so that the computer analysis reflects actual conditions. Input data for the RAM model includes stack height, spatial orientation of sources to each other, topography of the area, and weather conditions. Because of these varied types of data that go into this model, the court concluded that the data base was accurate enough to reflect actual conditions and that because of this, the model was reliable. The court therefore approved the EPA-promulgated plan for Ohio.

The import of the Cleveland Electric case is that it provides a precedent for the use of this type of modeling information to prove the source and amount of pollution in litigation. The decision will perhaps

123. Indeed, we would go further. We believe that the federal common law could be used as a device for performing the constitutional role of allocating the burden of control among the states, to the extent that the EPA may fail to perform that role under §§ 110 and 126. This use retains the reasonable conduct standard of nuisance law but abandons notions of proof of present harm altogether.
125. Id. at 1160-63.
126. Id. at 1164.
extend to aspects of evidence and proof for interstate suits. The receiving state could introduce evidence based on a model like RAM and from that evidence show the defendant’s contribution to the plaintiff’s pollution problem. The model could also be used to show how much abatement should be required of the defendant to produce the desired effect on the plaintiff. Of course the decision is not conclusive on this point. A court may readily conclude that EPA use of the model is not arbitrary when the EPA must use some model. The same court might remain skeptical about the value of data derived from the model as proof of a defendant’s common law violations. Still, the courts are increasingly familiar with modeling as the best available technique in many cases for relating emissions from individual sources to reception at other points. This familiarity is likely to reduce their skepticism of modeling evidence to justifiable proportions. It may also lead to a change in the current rule that the plaintiff must prove each element of his case by a preponderance of the evidence or more. There may be sufficient reason for the law to act against a proved polluter if a plaintiff proves there is reason to believe abatement of the pollution would materially lessen the harm from pollution, even if the evidence does not justify saying that the belief is “more likely true than not true.” The Clean Air Act—which does not require proof of the harm caused by individual sources—suggests the desirability of such a change.

Early parens patriae cases allowed injunctive relief. Recently, the courts have recognized the state’s right to recover damages. In Hawaii v. Standard Oil Co.,\textsuperscript{127} a federal district court allowed a parens patriae action for damages. The first case to permit an award of damages under the parens patriae doctrine for injury to the environment was Maine v. M/V Tamano.\textsuperscript{128} In that case, a tanker spilled 100,000 gallons of oil into Casco Bay. The state sued for damages to its coastal waters and marine life as well as for clean-up costs and property damages. The court said:

\begin{quote}
If Maine can establish damages to her quasi-sovereign interests in her coastal waters and marine life, independent of whatever individual damages may have been sustained by her citizens, there is no apparent reason why the present action to recover such damage cannot be maintained. In the view of this court the complaint states a viable parens patriae cause of action which cannot be dismissed at this stage.\textsuperscript{129}
\end{quote}

The courts have recognized a state’s right to bring suit when its en-

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{127} 301 F. Supp. 982 (D. Hawaii 1969), rev’d on other grounds, 431 F.2d 1282 (9th Cir. 1970).
\item \textsuperscript{128} 357 F. Supp. 1097 (D. Me. 1973).
\item \textsuperscript{129} Id. at 1102.
\end{itemize}
\end{footnotesize}
vironment has been degraded by either another state or by individuals. An interstate air pollution law suit should, however, be resorted to only in carefully chosen cases because of the obstacles and uncertainties which exist in this type of suit. Assuming that the problem of applicable law, methods of proof, and measurement of damages can be overcome, there still exists the substantial cost factor associated with prolonged litigation and the possibility of recovering only minimal compensation.

Despite these obstacles and uncertainties, the interstate suit may in some cases be the only "practical" method of abating background air pollution. The alternatives available for the control of interstate pollution—the section 126 petition and the interstate compact—have thus far proved to be ineffective or as yet untried.

C. Proper Forum

The proper forum for interstate suits depends upon the identity of the parties. When the plaintiff is the state, the defendant's identity and the type of claim which is asserted will determine whether the suit may be brought in the Supreme Court, a lower federal court, or a state court. When the plaintiff is not the state, original Supreme Court jurisdiction is ruled out, but the other possibilities remain.

The eleventh amendment to the United States Constitution limits interstate suits in the Supreme Court and in lower federal courts. The principal effect of the amendment is to bar federal court suits by private parties against states. The case law construing the amendment is subtle, with many variations and some lingering uncertainty. Thus the cases distinguish suits against a state from suits against state-created municipalities and corporations. But the distinction does not rest upon the existence of a state charter. Instead it rests upon the court's consideration of various factors, including the defendant's statutory independence from the state, its possible immunity from suit in state court, the status of similar bodies in other states, whether it acts in its own name or in the name of the state, and the degree and character of control which the state exercises in its affairs. Similarly, suits against state officials to control their official conduct may or may not be barred by the eleventh amendment, depending upon the office of the defendant and the kind of action which is demanded. Suits to

130. U.S. Const. amend. XI. The eleventh amendment provides that "[t]he 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."
restrain unconstitutional conduct are permitted, as are suits to hold the defendant personally liable for past wrongs. But where the effect of the suit would be to compel payment from the state, it may be barred as a suit against the state, or permitted if the effect on the state treasury is "ancillary" or "indirect."

This sketch of the elaborate body of law is illustrative, not comprehensive. It suggests that state environmental agencies, which exercise state regulatory powers, are immune from common law suits by private parties in federal courts. Nor can such actions be commenced as citizen suits under section 304 of the Clean Air Act. That section provides: "Any person may commence a civil action on his own behalf—(1) against any person (including (i) the United States, and (ii) any other governmental instrumentality or agency to the extent permitted by the Eleventh Amendment to the Constitution). . . ."

This analysis of the eleventh amendment leaves open the possibility of a suit by private parties, as well as the possibility of a suit by one state (or its environmental agency) against another state, its environmental agency, or private parties. While the eleventh amendment has been construed to prohibit a suit by one state against another state on behalf of its citizens who have legally cognizable injuries, states have been allowed to sue other states in two situations: (1) where the state itself suffers injury, such as damage to the economy, or (2) where the general public suffers an injury so that no individual has legal standing to sue. Causes of action arising out of background pollution may satisfy both of these requirements. As a result of such pollution a state may be injured in its own right. Pollution from sources outside of its borders may cause one or more of the state's air quality control regions to violate the air quality standards. Industry may shy away from the affected region because of the expense involved in attempting to comply with the applicable standards. Growth in that region may be retarded and the economy of the state may suffer. The second situation—injury to the general public—gives the state standing as the guardian of the health, safety, and welfare of its residents.

134. Thus, cases challenging the validity of state restrictions on the classes of people eligible for welfare benefits have been permitted despite their effect upon state expenditures. See, e.g., Graham v. Richardson, 403 U.S. 365 (1971) (forbidding state officials to deny welfare benefits to resident aliens).
137. 5 Seton Hall L. Rev. 394, 402 (1974).
In suits between the states, the only proper forum is the Supreme Court of the United States. Article III of the Constitution declares: "In all cases in which a State shall be a Party ... the Supreme Court shall have original jurisdiction." Federal statutes have gone further and declared the Supreme Court's jurisdiction of such suits to be exclusive. This rule applies without difficulty to cases between two states. But when one party is a state agency, political entity, or state official, the availability of original jurisdiction in the Supreme Court depends upon a problem of interpretation: Does the party litigate as a representative of the state? Generally the answer to this question depends upon an analysis similar to that under the eleventh amendment. The Supreme Court's approach to this problem has changed over the years. In the nineteenth century the Court faced this problem in Missouri v. Illinois. In the Missouri suit the Court said that the Sanitary District of Chicago was a corporate agency of the State of Illinois acting within its authority, thereby making Illinois a proper party defendant and thus invoking the Supreme Court's original jurisdiction. The mere chartering of the sanitary district to perform a public function made its subsequent acts those of the state, and left the state as a proper defendant. Since the state was a named defendant, the suit was one between two states. It therefore was within the mandatory original jurisdiction of the Supreme Court.

Chief Justice Fuller and Justices Harlan and White dissented. They found no wrong alleged against the state. The act of chartering the sanitary district was not an actionable wrong to Missouri. The state did not require the district to commit the alleged wrong, and at the time of the suit the state retained no discretion in the matter. A decree against the state could not directly affect the flow of sewage. For this reason the dissenters believed the action against the state should fail. This would leave only the action against the sanitary district which today would be deemed a corporation, thus a citizen of the state, but not the state itself.

In New York v. New Jersey the Supreme Court followed the agency theory of the Missouri case. In the New Jersey case the State of New York sought to enjoin the Passaic Commission from discharging...
sewage into the Upper New York Bay. The Court found that the actions of the Commission were directed and authorized by the state legislature, thus making the Commission a corporate entity of the State of New Jersey. New Jersey was properly joined as a defendant the suit was therefore within the Supreme Court’s mandatory original jurisdiction.

In 1972 the Supreme Court appeared to declare the continuing force of this agency theory. In Illinois v. Milwaukee, the Court refused to hear a water pollution suit by Illinois against four Wisconsin cities and two sewerage commissions. The Court noted that all of the named defendants were political subdivisions of the state, thus making them citizens of the state for purposes of federal jurisdiction. Therefore the suit was within the concurrent jurisdiction of the district court, and not within the mandatory jurisdiction of the Supreme Court. However, the Court stated: "Under our decisions there is no doubt that the actions of public entities might, under appropriate pleadings, be attributed to a State so as to warrant a joinder of the State as party defendant." The Court then recited the holdings of the Missouri and New Jersey cases and concluded that "Wisconsin could be joined as a defendant in the present controversy [but] it is not mandatory that it be made one."

If this dictum represents the present law, then an action by a state as parens patriae may proceed in the Supreme Court against another state’s environmental authorities—the other state is deemed to be liable on agency principles. But there may be reason to doubt the dictum. Where the environmental agency defendant is a separate corporate body, which the executive branch does not control, the mere inaction of the state may not be a sufficient wrong to justify a remedy or to support the exercise of original jurisdiction. While there is no direct authority on point, the Detroit desegregation case of Milliken v. Bradley seems relevant to the question. There the state of Michigan and the Detroit School Board were sued in the federal district court. The district court found both defendants had actively pursued a policy of de jure segregation. The court ordered desegregation by a busing
plan which disregarded existing school district boundaries. The Supreme Court reversed the order, holding that the district court lacked the authority to impose a remedy on other districts absent a finding (A) that they participated in de jure segregation,\textsuperscript{155} or (B) that the state drew the district boundaries to promote segregation.\textsuperscript{156} Justices Douglas, White, Brennan and Marshall dissented.\textsuperscript{157} They thought the order was within the district court's authority because the "innocent" districts were creatures of the "guilty" state, and were subject to its control. The state had the power to change the district boundaries to effect the required remedy.\textsuperscript{158}

Now remedial doctrines need not mesh neatly with jurisdictional doctrines, and desegregation orders pose difficult problems of judicial administration and of politics which pollution problems do not. Yet \textit{Milliken} suggests that the agency theory has limits. If a court lacks the power to coerce an actively "guilty" state to manipulate its "innocent" agents, it takes only a short step to conclude that a court lacks the power to compel an inactive state to correct its "guilty" subdivisions. The judicial power should work directly upon the "guilty" party. This step would leave the passive state an improper defendant, and would leave cases like \textit{Missouri} and \textit{New Jersey} outside the Supreme Court's mandatory jurisdiction.

The Supreme Court has reason to take this step. Its appellate docket has grown too large and the appellate cases too important for the nation to permit the Court to undertake cases which could as well be tried elsewhere. Even in suits which are clearly between two states, the Court looks to the importance of the claim in deciding to hear it. The Court has said the claim must be serious and of great dignity to be heard,\textsuperscript{159} and that it will not exert its extraordinary power to control the conduct of one state at the suit of another unless the threatened invasion of the state's right is of a serious magnitude.\textsuperscript{160} And the Court may refuse to exercise original jurisdiction if another forum is available in which jurisdiction may be had over the parties,

\textsuperscript{155} 418 U.S. at 744-45.
\textsuperscript{156} \textit{Id} at 746-47.
\textsuperscript{157} \textit{Id} at 762 (White, J., dissenting). Justice Douglas also filed a separate dissenting opinion in which he contended that regardless of the state's intent or purpose in drawing the district lines, the effect of those lines was to create a system of black schools and white schools, and that the task of the courts was to provide a unitary system. \textit{Id} at 757 (Douglas, J., dissenting).
\textsuperscript{158} \textit{Id} at 764-65 (White, J., dissenting); \textit{id} at 808-09 (Marshall, J., dissenting).
\textsuperscript{160} Washington v. Oregon, 297 U.S. at 522.
where the issues may be litigated, and where appropriate relief may be obtained.

Where the Court's jurisdiction is not exclusive, the Court is unwilling to hear cases. Section 1251(b)(3) of the Judicial Code\textsuperscript{161} provides that the Supreme Court shall have original but not exclusive jurisdiction of actions or proceedings by a state against a citizen of another state. The Court in \textit{Illinois v. Milwaukee} went on to say that if the city of Milwaukee could not be sued in a federal district court then the original jurisdiction of the Supreme Court was not mandatory.\textsuperscript{162} In such cases the Court exercises original jurisdiction only for important reasons. The problem, then, is whether an environmental suit of this nature could satisfy the requirements for a suit in federal district court.

Where an action is brought pursuant to the citizens' suit provision of the Clean Air Act, there is clearly no problem with obtaining federal district court jurisdiction. Section 304 of the Act provides for such jurisdiction without regard to the amount in controversy.\textsuperscript{163} When an environmental suit is brought without the benefit of such a statutory provision, consideration must be given to the Judicial Code and the pertinent case law.

Under section 1331(a) of the Judicial Code,\textsuperscript{164} a federal district court has original jurisdiction of all civil actions in which the amount in controversy exceeds the sum of ten thousand dollars, and arises under the constitution, laws, or treaties of the United States. In \textit{Glenwood Light & Water Co. v. Mutual Light, Heat & Power Co.},\textsuperscript{165} the Court held that the interest involved in a suit to enjoin a nuisance created by electric wire poles satisfied the jurisdictional amount needed for federal court. Similarly, the court in \textit{Texas v. Pankey} said that the impairment of ecological rights of a state by sources outside of the state is a matter having its basis in federal common law and, therefore, constitutes a question arising under the laws of the United States.\textsuperscript{166} It can be concluded that when a state commences an action against a municipal polluter outside its own boundaries, the appropriate court to hear such suit is a federal district court, unless the offending party is another state, in which case the Supreme Court is the proper forum.

\textsuperscript{162} 406 U.S. at 108.
\textsuperscript{163} CAA § 304(a), 42 U.S.C. § 7604(a) (Supp. 1977).
\textsuperscript{165} 239 U.S. 122 (1915).
\textsuperscript{166} 441 F.2d at 240.
VIII. AN INTERSTATE COMPACT AS AN AID TO INTERSTATE POLLUTION CONTROL

A theoretically attractive solution to the problem of controlling background air pollution is to internalize it by creating an enforcement agency with interstate powers. Such a solution is particularly attractive where there is a geographic cluster of pollution sources spanning state lines.\footnote{167} A concentration of air pollution sources in a relatively small, well-defined area prompts the inference that air quality regulation by an interstate agency may be more desirable than regulation by two or three independent state agencies.\footnote{168}

Recognizing the need for effective interstate air pollution control, this section will evaluate the possibility of a formal interstate compact as an administrative device for regulating background air pollution in interstate problem areas. Such compacts would create interstate agencies to regulate air quality throughout industrial regions.

Congress has acted equivocally concerning the creation of such compacts. In the Clean Air Act, Congress expressly encouraged the formation of air pollution control compacts between neighboring states. Section 102 of the Act declares the congressional intent to "encourage the making of agreements and compacts between states for the prevention of air pollution."\footnote{169} Federal financing is authorized by section 106 "[f]or the purpose of developing implementation plans for any interstate air quality control region."\footnote{170} This section allows federal financing of all of the air quality planning program costs for two years, and seventy-five percent of the cost beyond the second year. Such a generous funding arrangement demonstrates the lawmakers' recognition of the usefulness of interstate compacts as one means of attaining the required air quality standards within interstate airshed regions. On the other hand Congress has refused the necessary consent to the few compacts which the states have adopted.

\begin{itemize}
\item \footnote{167} The cluster of water sources of air pollution along the Ohio River and its tributaries in Ohio, West Virginia and Pennsylvania exemplifies this problem. \textit{See E. Rubin \& H. Bloom, Maintenance of Ambient Particulate Standards in an Industrial Region 13 (1975); E. Rubin \& R. Dunlap, Evaluation of Air Pollution Control Strategies for Attaining Secondary Air Quality Standards in Allegheny County, Pennsylvania 5 (1974).}
\item \footnote{168} The creation of a multistate agency would not dispose of all the problems discussed in this article. To some extent they inhere in the political compartmentalization of control of physically uncompartmental problems. But the realignment of the compartments to embrace the whole of contiguous problem areas would help to alleviate the problems. \textit{See Weakley, Interstate Compacts in the Law of Air and Water Pollution, 3 Nat. Resources Law 81 (1970).}
\item \footnote{169} 42 U.S.C. § 7402(a) (Supp. I 1977).
\item \footnote{170} Id. § 7406.
\end{itemize}
The source, character and scope of state authority to enter into interstate compacts as a means of solving interjurisdictional problems is found in the United States Constitution, which provides that "[n]o State shall, without the Consent of Congress . . . enter into any Agreement or Compact with another State . . ."171 The Clean Air Act purports to give blanket advance consent by Congress to the states to "negotiate and enter" into agreements or compacts. This endorsement is severely limited however, by section 102(c)(2) which provides that "[n]o such agreement or compact shall be binding or obligatory upon any State or party thereto unless and until it has been approved by Congress."172 This limitation, in addition to adding a great time delay, has proved fatal to a number of proposed compacts which have been submitted to Congress for approval.173 An analysis of the reasons why congressional consent has been withheld will prove enlightening in the drafting of future agreements.

The basic defects found in compact proposals which have been denied congressional approval include a) inadequate standard-setting and enforcement procedures; b) limited prevention action; c) absence of federal representation; and d) voting membership by federal representatives.174

The Senate Subcommittee on Air and Water Pollution has outlined the contents needed for a compact to be an effective vehicle for the prevention and control of air pollution. The suggested compact criteria include the following:

a. Only the states in a designated air quality region should participate in the compact. A compact should provide for participation by all states encompassed by a given air quality region.
b. Federal representatives should serve but not vote, on the compact commission.
c. Each participating state should have one vote on the compact commission.
d. The compact commission should have broad air monitoring, standard setting and enforcement powers.
e. The meeting by the states of obligations imposed by the federal air pollution legislation should be enhanced by the compact.175

Section 102(c) clearly expresses the congressional intent that a state

171. U.S. CONST. art. I, § 10, cl. 3.
173. The story of congressional responses to proposed air pollution compacts is told in 1 F. GRAD, TREATISE ON ENVIRONMENTAL LAW 2-127 to 134 (1978).
175. Hearings on Air Pollution Compacts Before the Subcomm. on Air and Water Pollution of the Senate Comm. on Public Works, 90th Cong., 2d Sess. 464 (1968).
may not participate in an interstate compact unless it is included in the same air quality control region as the other states to the compact. This mandate presently precludes approval of an interstate compact which would include some interstate industrial regions which are in wholly interstate air quality control regions. However, the "regional" requirement for compact formation might be met by a revision of the designation of Air Quality Control Regions.  

Even if Congress is prepared to consent to air pollution control compacts, the requirement of congressional approval before the implementation of interstate compacts imposes a substantial delay. Negotiating an agreement between states is a lengthy process. The additional requirement of congressional consent has, in the field of water resources, contributed to an average lapse of over eight and one-half years between the start of negotiations and the implementation of the agreements. For example, the negotiation and implementation of the Ohio River Valley Sanitation Compact, with eight signatory states, took twenty years. But the requirement of independent federal approval does serve as a guaranty that any approved compact will serve the policy of the Clean Air Act and will be free from the constraining, self-serving political interests which the individual states, by the nature of the federal system, might be attempting to protect.

Compacts have been a customary method of dealing with interstate problems. This history of interstate compacts can be traced to colonial times. During the early development of the nation the compact was used primarily as a device for settlement of territorial disputes. From 1879 until the 1920's the interstate compact was used rarely. Until that time, compacts (with one exception) concerned boundary matters; none created a permanent administrative agency. The landmark was the New York Port Authority Compact of 1921, creating the Port Authority—which still exists today—with full responsibility for the planning and administration of the transportation problems of the port divided by the New York-New Jersey state line. This compact was the first to provide a regional approach to a common problem coupled with the creation of an administrative agency. A new interest in the interstate compact clause was kindled in the 1930's, as is evidenced by the

176. The Administrator earlier had statutory authority to create interstate regions. See CAA § 107(c), 42 U.S.C. § 7407(c) (Supp. I 1977). That authority has lapsed, but it could be renewed by statute. Whether Congress could designate a new region alone, as part of a resolution approving a compact, is doubtful. Such a resolution does not require presidential consent. A statutory amendment, of course, requires presidential consent.

publication of the Frankfurter and Landis article on the clause in which it was stated that

The imaginative adaptation of the compact idea should add considerably to resources available to statesmen in the solution of problems presented by the growing interdependence, social and economic, of groups of states forming distinct regions. . . . We must not deny ourselves new or unfamiliar modes in realizing national ideas. Our regions are realities. Political thinking must respond to these realities.¹⁷⁸

Since then, the compact device has been used with increasing frequency. It has been directed toward a number of administrative and proprietary concerns. However, there have been few experiments with this device in the field of environmental regulation. Several compacts have been used to abate water pollution, but air pollution control as a subject matter of interstate compacts is still undeveloped.

As devices to settle boundary disputes, compacts proved their usefulness. As devices to establish permanent administrative machinery, their value is less clear. They may be criticized as characteristically indecisive, ineffective, inflexible, and lacking effective political control or responsibility.¹⁷⁹ Some of these problems arise from the structure of agencies or commissions which administer the compact. One obvious problem which may cause interstate agencies to be indecisive and ineffective is the often used "rule of unanimity." This provides that no action can be taken by the compact commission without the approval of a majority of the members from each of the participating states. Consequently, actions of the agency will often be minimal, so that the most backward or recalcitrant of the member states will not object. A further problem is the lack of political responsiveness which stems from the fact that members of the compact commissions are appointed rather than elected, and the fact that states are commonly given equal voting rights regardless of the relative number of persons, or industries, or the size of the geographical areas in different states affected by the compact.

Despite the foreseeable problems, an interstate compact may be a useful device for dealing with the control of "background" air pollution. Without a compact arrangement, each state government in a region will predictably follow its local interest in limiting abatement costs and promoting industry and employment within the limits imposed by the Clean Air Act and the federal common law. The effects of prevailing winds will give upwind states some advantage over their

downwind neighbors. The difficult political question concerning compacts for air pollution control is whether state governments can muster the will to create a compact agency which is sufficiently free from parochial economic and political interests. Such an agency would attempt to assure that pollution abatement is apportioned in an interstate industrial region to promote the welfare of the region without exclusive attention to the location of state lines.

A properly designed interstate compact with effective procedural mechanisms should alleviate the need for interstate litigation. If a state were the object of fallout emanating from a neighboring jurisdiction, its course of action would be to file a complaint with the interstate compact commission. The commission could then begin abatement procedures to cause compliance with the ambient air quality standards by proceeding directly against individual sources.

Interstate compacts usually provide for the establishment of commissions, recognized as bodies politic or corporate. As such, a compact commission with appropriate authorization has the power to impose regulations and has standing to use the courts to enforce them. For effective enforcement of the provisions of the compact, resort to state or federal courts may be necessary. The compacts, being extensions of the statutory law of the signatory states, are enforceable through appropriate state court proceedings. Whether or not a congressionally approved interstate compact becomes federal law and thereby provides a proper base for federal court jurisdiction is unclear. To deal with this uncertainty, the terms of the compact should include express authorization to resort to the federal courts for enforcement proceedings.

That interstate compacts can receive maximum judicial support is shown in the 1921 decision of the United States Supreme Court in New York v. New Jersey. Suggesting a compact approach to an environmental pollution problem, the Court stated that the "grave problem [of sewage disposal] presented by the large and growing population . . . is one more likely to be wisely solved by cooperative study and by conference and mutual concession on the part of the representatives of the state so vitally interested in it than by proceeding in any court." While this evidences judicial support for interstate compacts, legislative approval of an interstate air pollution control compact is as yet forthcoming.

181. This would require a separate statute, and would also dispense with the notice provisions of CAA § 304, 42 U.S.C. § 7604 (Supp. 1 1977).
182. 256 U.S. 296 (1921).
183. Id. at 313.