Local Regulation of Air Pollution: The Allegheny County Experience

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I. INTRODUCTION

The quality of the air is recognized by environmentalists as a local and state problem, and because of economic cohesiveness, as a national problem. In the past, the United States has largely ignored air quality in favor of industrial progress. Federal legislation has come to promote, in the latter part of the twentieth century, the concept of minimum ambient air quality standards.1 To combat the problems of air pol-

1. 42 U.S.C. §§ 1857c-4, -5 (1970). These sections make provisions for the publication of national ambient air quality standards—primary and secondary—by the Administrator of the Environmental Protection Agency and for adoption and implementation of these standards by the various states. The current national standards, promulgated by the Administrator, can be found in 40 C.F.R. § 50 (1972).
olution, state\(^2\) and local statutes are being enacted or made more stringent.

The viable existence of national, regional,\(^3\) state, and local legislation regulating air pollution\(^4\) gives testimony to two facts: (1) the American people want clean air, and (2) they are establishing the legal machinery to get it. The pivotal remedy employed in the past was the common law nuisance cause of action, which has been aptly termed "a sort of legal garbage can." More specifically, the Latin adage behind the nuisance cause of action is *sic utere tuo (suo) ut alienum non laedas* (use your own property in such a manner as not to injure that of another).\(^5\) This maxim is an indication of the problems inherent in attempting to apply the nuisance cause of action to the air pollution situation, namely

1. What is harm to another's property?
2. How is the harm proven?
3. When, if ever, can a compromise be reached in land use?
4. If a compromise is possible, who is to draw its terms?

2. All the states (with the exception of South Carolina and South Dakota) and the Virgin Islands and Puerto Rico have established air pollution control agencies as of December 1, 1970. Predictably, the industrial states have more agencies than the non-industrial ones. Some states, such as Alaska, as of the above date, had only a statewide agency, with no county or other local branches. California, as of the same date, had a total of twenty-four state and local agencies. AIR POLLUTION CONTROL ASSOCIATION OF PITTSBURGH, 1970 DIRECTORY, GOVERNMENTAL AIR POLLUTION AGENCIES (1970).


4. The pervasiveness of the air pollution problem can easily be illustrated by a definition of the term contaminants:

Contaminants come from mines, mills, burning refuse piles, open hearth steel furnaces, smelters, oil refineries, incinerators, tanneries, soap factories, trains, boats, automobiles, homes, and from plants that process foods or manufacture fertilizers, lard, varnish, acids, paper, paint, and resins, glue, and chemicals. Man made contaminants consist of particulate matter, gases, and vapors. Particulate matter includes metallic oxides, sulfur trioxides, siliceous material, and other dusts, fumes, mists, and fogs. Smoke from the incomplete combustion of burning coal carries with it ash particles, carbon and tar. Aerosols—fine smoke or liquified particles suspended in air or gas for an extended period of time, such as smoke, fog or mist—reduce visibility and block sunlight.

A. GORDON, NIMLO (NATIONAL INSTITUTE—MUNICIPAL LAW OFFICER) SEMINAR ON URBAN VIOLENCE AND ENVIRONMENTAL PROBLEMS, ENVIRONMENTAL WORK PAPER—AIR POLLUTION (1970) [hereinafter cited as GORDON].

5. Prosser, Nuisance Without Fault, 20 TEX. L. REV. 410 (1942). Concern about air pollution is not a recent phenomenon. England passed a smoke abatement law in 1273, and in 1307 a royal proclamation was issued which prohibited the use of sea-coal in furnaces. A violator of that proclamation was executed. C. HAAR, LAND-USE PLANNING 140 (2d ed. 1971); Kennedy, Introduction—Some Legal Ramifications of Air Pollution Control and a Review of Current Control of Automotive Emissions, 10 ARIZ. L. REV. 2 (1968).

The common law nuisance cause of action is inadequate to deal with the difficulties involved when industry pollutes the air. First, not everyone has a farm with a specific garden patch no longer productive as a result of industrial pollution. The polluting harm must be a measurable, tangible consequence. Second, total and permanent relief via injunction is neither always obtainable nor advisable. Practically speaking, industry may not have a solution in the existing stages of technology. A particular industry, large or small, may not be able to afford the remedy offered by technology. The history of air pollution

7. "Nuisances are commonly classed as public and private, and mixed. A public nuisance is one which affects an indefinite number of persons, or all the residents of a particular locality, or all people coming within the extent of its range or operation, although the extent of the annoyance or damage inflicted upon individuals may be unequal. . . . A private nuisance was originally defined as anything done to the hurt or annoyance of the lands, tenements, or hereditaments of another. . . . As distinguished from public nuisance, it includes any wrongful act which destroys or deteriorates the property of an individual or a few persons or interferes with their lawful use or enjoyment of a common or public right and causes them a special injury different from that sustained by the general public. Therefore, although the ground of distinction between public and private nuisances is still the injury to the community at large, or on the other hand, to a single individual, it is evident that the same thing or act may constitute a public nuisance and at the same time a private nuisance. . . . A mixed nuisance is of the kind last described; that is, it is one which is both public and private in its effects,—public because it injures many persons or all the community, and private in that it also produces special injuries to private rights. . . ." Id. at 1215.


9. For a historic discussion and analysis on the use of injunctions see **Developments in the Law—Injunctions**, 78 HARv. L. REV. 994 (1965). According to this discussion, some courts will grant an injunction for a permanent nuisance and award a single amount for monetary damages. No court has been known to award prospective monetary relief, such as periodic payments for further diminution in property value. *Id.* at 1001; see Sullivan v. Jones & Laughlin Steel Co., 208 Pa. 540, 57 A. 1065 (1904), where an injunction was granted to enjoin the operation of new furnaces discharging large amounts of ore dust which settled on houses, injured carpets and curtains, destroyed trees, and generally diminished property values more than 25 per cent. But see Elliott Nursery v. Duquesne Light Co., 281 Pa. 166, 126 A. 345 (1924), where no injunction issued to restrain the emission of dust, smoke, and sulfur dioxide from an electric light and power company, since the entire area burned the same bituminous coal and no devices were known to control the pollutants.

10. There is a doctrine employed by the courts in private nuisance action known as the doctrine of comparative injury, balance of hardship, or balance of interests. Annot., 40 A.L.R. 3d 601 (1970). This doctrine is prevalent in American courts, but it is not consistently applied by all jurisdictions. The general approach of the courts seems to be that an order to abate a nuisance is justified:

. . . in cases of severe environmental effect, only when general health hazard is factored into the balancing formula along with the economic consequences of an injunction on the operations of private enterprise.

Case Comment, *Nuisance Abatement: Use of the Comparative Injury Doctrine*, 1971 URBAN L. ANNUAL 206, 210; see Boomer v. Atlantic Cement Co., 26 N.Y.2d 219, 257 N.E.2d 870, 309 N.Y.S.2d 312 (1970). The court found a nuisance and property damage, but refused to order the polluter to close down his plant. A student note on the Boomer decision points out that
in the United States has advanced from the "Why doesn't industry do something about pollution?" stage to the "What specific action can an industry afford to take to curb pollution without going out of business?" stage. The decade of the seventies will probably be noted as the period when businesses closed or threatened to close because of the prohibitive burden of controlling air pollution. Finally, the private nuisance enforcement tool has a monetary drawback. Such action requires plaintiffs who are ready, willing, and financially capable of enduring drawn-out litigation against corporate defendants who could afford to appeal decisions, attempting to force a settlement. The non-profit environmental groups have attempted to augment the scarcity of private plaintiffs; however, environmental groups must allege both a private and a public nuisance in their complaints. Although an environmental group may have a legitimate public interest to protect, in order to satisfy the standing requirement to bring suit, the court really based its denial of injunctive relief on the belief that the private nuisance action is not the most practical way to bring about pollution control; the court felt that the answer to pollution should be supplied by the legislature. 45 N.Y.U.L. Rev. 919, 923 (1970).

Two contra cases represent the circumstances under which relief has been granted:


(2) Hubert v. California Portland Cement Co., 161 Cal. 239, 118 P. 928 (1911). The court granted an injunction against an $80,000 cement plant. The owners had moved to stay an injunction against their operation by posting a bond for the full amount of the plaintiffs' property damaged by the cement dust. The Supreme Court of California, however, denied the motion, saying:

To permit the cement company to continue its operations, even to the extent of destroying the property of the two plaintiffs and requiring payment of the full value thereof, would be, in effect, allowing the seizure of private property for a use other than a public one—something unheard of and totally unauthorized in the law. Id. at 245, 118 P. at 830.

The dissenting opinion in Boomer seems to reflect the California Supreme Court's thinking. The dissent commented that some sort of "inverse condemnation" was being allowed. The term "inverse condemnation" has been defined as follows:

Inverse condemnation is the popular description of an action brought against a governmental entity having the power of eminent domain to recover the value of property which has been appropriated in fact, but with no formal exercise of the power. Martin v. Port of Seattle, 64 Wash. 2d 309, 310 & n.1, 391 P.2d 540, 542 & n.1 (1964).

Thus, it can be seen that the results in a private nuisance cause of action are not predictable, notwithstanding the formulae that are established by hornbooks. Perhaps, a more indicative approach in the twentieth century is the following:

In an industrial age, persons living in or near a commercial or industrial area must subject their personal desires, comforts and the depreciated value of their property to the public good.


For a discussion on the invalidity of industry's claims that controlling pollutants results in the closing of plants see Hill, Cost of Cleanup: or a Myth of Factory Closings Is Exploded, N.Y. Times, June 4, 1972, § 3, at 1, col. 5. The author claims that allegations by industrialists that plant closings are directly related to controlling air pollution are simply untrue and are becoming a "national myth."
private harm must be demonstrated as affecting the individual members of the environmental group. Moreover, the environmental groups have not been able to meet, much less challenge all the polluters in the United States.

Therefore, a new enforcement tool has emerged in the United States, one which has especially been developed in the area of air pollution—federal, state, and local legislation declaring certain activities statutory nuisances or nuisances per se. One could almost say the air pollution problem in the United States is being confined to the administrative law remedy. Administrative agencies are becoming the public nuisance litigants, without the monetary or other problems of private individuals and without the standing problem of environmental groups, such as the Sierra Club. Additionally, governmental agencies have the resources to build a staff of engineering experts, needed to handle the difficult evidentiary problems of litigating pollution cases.

The focus of this comment will be upon the functioning of a local air pollution agency, operating under the authority of state legislation. The local agency and the local legislation are those of Allegheny County, Pennsylvania, which has made an attempt to draft and enforce a strict air pollution control law for a heavily industrial area. Of necessity, this comment will show some of the relationships between the federal, state and local air quality statutes and how such legislation overlaps and interacts.

A clean environment is one of the few goals of Americans that is not embodied in the United States Constitution, notwithstanding the importance of natural resources to the United States. A recognition of the right to a healthy environment illustrates the impetus behind the environmental laws of the twentieth century. The Pennsylvania Constitution states:

The people have a right to clean air, pure water, and to preservation of the natural, scenic, historic, and esthetic values of the environment. Pennsylvania's natural resources are the common property of all the people, including generations yet to come. As

14. The administrative answer seems to be generally accepted in the United States, but there are those who doubt its efficacy. John W. Van Doren has expressed his fears that such agencies would have limited access and be controlled by the interests regulated. He also fears that public agencies would be remiss in enforcement, would have inadequate sanctions, and would be beset with bureaucratic delays. Van Doren, Air Pollution; Expanding Citizens' Remedies, 32 Ohio St. L.J. 16, 22 ((1971).
trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.16

II. THE ALLEGHENY COUNTRY EXPERIENCE WITH AIR POLLUTION, PART I17

For years, the air pollution problems of the Pittsburgh area have been the topic of national humor and comment.18 Especially in the past decade has the air quality of the Pittsburgh area received nationwide attention.19 Prior to the last decade there was little in the way of legislation.20 The basic legal machinery—Article XIII21—had not been effective in curbing the air pollution problem. A new approach to the city's problems came about with the passage of Article XVII,22 which established precise emission standards for many classes of polluters. Article XVII recently has been superseded by Article XVIII.23

17. The City of Pittsburgh is the heart of Allegheny County. The Environmental Protection Agency has placed Allegheny County in the Southwest Pennsylvania Intrastate Air Quality Control Region, 40 C.F.R. § 81.23 (1972).
18. Kneese, Pollution and a Better Environment, 10 ARIZ. L. REV. 102 (1968): Throughout most of our history, the discharge of residuals to air, water, and the land was of concern only in particular and unusual instances, if at all. Granted some of these instances were spectacular, such as the smoke in Pittsburgh early in this century.
23. Article XVIII, Rules & Regulations of the Alleg. Co. Health Dept. (June 30, 1972) [hereinafter cited as Art. XVIII], passed pursuant to the Local Health Administration Law, PA. STAT. ANN. tit. 16, § 12010(f) (1956). Allegheny County additionally has Ordinance XVIII which is substantially similar to Article XVIII. The ordinance was passed by the county commissioners pursuant to the Second Class County Code, PA. STAT. ANN. tit. 16, § 3508 (Supp. 1972), and became effective on August 20, 1972. The dual regulation in Allegheny County is required since several municipalities, for example, Fox Chapel, have their own health departments and therefore are not covered by Article XVIII.
Article XVIII was passed so that Allegheny County's regulations would comply with the provisions of the Clean Air Act.
The Administrator of the Environmental Protection Agency, in approving Pennsylvania's implementation plan of the federal primary and secondary ambient air quality standards, 40 C.F.R. § 52.2203 (1972), particularly noted that Allegheny County's regulations under Article XVII failed to meet the federal regulations in three significant respects:
(1) public availability of emission data, required by 40 C.F.R. § 51.10(e) (1972);
(2) release of emission data, as required by 40 C.F.R. § 51.11(a)(6) (1972);
(3) legally enforceable procedures for requiring stationary sources in the jurisdiction of Allegheny County Health Department to maintain records of and to report periodically the nature and amount of emissions, as required by 40 C.F.R. § 51.19(a) (1972).
A. Article XVII

In the Allegheny County experience the first breakthrough in air pollution control can be attributed to Article XVII, which marked the beginning of a coordinated administrative approach to the problem.\textsuperscript{24} Article XVII can be described in a number of ways:

(1) it was a recognition that specific standards and scientific methods must be employed to curb air pollution;

(2) it was an inclusive statute that applied to individuals, municipal corporations, and private corporations;

(3) it was one phase of a plan for the achievement of optimal ambient air quality for Allegheny County, that began with investigations by health department personnel and concluded with appeals hearings to determine the relative hardships of complying with the statute.

A key aspect of Article XVII can be said to have been the emissions standards that were chosen. They were set at levels which could be reached at a point in the immediate future. To give realistic flexibility to the standards, the Board of Air Pollution Appeals and Variance Review\textsuperscript{25} was created under Article XVII with the express function of providing a public forum where anyone could request up to one year's time in which to meet the emissions standards of the statute. Each petitioner had the opportunity to explain his particular difficulty in meeting the emissions standards—technological, economic, etc.—and his proposed method and schedule for achieving compliance. Moreover, the Board, composed of five members\textsuperscript{26} might question the petitioner, prior to reaching a decision. Their decision was based on a number of factors, such as testimony, written arguments and reports of petitioner and the Health Department.\textsuperscript{27} The Board's operation was geared to thirty-day periods: a hearing within thirty days of the filing of a petition for a variance, a decision within thirty days of a hearing, and the right of appeal from the Board's decision to the Court of Common

\textit{See also} Picadio, \textit{An Introduction to the Law of Air Pollution Control in Pennsylvania}, 44 Pa. B. Ass'n Q. 203 (1973). The author, currently Chairman of the Air Pollution Board of Variance Appeals of Allegheny County, discusses the current amendments to the Clean Air Act and the new amendments to the Pennsylvania Air Pollution Control Act.

\textsuperscript{24} "Article XVII was a whole new ball game." Interview with Patricia Newman, Vice President of Group Against Smog and Pollution (GASP), in Pittsburgh, Pennsylvania, Feb. 23, 1973.

\textsuperscript{25} Art. XVII § 1703.1F [hereinafter referred to as the Board]. Art. XVIII § 1814.1 changed the Board's name to the Air Pollution Variance Board.

\textsuperscript{26} See Appendix A.

\textsuperscript{27} Hereinafter the Health Department of Allegheny County will be referred to as the Department.
Pleas of Allegheny County within thirty days of its promulgation; however, the Board was not always able to adhere to the strict time standards.

Under Article XVII the Board could order or excuse immediate compliance with the emissions standards as follows:

1. absolute denial with an order for immediate compliance;
2. unconditioned variance with grant of full time requested;
3. conditioned variance with full time requested;
4. unconditioned variance with less than requested time;
5. conditioned variance with less than time requested.

No variance could be granted for more than one year, but a variance, once granted, could be extended by the Board, with or without a re-hearing. The one-year time period enabled the Board to effectuate compliance rather than accept lengthy delays and also to monitor via progress reports, whatever attempts a petitioner was making to gain compliance. The one-year time limit also suited the philosophy behind Article XVII, namely that it would not be a static piece of legislation, lifeless for a decade.

A number of general factors were placed in Article XVII, to be weighed by the Board in its decisions on the granting or withholding of variances. Other than those general factors, the Board was also directed to consider the public health and welfare:

The Appeals Board may grant such variance if it finds that:

A. The emission occurring or proposed to occur does not constitute a hazard to public health or safety; and
B. To require compliance with the terms of this Article from which variance is sought would not be in the public interest.

In applying this section on public health and welfare, the Board has

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30. Id. § 1704.3.
31. Id. § 1704.2.
not had the benefit of precise guidelines. Science has not provided precise data on all the effects of contaminants on human health or the effects of a combination of contaminants, although some information is available on the toxic levels of certain pollutants. Similarly, the "public interest" criterion has not been easy for the Board to apply. A specific public interest question has been said to involve time beyond that necessary to develop and/or install pollution control equipment or the feasibility of a corporation's purchasing such equipment.\textsuperscript{32}

The Board has been confronted again and again by the factors of time and technology, and it has had to decide whether to grant a variance if technology was not presently known and whether to grant a variance if time was required to apply pure science to a pollution problem.

An example of the difficulties faced by the Board when confronted by time, technology, and economic factors is the variance requested by Clairton Coke Works.\textsuperscript{33} Petitioner requested a variance to use waste water to quench coke. Petitioner, the largest producer of coke in the world, had twenty batteries of coke ovens producing 21,500 tons of coke a day in 1969 and 1970. Approximately 105 gallons of water were used to quench coke produced from one ton of coal, and approximately 3.5 million gallons of quench water were used daily. The quenching process resulted in the release of chemicals. Petitioner had spent no money to clean quench water prior to January 1, 1970, and three years would be required to install equipment. The Board had only the strict provisions of the Article of granting or denying a variance. The Board admitted that an equity forum might be more appropriate than the "all or nothing" approach of Article XVII; however, a variance was denied.

\textsuperscript{32} United States Steel Corp., Clairton Coke Works, Quench Water, Nos. 143, 144 (Board of Air Pollution Appeals and Variance Review, Nov. 11, 1971) (denial of variance). The following excerpts from a local newspaper article provide some insight into the problem of defining "public interest":

Generally, the availability of good coal is the prime reason for the steel industry prospering in the Pittsburgh region.

Coal could be cause for iron-making's demise in Pittsburgh. To the steel industry, coke plants along the Ohio and Monongahela rivers are under a withering fire from the environmentalists, as pollution indexes rise.

Giant U.S. Steel's Clairton Coke work is the prime example; it is the largest coke complex in the world . . . and it has been hauled into court by both state and county agencies. Common Pleas Court Judge Silvestri Silvestri summed up the enormity of the situation this spring, stressing that some 7,000 jobs are involved directly, some 30,000 jobs indirectly, in Clairton's coke operations.

"How do you want to die—by bad air or by starvation?" the judge asked.


\textsuperscript{33} See United States Steel Corp., Clairton Coke Works, Quench Water, Nos. 143, 144 (Board of Air Pollution Appeals and Variance Review, Nov. 11, 1971).
The decision was not an economically feasible one for the community, and thereafter the combined efforts of county and state environmental personnel resulted in a more practical solution.\textsuperscript{34}

B. *Major Pollutants in Allegheny County and Sample Decisions of the Board of Air Pollution Appeals and Variance Review*

Article XVII provided an inclusive set of rules and regulations for Allegheny County, some of which were more lenient than others. Moreover, a comprehensive, operative health statute for an industrial area could not possibly have been created overnight; and if it were, it would not have been a reflection of the community involved, and probably it would not have worked. Article XVII incorporated traditional legal

\textsuperscript{34} In return for a 10-year immunity from environmental prosecution, U.S. Steel pledged to install the “best-available technology” at a cost that could reach $90 million.

While the five-year cleanup at Clairton is certain to curb sulfur dioxide levels in nearby Pittsburgh, other cities with coking plants—Birmingham, Gary, and Duluth, for instance—will have to wait longer for potential benefits.

The steel industry has spent more than $1.2 billion for equipment to control air and water pollution, according to the American Iron and Steel Institute.

But the President’s Council on Environmental Quality estimates that steel companies will have to spend another $3.5 billion to comply with pollution standards that will become effective by 1976.

Nevertheless, the council said in a report issued last March that the impact of such costs could be borne by the steel industry with only slight price increases.

“Big steel is paying the price for 30 years of negligence,” said Jim Cannon, a pollution specialist for the Council on Economic Priorities. “Their cleanup bill is greater than that for any other industry.”

For the first time, however, states and counties are beginning to resist intense corporate pressures for slow enforcement and are denying requests for variances from environmental laws, he said.

Big Steel’s bitter resistance in the last few years adds weight to such charges. It has faced more criminal and civil suits for pollution violations than any other industry.

Until now, steelmakers have generally resisted costly cleanup steps, arguing that the technology did not exist. U.S. Steel, in particular, has been unwilling to test new innovations for abating pollution, preferring to let other companies lead the way.

The Clairton agreement, however, marks a sharp departure from the past.

Though U.S. Steel has a year to design a program that would eliminate much of the coke oven pollution, it will probably have to tear down several batteries of coke ovens and convert them to so-called “pipeline charging,” a radically new process that prevents most gases from escaping.

For their part, local officials are confident U.S. Steel will stick to the Clairton agreement, and then expand its cleanup to other coking operations.

“The agreement shows what county and state officials can do on their own without depending on federal intervention,” said Pennsylvania’s Asst. Atty. Gen. Anthony Picadio.

remedies for the failure to meet its standards—injunctive relief, 35 existing legal remedies, 36 and monetary and penal sanctions. 37

The vitality of Article XVII was supplied by the ongoing dialogue between the Board and polluters. A review of the Board's decisions leads to several important conclusions:

(1) that compliance with Article XVII was expected;

(2) that reasons for not complying might be valid and necessitate some flexible time span for attempting to gain compliance;

(3) that non-compliance might reflect (a) an adherence to established methods, (b) a sincere plea for the requirements of competitive business, or (c) honest statements of municipal budgetary difficulties; and

(4) that the Board might be able to offer suggestions and criticisms to polluters, or perhaps the question, "How do you know that the alternative, non-polluting method would be more expensive than your present method of operation until you have experimented with the change?"

The Board, especially in view of its public hearings, 38 was cast into a bargaining position, whereby it could ask polluters to give something in exchange for the privilege of not complying with a health statute for "x" period of time. Obviously, the Board was part of a complex operation, which included air pollution engineers, etc., and the purpose of this comment is not to say that the Board alone accomplished or effected cleaner air for the metropolitan district of Pittsburgh. The first Board's personnel 39 has been effective, and credit must be given to them for their perceptive questioning, criticisms, and suggestions to polluters.

It is the purpose of this section of the comment to illustrate, by refer-

35. Art. XVII § 1723.
36. Id. § 1724.
37. Id. § 1726. The basic features of the Allegheny County plan for regulating air pollution also can be found operating in the cities of St. Louis and Chicago. Broughton, Air Pollution and the Law, APPALACHIA, June-July 1970, at 11, 16.
38. Any member of the public could attend the meetings on variance petitions, held on Mondays in the Gold Room of Allegheny County Courthouse. The Group Against Smog and Pollution (GASP) was represented at virtually every hearing, held under Article XVII, and has continued this practice under Article XVIII. (See Appendix B for background information on GASP.) The significance in public attendance is that the public could intervene, make comments, or ask questions of the petitioner.
39. Members of the first Board: Dr. Robert Broughton, Chairman; Mrs. Jean Nickerson, Daniel Bienstock, Emerson Venable, and Robert Totten, M.D. Dr. Broughton has been appointed Chairman of the Environmental Hearing Board of the Commonwealth of Pennsylvania. For an explanation of the role of the Environmental Hearing Board see Farley, The Department of Environmental Resources: An Analysis, 42 Pa. B. Ass'n Q. 433, 435 (1971).
ence to statistics and the Board's decisions, several of the major pollutant problems in Allegheny County. Attention will be placed upon

40. "The major pollutants in Allegheny County are particulates, sulfur dioxide and nitrogen oxides in that order." R. Dunlap, M. Massey, D. Ragone, H. Toor, A Study of Air Pollution Control for Allegheny County, Pennsylvania 1970) [hereinafter cited as Dunlap]. The two major sources of particulates in Allegheny County are industrial process emissions and steam and electric power generation, each contributing about 37 per cent of the total. Id. at 8. The two major sources of sulfur dioxide pollution in the county are also industrial processes, contributing 34 per cent of the total, and steam and electric power generation, contributing about 45 per cent of the total. Id. at 10.

### TABLE I

1968 Allegheny County Emissions (TONS/YR)

<table>
<thead>
<tr>
<th>TYPE OF EMISSION</th>
<th>COMM. &amp; RESID.</th>
<th>SOLID WASTE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TOTAL</td>
<td>MOBILE</td>
</tr>
<tr>
<td>Particulate</td>
<td>187,618</td>
<td>12,269</td>
</tr>
<tr>
<td>Carbon Monoxide</td>
<td>949,826</td>
<td>945,415</td>
</tr>
<tr>
<td>Hydrocarbons</td>
<td>185,279</td>
<td>135,776</td>
</tr>
<tr>
<td>NOx</td>
<td>116,321</td>
<td>54,299</td>
</tr>
<tr>
<td>Sulfur Dioxide</td>
<td>256,556</td>
<td>5,529</td>
</tr>
<tr>
<td>Total</td>
<td>1,711,000</td>
<td>1,155,288</td>
</tr>
<tr>
<td>% of Total</td>
<td>100</td>
<td>67.6</td>
</tr>
</tbody>
</table>

*Id.* at 2. These basic figures were next scaled by the authors to take into account the "relative health effects" of pollutants. See TABLE II, Tolerance Factors, *Id.* After applying the tolerance factors, the authors then came up with weighted figures, which assume that there is a "relationship between pollution concentration in the atmosphere and emission rates" and that the relationship "is the same for all chemical species and all sources." *Id.* at 3.

### TABLE II

Scaled 1968 Allegheny County Emissions

<table>
<thead>
<tr>
<th>TYPE OF EMISSION</th>
<th>COMM. &amp; RESID.</th>
<th>SOLID WASTE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TOTAL</td>
<td>MOBILE</td>
</tr>
<tr>
<td>Particulate</td>
<td>127,318</td>
<td>8,326</td>
</tr>
<tr>
<td>Carbon Monoxide</td>
<td>15,691</td>
<td>15,585</td>
</tr>
<tr>
<td>Hydrocarbons</td>
<td>18,075</td>
<td>15,194</td>
</tr>
<tr>
<td>NOx</td>
<td>110,321</td>
<td>54,299</td>
</tr>
<tr>
<td>Sulfur Dioxide</td>
<td>113,972</td>
<td>2,122</td>
</tr>
<tr>
<td>Total</td>
<td>385,377</td>
<td>95,526</td>
</tr>
<tr>
<td>% of Total</td>
<td>100</td>
<td>24.8</td>
</tr>
</tbody>
</table>

*Id.* The authors readily admit that their weighting process is not exact. *Id.* They also state, however, that:

[i]n spite of the above difficulties, an improved method of evaluating chemical species and sources is not likely to change the conclusion that the principal pollutants in Allegheny County are particulates, sulfur dioxide and nitrogen oxides, and that the major sources of this pollution are power generation and industrial processes.

the harmful effects and sources of one major pollutant, sulfur dioxide. Sample decisions will be given regarding the burning of the fuel coal, which results in the emission of both sulfur dioxide and particulates. Sample decisions on various pollutants will be given to show some of the unusual situations encountered by the Board.

1. Sulfur Dioxide

a. Background Information on Sulfur Dioxide

Before evaluating the sulfur dioxide emissions in Allegheny County, the harmful effects of this pollutant should be explained. The well-known disasters of the Meuse Valley, Belgium, in 1930, Donora, Pennsylvania, in 1948, and London, England, in 1952 and 1962, have all been generally connected with the sulfur dioxide pollutant. Nonetheless, a measurable and clearly defined relationship between sulfur dioxide and ill health has not been easy to demonstrate, for the

<table>
<thead>
<tr>
<th>No. 277. AIR POLLUTANT EMISSIONS: 1969</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Quantity in millions of tons per year. Estimates]</td>
</tr>
<tr>
<td><strong>TYPE</strong></td>
</tr>
<tr>
<td><strong>Quantity</strong></td>
</tr>
<tr>
<td><strong>Transportation</strong></td>
</tr>
<tr>
<td><strong>Fuel Combustion</strong> (stationary)</td>
</tr>
<tr>
<td><strong>Industrial processes</strong></td>
</tr>
<tr>
<td><strong>Refuse disposal</strong></td>
</tr>
<tr>
<td><strong>Miscellaneous</strong></td>
</tr>
<tr>
<td><strong>Per cent</strong></td>
</tr>
<tr>
<td><strong>Transportation</strong></td>
</tr>
<tr>
<td><strong>Fuel Combustion</strong> (stationary)</td>
</tr>
<tr>
<td><strong>Industrial processes</strong></td>
</tr>
<tr>
<td><strong>Refuse disposal</strong></td>
</tr>
<tr>
<td><strong>Miscellaneous</strong></td>
</tr>
</tbody>
</table>

Source: Environmental Protection Agency; unpublished data.

41. "This poisonous gas comes from factories and power plants burning coal or oil containing sulphur. Sulphur dioxide is a poison which irritates the eyes, nose, and throat; it also damages the lungs, kills plants, rusts metals, and reduces visibility." Gordon, supra note 4, at 1. For additional information on the description, effects, and control methods for the sulfur dioxide pollutant see Appendix C.

42. Cassell, The Health Effects of Air Pollution and Their Implications for Control, 33 LAW & CONTEMP. PROB. 197 (1968).

43. Id. at 201.
reason that no pollutant acts in isolation. It is the combined effect of sulfur dioxide and other pollutants which created and could create again the disastrous air pollution episodes of the industrial twentieth century.44

Some exact knowledge has been established with regard to the harmful effects of sulfur dioxide. Air pollution, and thus sulfur dioxide, have been linked with such health problems as bronchitis, hypertension, lung cancer, and even the common cold.45 New York University biochemists recently have suggested that sulfur dioxide “can disrupt normal genetic mechanisms,” thus linking sulfur dioxide with birth defects.46 In addition to adversely affecting humans, the pollutant has long been known to be “responsible for accelerated corrosion and deterioration of materials.”47

b. Sulfur Dioxide Emissions in Allegheny County

Sulfur dioxide, as previously stated, is a major pollution problem in Allegheny County. The following table represents the sulfur dioxide emissions by tons before the enactment of Article XVII:48

<table>
<thead>
<tr>
<th>LIST OF SOURCES</th>
<th>*NAPCA 1967 ESTIMATE</th>
<th>1968 Co. ESTIMATE</th>
<th>1968 OUR ESTIMATE</th>
<th>4-County 1967 NAPCA ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transportation:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road vehicles</td>
<td>2,600</td>
<td>4,884</td>
<td>4,884</td>
<td>4,300</td>
</tr>
<tr>
<td>Aircraft</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Railroads</td>
<td>505</td>
<td>505</td>
<td>505</td>
<td>“OTHER”</td>
</tr>
<tr>
<td>Vessels</td>
<td>150</td>
<td>140</td>
<td>140</td>
<td>650</td>
</tr>
<tr>
<td><strong>Fuel Comb. Station:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ind. Power</td>
<td>49,300</td>
<td>38,045</td>
<td>41,784</td>
<td>435,100</td>
</tr>
<tr>
<td>Steam, Elec. Power</td>
<td>137,100</td>
<td>118,405</td>
<td>133,685</td>
<td>235,600</td>
</tr>
<tr>
<td>Residential</td>
<td>4,200</td>
<td>3,055</td>
<td>2,000</td>
<td>25,000</td>
</tr>
<tr>
<td>Comm. Inst.</td>
<td>9,250</td>
<td>11,161</td>
<td>12,516</td>
<td>29,600</td>
</tr>
<tr>
<td><strong>Refuse Disposal:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incineration</td>
<td>450</td>
<td>259</td>
<td>259</td>
<td>478</td>
</tr>
<tr>
<td>Open Burning</td>
<td>100</td>
<td>N</td>
<td>N</td>
<td>196</td>
</tr>
<tr>
<td><strong>Ind. Process Emiss.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>179,000</td>
<td>129,703</td>
<td>101,183</td>
<td>202,200</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>382,600</td>
<td>306,127</td>
<td>296,956</td>
<td>933,900</td>
</tr>
</tbody>
</table>

* NACPA—the National Air Pollution Control Administration

44. Id. at 203.
46. Pittsburgh Press, Sept. 29, 1972, at 6, col. 5.
48. DUNLAP, supra note 40, at 9.
Under Article XVII it was predicted that the total sulfur dioxide emissions—employing the estimated figure of Dunlap, Massey, Ragone, and Toor—of 296,956 tons per year would be cut back to 255,191 tons per year, as follows:

1. there would be no reduction in the Transportation category;
2. there would be minor percentage changes, ranging from 2.1 per cent to .12 per cent in the Fuel Comb. Station. category;
3. there would be complete elimination of the open burning figure in the Refuse Disposal category; and
4. there would be a percentage change of 3.8 per cent in the Ind. Process Emiss. category.

Regarding the last category, the following breakdown was predicted to occur under Article XVII:

<table>
<thead>
<tr>
<th>LIST OF SOURCES</th>
<th>PRESENT EMISSIONS</th>
<th>ALLOWED EMISSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TONS/YR</td>
<td>% OF TOTAL</td>
</tr>
<tr>
<td>Coke Ovens</td>
<td>81,420</td>
<td>80.40</td>
</tr>
<tr>
<td>Sinter Plants</td>
<td>387</td>
<td>.38</td>
</tr>
<tr>
<td>Cement</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Mis. Ind. Proc.</td>
<td>19,376</td>
<td>19.10</td>
</tr>
<tr>
<td><strong>Totals:</strong></td>
<td><strong>101,183</strong></td>
<td><strong>99.88</strong></td>
</tr>
</tbody>
</table>

2. Sample Decisions on the Fuel Coal

By long custom, the ready availability of coal in the Pittsburgh area meant that alternative fuel sources were generally overlooked. That being the case, the average coal user in Allegheny County burned coal with a sulfur content ranging from 2.5 per cent to 2.1 per cent and was in violation or marginal compliance with the emissions standards of Article XVII. The coal user could take one of the following approaches in order to come into compliance: (1) locate, if possible, a source of low sulfur coal in sufficient quantities for heating the plant, and try to ascertain the time span over which a supply could be guaranteed; (2) convert his heating plant to gas and/or oil, if a supplier or suppliers were willing to accept a new customer and guarantee to meet his needs; or (3) shut down his operations.

49. Id. at 17. According to the records of the Bureau of Air Pollution Control of Allegheny County, the particulate sulfur dioxide emissions in 1971 were 254,501 tons, and 220,051 tons in 1972.
50. DUNLAP, supra note 40, at 18.
51. Id. at 10.
The Clairton School District\textsuperscript{52} requested a variance from particulates and sulfur dioxide emissions standards for a period of one, but preferably three years. The time was requested in order to facilitate the conversion of the various boilers in the schools of the district from coal to gas. The petitioner burned between 1,200 and 1,300 tons of coal a year with a sulfur content of 2.02 per cent. To support its request for a variance, petitioner cited a number of circumstances, including that Clairton had the highest millage rate in the area, having gone up from 32 to 52 within the last five years; that 1,013 of the total 3,000 student population were poverty students; and that all of the schools had been constructed before 1930. Nonetheless, the Board could grant a variance for a year only, with review contemplated while the planned conversions took place over a period of two to three years.

A similar hearing was held on the petition of the Board of Public Education of the School District of Pittsburgh.\textsuperscript{53} The Pittsburgh School District requested a ten-year variance in order to replace coal boilers in 110 buildings and facilities. Petitioner burned about 24,000 tons of coal a year with a sulfur content of 2.5 per cent. To support its request, petitioner cited the financial difficulties of the school board and the importance of public education. A restricted variance of three months was granted during which petitioner was to submit a schedule for converting boilers or a schedule of coal suppliers that could meet the requirements of the ordinance. The Board commented on the petitioner's "sluggish pace of compliance" and the fact that the pollution from the boilers was so close to children as to warrant immediate attention.

Small businesses had financial difficulties in complying with the sulfur dioxide emissions standards. Louis Hahn & Son, Inc.\textsuperscript{54} heated its fifty-five greenhouses with two boilers and burned 4,000 tons of 2.6 per cent sulfur content coal a year. No control devices were on the boilers. At the hearing petitioner requested a one-year variance, although he did not present any definite plan for curbing pollution. The Board questioned petitioner and also told him about other Pittsburgh businesses, such as H. J. Heinz Co.,\textsuperscript{55} which actually experienced a financial

\textsuperscript{52} Clairton School Dist., No. 72-164 (Board of Air Pollution Appeals and Variance Review, May 12, 1972).
\textsuperscript{53} Board of Pub. Educ. of the School Dist. of Pittsburgh, No. 135 (Board of Air Pollution Appeals and Variance Review, Sept. 1, 1970).
\textsuperscript{54} Louis Hahn & Son, Inc., No. 72 (Board of Air Pollution Appeals and Variance Review, May 12, 1972).
\textsuperscript{55} H. J. Heinz Co., Nos. 45-46 (Board of Air Pollution Appeals and Variance Review,
savings from converting from coal fuel. Petitioner Louis Hahn & Son, Inc. seemed to be worried about financial problems in controlling its pollutants at a projected increased cost from 45 to 65 per cent and further costs for smoke control of $10,000 to $15,000, for a business that employed only 100 persons and had an annual payroll of $400,000. The Board granted a limited variance of three months.

Large businesses seemed to have similar financial problems in complying with the emissions standards of Article XVII while burning coal as a fuel. For example, the Frank R. Phillips Power Station, Crescent Township, of Duquesne Light Co. operated six boilers, fired with pulverized coal. Petitioner was burning coal with a 3 per cent sulfur content and emitting particulate matter 20 to 100 per cent in excess of the statutory limits. A variance was granted for a period of one year, in view of the control devices that had been installed; petitioner was ordered to submit progress reports and stack test data on the completion of design changes and the modification of the operation. In the course of its decision, the Board remarked that the county sulfur dioxide concentration was 0.04 ppm, according to Dr. Morton Corn, Professor of Occupational Health of the University of Pittsburgh, whereas the ambient air quality standard of Pennsylvania was 0.02 ppm.

Another example of the problems faced by industry in complying with the emissions standards relevant to the burning of coal is the petition of Pittsburgh Forging Co. This company used three coal-fired

Sept. 16, 1970). In its original petition, H. J. Heinz Co. remarked upon the lack of sufficient low sulfur coal and its inability to secure a sufficient supply of low sulfur coal. H. J. Heinz Co. also remarked that closing would affect 3,300 employees and the tax revenues of the city. A variance was granted on September 16, 1970, conditioned upon the following alternatives: (1) drawing a plan of action, (2) securing coal that would meet the standards of the statute, or (3) making a schedule for installing dust control equipment or a schedule for converting from coal to gas and/or oil. At the second hearing in 1971, the Board considered a conversion plan for gas/oil and a blended use of 2 per cent to .85 per cent sulfur coal.

56. Duquesne Light Co., Phillips Power Station, Crescent Township, Nos. 23-28 (Board of Air Pollution Appeals and Variance Review, Apr. 30, 1971). The Board commented on the large expenditures made by Duquesne Light Co. for advertising in this decision: In the interim, before the problem is solved, we must take note again that the plant is emitting over two and one half tons per hour of particulates, and over five tons per hour of sulfur dioxide. With these high levels of emissions, it is hard to condone Duquesne Light Company's efforts to increase electric power through advertising. The only practical way significantly to decrease emissions in the interim—before they are brought under control—is to decrease electric power output. And the only practical way to decrease output is to decrease demand. Duquesne Light Company perhaps should be advertising to reduce electric power use; they should certainly not be advertising to increase it.

57. Pittsburgh Forging Co., No. 91 (Board of Air Pollution Appeals and Variance Review, Oct. 28, 1970).
boilers to supply steam to operate sixteen forge hammers and for space heating. The coal burned was washed and sized, with a sulfur content of 2 per cent. Petitioner was not able to obtain a low sulfur coal and could not get additional loads of natural gas, since he already used a large quantity in his operation. He objected to the high price of number two oil, that meant a fuel cost of $326,000 annually, instead of $134,885 for coal. In its decision, the Board remarked on the small supply of low sulfur coal, saying that this country exports 56,000,000 of its highest quality coal annually. The Board granted a two and one-half month variance, with the restrictions that petitioner submit a stack test, the tonnage of coal that would meet the requirements of the statute, and the name of his supplier, or that petitioner submit a time schedule for conversion to another fuel. Since petitioner has switched to compressed air, it is in compliance with the emissions standards of Article XVIII.

Thus, the Board, for the most part, maintained control over the emissions from the burning of coal. The only criticism that has been levied upon the control has been directed at the statute itself, which has not provided any restrictions on the sulfur dioxide emissions from coke ovens.58

3. Sample Decisions Presenting Unusual Situations

In reading and studying the decisions of the Board under Article XVII one becomes aware of several main categories of problems in controlling air pollution. Three such categories are: (1) petitioners with unique circumstances, (2) petitioners who asked for permanent or unrestricted variances, and (3) petitioners with technological problems.

a. Unique Circumstances

This group contained a small number of examples, but should not be overlooked. For example, the Elmer L. Herman Funeral Home59

58. Dunlap, supra note 40, at 16:
Coke ovens clearly dominate as the major industrial process source of sulfur dioxide; as a fraction of emission, coke ovens alone contribute 80%. County regulations do not encompass any control of sulfur emissions from the coke plants. See note 40 supra (Dunlap’s breakdown of sulfur dioxide pollutants according to source, where he has separated industrial processes from power plants, a second major source).
Coke ovens are now covered by Art. XVIII § 1809.7.
59. Elmer L. Herman Funeral Home, No. 149 (Board of Air Pollution Appeals and Variance Review, Oct. 23, 1970). The Board noted that the reason behind the prohibition on night burning is that Pittsburgh experiences an inversion problem on an average of 250 nights per year.
used to operate its crematory in the evening hours, but under Article XVII could only operate between the hours of 10:00 A.M. and 4:00 P.M. Daylight operation meant that petitioner's contaminants were clearly visible and became subject to restriction. Petitioner, however, was staying on his premises on a month-to-month basis, with the expectation that his property would be condemned and acquired by the Commonwealth for the East Street Redevelopment Project. Control equipment would not be feasible for one year's operation. The Board seemed to have a fitting answer for petitioner's predicament. The Board recommended that ozone oxidation equipment be installed on the old incinerator, even though replacement was acknowledged to be the best solution. The Board granted a variance of three months so that petitioner could solve his problems.

Another problem which arose out of unique circumstances was that of Allegheny Ludlum Industries, Inc.60 This corporation had invested in Swedish equipment for producing steel without polluting the air. Allegheny Ludlum, however, had some difficulty with the new equipment and was behind on its steel contracts. A variance was requested to operate the old electric arc furnaces for three months. The Board granted the variance, but its decision was a very cautious one. It noted that the emissions from the two electric arc furnaces would be nine times the amount allowable and would be respirable, but that the emissions or iron oxides were not toxic and would not be a problem to health for a limited period of three months. The Board considered the record of Allegheny Ludlum in meeting its pollution problems and heard favorable recommendations for granting the variance from a representative of the Group Against Smog and Pollution (GASP).61 The Board said that there was a difference between a continuing source of pollution and a new source; the implication being that a distinctively new source would be automatically denied. The Board also remarked that the furnaces had been closed for a short time and would not be operated in the future without the installation of air pollution control equipment. Regulation of oxygen lancing had been promised for the period of the operation of the two electric arc furnaces. All of these factors went into the Board's decision to grant a three month variance.

60. Allegheny Ludlum Indus., Inc., No. 156 (Board of Air Pollution Appeals and Variance Review, Apr. 8, 1971).
61. Id.
to the recipient of the October 22, 1970, GASP award to the outstanding contributor to air quality improvement for Allegheny County.

b. Requests for Permanent or Unrestricted Variances

Under a second category there were several petitioners whose requests for variances could almost be summed up to say, "The provisions of the statute have a purpose, but please don't apply them to me." For example, Robert M. Chambers, Inc., of Monroeville requested a variance so that it could use wood fires to remove mill waste from railway cars. Petitioner's business was to unload this waste, which was accomplished at a rate of ten to fifteen cars a day. A permanent variance was requested from the statute's provision against open burning. Upon questioning, petitioner admitted that other methods, which he termed costly, would mean an additional capital investment for him of approximately $11,000 for a heater that would accommodate two to three cars at a time. Petitioner's business had a total capital investment of approximately $250,000 already. Petitioner also stated that he had employed this wood fire method for four years without having tried any other method. His request for a variance was absolutely denied.

Another petition was made regarding open burning. The Constructors Association of Western Pennsylvania, representing the major highway contractors of thirty-three western counties of the state, asked for a variance that would allow them to complete highway contracts bid upon prior to December 17, 1969. Approximately 300 acres of wooded land were involved in the combined contracts, and the cost of clearing them by hauling or hand labor would mean an additional $2,000 per acre, or approximately $500,000 to $600,000 more for the contracts. Petitioner stated that complying with the ordinance would mean a financial and physical burden. The Board elicited from petitioner two pertinent facts: (1) that there would be no burning of wooded areas permitted under future Pennsylvania highway contracts, and (2) that the Pennsylvania Highway Department would reimburse the contractors for their added expenses in disposing of the trees. The Board denied the variance request and stated that violation would result in immediate prosecution.

62. Record at 2, Robert M. Chambers, Inc. (Board of Air Pollution Appeals and Variance Review, Oct. 18, 1971) (no docket or hearing number available).
63. Art. XVIII § 1718.6.
64. Record at 3-7, Constructors Ass'n of W. Pa., Hearing No. 2 (Board of Air Pollution Appeals and Variance Review, May 6, 1970 (hearing held on Apr. 27, 1970).
c. *Technological Problems*

Finally, some mention must be made about the petitions for variances where no known means of technology existed for controlling the pollutant. These situations also necessitated appearances before the Board for yearly variances, but decisions in such instances were not routine, as might be expected. The classic example is slag quenching. According to Article XVII,

The water quenching of slag at all slag handling operations is prohibited unless the water quenching of slag is performed under conditions which prevent the discharge of all Hydrogen Sulfide or other air contaminants into the open air.\(^65\)

The slag producers in Allegheny County are Duquesne Slag Products Co., Jones & Laughlin Steel Corp., Shenango, Inc., and United States Steel Corp. Slag is produced in the manufacture of pig iron in blast furnaces. The furnaces are charged with a limestone flux, which melts to form slag, in which many of the impurities or iron ore are dissolved, including sulfur.\(^66\) For each ton of iron ore produced, there are 650 to 800 pounds of slag.\(^67\) The slag can either be transported to some place for cooling by railroad car or cooled immediately in the air or with water sprays. Since the amount of slag produced is so large, the problem becomes one of disposal. No matter what plan of disposal is used, hydrogen sulfide is emitted into the air. The pollutant enters the air automatically through condensation and through cooling by water sprays. If no water is used, so as cut down on the amount of hydrogen sulfide emitted, a different problem—dust—results. When the petitioners for variances from the hydrogen sulfide provision of the ordinance came before the Board, some interesting dialogue resulted.

The Board asked for affirmative action, measured by monetary investment and research. The Board confronted such petitioners with the fact of their small combined efforts through membership in the American Iron and Steel Institute (AISI). The Board commented that the nationwide allocation of AISI for solving the hydrogen sulfide problem was $25,000—a sum probably representing the research of one person.\(^68\) The Board continued to say that the $25,000 investment had

\(^65\) Art. XVII § 1708.2.  
\(^66\) Duquesne Slag Products Co., Nos. 42, 57-59 (Board of Air Pollution Appeals and Variance Review, Feb. 19, 1971).  
\(^67\) Record at 4, Jones & Laughlin Steel Corp., Nos. 57-59 (Board of Air Pollution Appeals and Variance Review, Feb. 19, 1971).  
\(^68\) Duquesne Slag Products Co., Nos. 42, 57-59 (Board of Air Pollution Appeals and Variance Review, Feb. 19, 1971).
produced only one new idea, which incidentally had worked only on the laboratory scale. The Board asked the slag producers to invest in the problem. In response, the corporations made the monetary commitments—in addition to their membership and contributions to AISI. For example, in 1972, Jones & Laughlin spent $60,000 for the salaries of two men to study the problem. Similarly, in 1972 Shenango began experimenting with new ideas and commissioned a study. The slag quenching problem is now being worked on, and if the hydrogen sulfide pollutant is controlled, the Board may be said to have had some part in its solution.

C. Summary of the Operation of Article XVII

The purpose of this section of the comment has been to comment upon the first significant, viable piece of health legislation enacted to control air pollution in the industrial area of Pittsburgh. The public forum under Article XVII has been the Board of Air Pollution Appeals and Variance Review, which conducted public hearings where polluters could present their particular problems. The hearings did not have large public attendance; regular members of the audience were in attendance from the Group Against Smog and Pollution (GASP). Sometimes, a resident would make an appearance to comment, for example, on the heavy dust film on his house or on his wife's freshly washed clothes. That individual testimony was very meaningful to the Board, and it was unfortunate that more of it did not occur. The public, however, was not without representation, since the Board seemed to consider all sides and all issues in reaching its decisions. The Board members provided both experience and commitment in their questions to petitioners. The Board was well aware of the developments

This amount of money is enough to keep perhaps one research scientist on the job. We will not draw the conclusion, but it is dangerously close to what, in the civil rights movement, is described as "tokenism." It is not surprising that only one idea for solving the problem has been produced since 1966.

Id. at 3.

69. Shenango, Inc., No. 98 (Board of Air Pollution Appeals and Variance Review, Feb. 18, 1971).

70. Jones & Laughlin Steel Corp., No. 59 (Board of Air Pollution Appeals and Variance Review, Jan. 5, 1972).


72. The experiments conducted thus far have not been successful, and perhaps the only solution lies in the elimination of the slag by-product itself. It should be noted that the standard under Article XVII is an absolute one which prohibits water quenching of slag that results in any emission of hydrogen sulfide. Art. XVII § 1708.2.
in the air pollution control area and often made valuable suggestions to petitioners on how to control pollution problems.

III. THE ALLEGHENY COUNTY EXPERIENCE WITH AIR POLLUTION, PART II—ARTICLE XVIII

The timetable on Article XVII has run out, and with the implementation of Article XVIII, Allegheny County has the mechanism for effective regulation of air pollution. The regulation of air pollution

The enforcement statistics under Article XVIII may be relevant in ascertaining the scope of the Article. The following statistics, compiled by the Bureau of Air Pollution of Allegheny County Health Department, show the enforcement action taken under Article XVIII from June 15, 1972, to March 9, 1973, and under Ordinance XVIII from August 29, 1973, to March 9, 1973.

<table>
<thead>
<tr>
<th>MONTH</th>
<th>TOTAL STATEMENTS OF VIOLATIONS</th>
<th>VARIANCE POLICY LETTERS SENT</th>
<th>CRIMINAL ACTIONS INSTITUTED</th>
<th>LETTERS OF WARNING SENT</th>
<th>STATEMENTS WITHDRAWN</th>
<th>STILL UNDER CONSIDERATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>June (15 to end)</td>
<td>19</td>
<td>12</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>—</td>
</tr>
<tr>
<td>July</td>
<td>75</td>
<td>29</td>
<td>30</td>
<td>7</td>
<td>9</td>
<td>—</td>
</tr>
<tr>
<td>August</td>
<td>164</td>
<td>158</td>
<td>12</td>
<td>1</td>
<td>18</td>
<td>—</td>
</tr>
<tr>
<td>September</td>
<td>88</td>
<td>11</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>—</td>
</tr>
<tr>
<td>October</td>
<td>70</td>
<td>—</td>
<td>21</td>
<td>4</td>
<td>32</td>
<td>—</td>
</tr>
<tr>
<td>November</td>
<td>30</td>
<td>—</td>
<td>4</td>
<td>—</td>
<td>18</td>
<td>8</td>
</tr>
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* Reasons for withdrawals: (1) defendant under an Article XVIII variance; (2) defendant has submitted a variance petition under Article XVIII; (3) legal inadequacies that affect proof of case in statement; (4) filing of a criminal complaint moot by circumstances of adoption of Article XVIII.

The following criminal actions were instituted from June 15, 1972, through March 9, 1973:

1. Visual Emissions—20
2. Incinerator Emissions—19
3. Quench Water—0
4. Odor Emissions—3
5. Open Burning—35

The criminal actions taken from June 15, 1972, through March 9, 1973, were concluded as follows:

1. Fine of $300—9
2. Fine of $100—12
3. Fine of $50—13
4. Fine of $30—13
5. Dismissed—7
6. To Be Heard—19
by a local agency rather than a broader based agency, such as the state, has been identified as the only effective means of controlling the problem.\textsuperscript{7} Several factors have been cited for this proposition: (1) every community has a unique pattern of living, especially with regard to fuel consumption and transportation; (2) pollution regulation very often involves difficult value judgments, including compromises in community goals; (3) the economic life of the community will be directly and immediately affected by an air quality program; and (4) physical features, such as topography, population dispersion, and pollutant sources and locations, are unique to a given area.\textsuperscript{75}

Thus, the existence of an on-going air quality program in the heavily industrial area of Allegheny County cannot be over-emphasized.

The implementation of Article XVIII has meant the inclusion of further detail in the statute, to broaden its coverage and to tighten the control over air pollution through more stringent emissions standards and other techniques of control philosophy.\textsuperscript{76}

\section*{A. Definitions}

The first area where this more stringent coverage is noticeable is in the section on definitions.\textsuperscript{77} Two definitions are to be noted, that of "air pollution" and "best obtainable technology." Under Article XVII air pollution was quite generally described,\textsuperscript{78} whereas under Article XVIII an emphasis has been placed upon the varied injurious effects of contaminants in the air:

\begin{quote}
\textit{Air Pollution:} The presence in the ambient air of one or more air contaminants in sufficient quantity and of such characteristics and
\end{quote}

\textsuperscript{7} Hold—0
\textsuperscript{8} Withdrawn—2

There are currently twelve inspectors and three supervisors employed by the Bureau of Air Pollution Control of the Allegheny County Department of Health. They work in three teams in radio controlled cars on shifts between 6:30 A.M. and 11:30 P.M., with a supervisor on call between 11:30 P.M. and 6:30 A.M. At least two nights a month between 11:30 P.M. and 6:30 A.M. there is actual surveillance. The inspectors investigate commercial and backyard burning, industrial smoke, odor violations, etc. Interview with John McHugh, Supervisor of the Bureau of Air Pollution Control, in Pittsburgh, Pa., Mar. 9, 1973.

\textsuperscript{74} Coons, \textit{Air Pollution & Government Structure}, 10 Ariz. L. Rev. 48 (1968).

\textsuperscript{75} Id. at 61-62. The author advocates drafting local regulations, not by political lines, but by airsheds. See also Comment, \textit{Local Regulations of Air Pollution}, 1968 Wash. U.L.Q. 232.

\textsuperscript{76} Art. XVII § 1702.4:

\begin{quote}
\textit{AIR POLLUTION:} The presence in the open air of one or more air contaminants or combinations thereof in such place, manner or concentration that they are or may tend to be inimical to the health, safety, or welfare of the public or in excess of the limitations established in this Article.
\end{quote}

\textsuperscript{77} Art. XVIII § 1800.

\textsuperscript{78} Art. XVII § 1702.4; see note 76 supra.
duration which may be expected to be injurious to human, plant, or animal life, or to property, or which interferes with the comfortable enjoyment of life and property throughout the County or throughout such areas of the County as shall be affected thereby.79

Another definition, which on first thought, seems either innocuous or overly technical, has important ramifications. By inclusion of "best obtainable technology" within the statute, a duty may have been created for polluters in Allegheny County to take affirmative steps toward trying unproven means for controlling pollutants.80

B. Administrative Framework and Procedure for Variances

1. Administrative Framework

Insofar as the administrative framework is concerned, Article XVIII is basically unchanged from Article XVII. Within that framework, a number of administrative details have definitely changed or been strengthened through the addition of further machinery. The noteworthy changes involve the increase in cost for filing a variance petition—a 100 per cent increase from $50 to $100;81 and the greater emphasis placed upon the public aspect of the hearing system. Under Article XVII the Board was required in a general manner to publicize the meetings.82 Under Article XVIII two important duties have been added. The Board is required to notify the Director83 of the Department of Health84 and the parties of record thirty days prior to a hearing.85 Perhaps, the most significant duty has been placed on the petitioner himself. The significance lies in a specific recognition that the public must be informed. Persons petitioning for variances in excess of eighteen months must notify the public by advertising the hearing "in a prominent place and size" in two newspapers.86

79. Art. XVIII § 1800 (emphasis added).
80. Id. § 1800:
Best Obtainable Technology: Equipment, devices, systems, methods, or techniques which will prevent, reduce, or control emissions of air contaminants to the maximum degree possible and which are obtainable even if such equipment, devices, methods, or techniques are not in routine or actual use somewhere.
81. Id. § 1814.2.
82. Art. XVII § 1703.1F.3.
83. The Director of the Department of Health will hereinafter be referred to as the Director.
84. The Department of Health will hereinafter be referred to as the Department.
85. Art. XVIII § 1814.5B(5).
86. Id. § 1814.5B(7).
2. **Variance Procedure**

There are more stringent aspects built into the functioning of the administrative system of air quality control under Article XVIII. The major focus is the set of conditions under which a variance may be granted. The Board must find that the petitioner will be in compliance with the standards set up in Article XVIII by the end of the variance period. The length of the variance is a maximum of two years. A variance granted under Article XVIII may be renewed for a period of one year, with possible renewals up to a total of four years. Thus, a petitioner may have a total of six years to come into compliance with the emissions standards of Article XVIII. There were no specific limits on renewal possibilities under Article XVII. Finally, Article XVIII gives the Board examples of specific conditions under which a variance may be granted.

With all the added responsibilities placed upon the environmental personnel involved in enforcing Allegheny County’s air pollution regulations and ordinance, naturally some technical changes could have been expected. For one thing, the Board still is to operate within a time schedule of providing a variance hearing within 30 days of the filing of a petition, but such hearing decision, by statute, may be made up to ninety days generally after the date of a hearing. One aspect of the greater responsibility placed upon the environmental personnel to be applauded is that future decisions of the Board must be written to

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87. *Id.* §§ 1814.3A(1)-(2).
88. *Id.* § 1814.4.
89. Art. XVII § 1704.2(4).
90. Art. XVIII § 1814.3:

A. The Board shall grant any petition for a variance, in whole or in part, upon a review of the petition and accompanying material and upon any additional investigations which the Board may conduct, provided the Board finds that:

1. Such action will not prevent or interfere with attainment or maintenance of an ambient air quality standard contained in this Article within the time prescribed for the attainment of such ambient air quality standard by the Clean Air Act, or the Commonwealth of Pennsylvania, whichever time is the lesser, and
2. The quality and level of emissions from the source at the expiration of the variance will comply with the applicable standards of this Article, and
3. Such action is reasonable, considering: the toxicity and other effects of such emissions on the public health, safety, and welfare; the meteorological factors affecting the dispersion of the emissions; the land use characteristics of the areas affected by the emissions; efforts taken by the petitioner to comply with provisions of this Article and any article that was in effect prior to the effective date of this Article, which efforts are related to those contaminants which are the subject of the petition; the status of compliance of the petitioner; and any other relevant factors.
91. *Id.* § 1814.5B(8).
include findings of fact and reasons upon which the Board has made a decision.\textsuperscript{92}

C. \textit{Right to Information}

A concomitant of the emphasis on the public involvement in the air quality control that greater publicity would entail is the change under Article XVIII as to the availability of information. Under Article XVII records or information given to the Director were to be held in confidence, unless some action were taken by the Department to enforce the provisions of Article XVII.\textsuperscript{93} Under Article XVIII, however, a section has been added that permits the public access to "all records, reports and information . . . which pertain to the issuance of compliance orders, the granting or rejecting of permits or variances . . . ."\textsuperscript{94} Basically, the only times the Director will hold such information in confidence occur when trade secrets are involved, when an undue administrative burden would be placed on the Department, when the information would be commercially used, or when the information is prepared for litigation involving the county.\textsuperscript{95} The Bureau of Air Pollution Control\textsuperscript{96} has requested the Air Pollution Control Advisory Committee to amend this section to allow the public access, without exceptions, to emissions data. With this amendment the section on right to information would correspond to section 1806.3 of Ordinance XVIII.\textsuperscript{97}

D. \textit{Control Techniques}

1. \textit{Permits}

One method of control used in Article XVII was the permit system.\textsuperscript{98} The system provided for five kinds of permits: Installation, Operating, Periodic Inspection Certificates, Open Burning, and Solid Fuel Permits. The Installation Permit was required when any person constructed, installed, altered, or operated fuel burning or combustion equipment

\begin{footnotesize}
\begin{enumerate}
\item Id. § 1814.5B(9).
\item Art. XVII § 1719.
\item Art. XVIII § 1806.3A.
\item Id. § 1806.3C.
\item The Bureau of Air Pollution Control will hereinafter be referred to as the Bureau.
\item Amendment proposed by Gerald P. Dodson, Attorney for the Bureau of Air Pollution Control, at a hearing before the Air Pollution Control Advisory Committee, Mar. 1, 1973.
\item Art. XVII § 1718.
\end{enumerate}
\end{footnotesize}
in excess of 200,000 BTU per hour, or process or process equipment.\textsuperscript{99} The Operating Permit was required after the completion of the work authorized under the Installation Permit. The Bureau had the obligation periodically to inspect “all fuel-burning and combustion equipment or processes or process equipment, except domestic . . . .”\textsuperscript{100} If the inspection was favorable the Director issued a Periodic Inspection Certificate.\textsuperscript{101} Solid Fuel Permits served only as a mechanism for licensing sellers and distributors of solid fuel.\textsuperscript{102} The last permit, Open Burning, was a control procedure designed to allow open burning only when no alternative existed.\textsuperscript{103} Fees were paid for all permits except the Operating Permit and the Periodic Inspection Certificate.

Under Article XVIII the permit system has been restructured to provide a more effective control procedure. There are only three types of permits provided: Installation, Operating, and Variance Operating. The Installation Permit is similar to that provided in Article XVII, but covers a much broader spectrum. It is required whenever any person wants:

... to construct, install, modify, replace, or reactivate any device, machine, system, equipment, or other source of air contaminants which may result in the emission of air contaminants into the open air, or any device, machine, system, or equipment which may eliminate, reduce, or control the emission of air contaminants into the open air . . . .\textsuperscript{104}

The breadth of the Operating Permit has also been expanded to include sources previously covered by the Periodic Inspection Certificate. Now, all existing sources with potential polluting capability must obtain an Operating Permit, unless covered by the third kind of permit.\textsuperscript{105}

The final permit is the Variance Operating Permit. The permit is issued for sources of air contaminants when a variance has been requested for that source.\textsuperscript{106}

\textsuperscript{99} Id. § 1718.2A.
\textsuperscript{100} Id. § 1718.4A.
\textsuperscript{101} Id. § 1718.4.
\textsuperscript{102} Id. § 1718.5.
\textsuperscript{103} Id. § 1718.6.
\textsuperscript{104} Art. XVIII § 1815.1B (emphasis added).
\textsuperscript{105} No person shall operate any device, equipment, system, machine, or other source of air contaminants, which may, if uncontrolled, result in the emission of air contaminants, or any device, equipment, system, or machine which may eliminate, reduce, or control the emission of air contaminants into the open air, unless he has obtained an Operating Permit or a Variance Permit for the operation of such device, machine, equipment, or system . . . .
\textsuperscript{106} Id. § 1815.1 (C)(1) (emphasis added).
\textsuperscript{106} Id. § 1815.1(D).
Fees must be paid for each kind of permit. Article XVIII established a more detailed and expensive schedule of fees than that which Article XVII had provided. In practice the permit system established under Article XVIII has failed in one significant area. The Director or his designated representative has the authority under section 1807 to issue compliance orders. The compliance orders may require compliance with the provisions of Article XVIII or may require the sealing of a source or the establishment of an "additional or more restrictive emission standard or standard of performance designed reasonably to attain all ambient standards . . . ."107 The authority to order compliance with a different standard may mean that the source would not fit within the three kinds of permits. The source would not be installing equipment; the Operating Permit cannot be issued as the source is not in compliance with the standards established in Article XVIII; and a Variance Operating Permit is not appropriate since a variance has not been requested. The anomalous situation resulting is that no permit may be issued, thus ostensibly violating section 1811.5 and no fees are paid by sources operating under a compliance order. The Bureau is aware of this problem and has requested the Air Pollution Control Advisory Committee to recommend an amendment to Article XVIII which would provide for a fourth kind of permit to cover sources operating under a compliance order.108

2. Emergency System

In addition to the comprehensive permit system, Article XVIII contains a comprehensive emergency system. Designated major source polluters are required under this ordinance to put into operation previously drafted source curtailment plans to reduce their emissions during first and second stage alerts and emergency alerts in Allegheny County.109 For example, a manufacturer with more than twenty employees in one locale may be subjected to the following requirements under a first stage alert:

a. Reduction of emissions from manufacturing operations by curtailing, postponing, or deferring production and allied operations.

107. Id. § 1807.1.
108. Amendment proposed by Gerald P. Dodson, Attorney for the Bureau of Air Pollution Control, at a hearing before the Air Pollution Control Advisory Committee, Mar. 1, 1973.
109. Art. XVIII § 1813.2(A).
b. Reduction of emissions by deferring by-product or trade waste or trade waste disposal.
c. Reduction in emissions of air contaminants by the maximum efficient use of process heat equipment.\textsuperscript{110}

Under a second stage alert, the requirements are more exacting:

a. Reduction of emissions by utilizing fuels having low ash and sulfur content, using gaseous fuels if possible.
b. Reduction of emissions by diverting electric power generation to stations outside Stage II Alert area.
c. Reduction in power supplied to users outside Stage II Alert area.\textsuperscript{111}

Finally, under an emergency alert, a manufacturer with more than twenty employees in any one location may be asked to meet the following requirements:

a. Elimination of air contaminants from manufacturing operations by ceasing, curtailing, postponing, or deferring production and allied operations to the maximum extent possible without causing injury to persons or substantial damage to equipment.
b. Elimination of air contaminants from by-product or trade waste waste disposal operations.
c. Maximum reduction in emissions of air contaminants by the maximum efficient use of process heat equipment for the purpose of preventing substantial damage to equipment.\textsuperscript{112}

\textbf{E. Ringelmann Chart}

Another change in Article XVIII is the provision with respect to the Ringelmann Scale\textsuperscript{113} for measuring smoke pollution. Under Article

\textsuperscript{110} Id. § 1813.2.
\textsuperscript{111} Id.
\textsuperscript{112} Id.
\textsuperscript{113} See Appendix D for a sample Ringelmann Smoke Chart.

The Ringelmann Smoke Chart, developed by Professor Maximilian Ringelmann in Paris, France, was first introduced into the United States in 1897. It was specifically mentioned in an ordinance of Boston, Massachusetts in 1910 and is presently widely used in jurisdictions which have enacted standards relating to the chart. Staff, Bureau of Mines, Ringelmann Smoke Chart 1-2, May 1967 (U.S. Department of the Interior, Bureau of Mines, Information Circular 8333). The Ringelmann Chart has some inherent problems:

The apparent darkness or opacity of a stack plume depends upon the concentration of the particulate matter in the effluent, the size of the particulate, the depth of the smoke column being viewed, natural lighting conditions such as the direction of the sun relative to the observer, and the color of the particles. Since unburned carbon is a principal coloring material in a smoke column from a furnace using coal or oil, the relative shade is a function of the combustion efficiency.

\textit{Id.} at 2.
XVII general reference was made to the use of the Ringelmann Chart for measuring density, appearance, or shade of smoke.\textsuperscript{114} The Ringelmann Chart is known to those involved in the field of smoke control, and a passing reference would be expected in an air pollution control statute for industrial Pittsburgh. The problem that has arisen from a nonspecific authorization for the use of this measuring chart is that an expert, trained in its use does not necessarily have to have the chart before him in order to gauge smoke pollutants. An expert trained in the workings of the chart can rely on his memory of its standards. In the pollution cases that have arisen in the Commonwealth of Pennsylvania this very evidentiary problem has been faced, and it has been decided adversely to an application from memory, of the chart. In \textit{Bortz Coal Co. v. Commonwealth},\textsuperscript{115} the court held that an expert, trained in the use of the chart, had to employ it physically at fifty paces, while simultaneously studying a smoke pollutant.\textsuperscript{116} The court decided the burden

\begin{itemize}
\item However, the Ringelmann System is still used by the Bureau of Air Pollution of Allegheny County in conjunction with a smokescope:
\item The Ringelmann Chart is a series of grids which when held a certain distance from the eye merge into a shade of gray, and they are used as standards for comparing the degree of darkness of smoke; it is normally placed about 50 foot [sic] from the observer. The observer then compares the smoke issuing from the stack as it most nearly compares to a shade of gray on the chart. The observer then identifies the appropriate shade of gray and indicates if it is Ringelmann p. 1, 2, 3, 4, or 5. If the smoke is clear, it would be 0, and if it were dense and black, it would have a number 5 rating. Mr. Bulger [Arthur J. Bulger is currently an administrator of the Bureau of Air Pollution Control] testified that because of the inconvenience associated with the use of the Ringelmann Chart, it is no longer used by the Bureau of Air Pollution Control.
\item Mr. Bulger indicated that the Bureau is presently utilizing a smokescope and such a device was introduced into evidence. Mr. Bulger explained that a smokescope is an optical device which basically consists of a disk as seen to the viewer. In this disk there is a hole in the center which is clear. Then on either side of the disk, so that it can be seen at the same time as the viewer is looking through the hole, is a shade of gray which corresponds with Ringelmann No. 2 and a darker shade which corresponds with Ringelmann No. 3. The observer looks through the smokescope at the smoke plume and presumably can identify if the smoke plume is Ringelmann No. 2 or less, or if it is Ringelmann No. 3 or more.
\item Mr. Bulger has stated in his opinion the smokescope is no better than the naked eye, but its use avoids extensive cross-examination of the observer on his qualifications. Interview with Arthur Bulger, Administrator of the Bureau of Air Pollution Control, in Pittsburgh, Pa., Mar. 9, 1973.
\item 114. Art. XVII § 1705 1.A.
\item 115. 2 Pa. Comm. Ct. 441, 279 A.2d 388 (1971). Judge Kramer noted the problem of air pollution has not been only of recent concern:
\item Even William Shakespeare, over 300 years ago, placed the following words in the mouth of Hamlet, Prince of Denmark: “This most excellent canopy, the air, look you, this grave o’erhanging firmament . . . appeareth no other thing to me than a foul and pestilent congregation of vapors.”
\item \textit{Id.} at 445 n.2, 279 A.2d at 391 n.2. For a criticism of the \textit{Bortz Coal} opinion see Picadio, supra note 23, at 217.
\item 116. 2 Pa. Comm. Ct. at 460, 279 A.2d at 399.
\end{itemize}
of proof question adversely to the Commonwealth since the only expert witness who testified as to the emissions violations that had occurred "used none of the available instruments for testing smoke emissions or falling particulate matter." Thus, in Bortz Coal, the Commonwealth failed to meet its burden of proof, the substantiality of the evidence. With the specific reference to memory application of the Ringelmann Scale in the Allegheny County statute, the evidentiary problem has been resolved in favor of the public. The language of Article XVIII reads as follows:

The opacity of visible air contamination may be measured using:
(1) Any device approved by the Director, or
(2) Observers trained and qualified to measure opacity with the naked eye or with the aid of any device approved by the Director.

In measuring the opacity of visible air contaminants for the purpose of determining a violation of Subsection .1A, opacity may be measured at the densest point of an emission.

F. Penalties

One final comparison must be made between Article XVII and Article XVIII, and that is with regard to penalties. Both articles incorporate the traditional common law remedies on a cumulative basis. Penal provisions have been built into both statutes, with the sanctions of Article XVIII being more stringent. Whereas under Article XVII a polluter might be fined no more than $100 and/or imprisoned for a period of thirty days for a summary offense, Article XVIII provides for a summary offense which has a minimum-maximum schedule
from $30 to $300, and an alternative penalty of imprisonment ranging from ten to thirty days. Moreover, Article XVIII has a misdemeanor section with provision for fine and imprisonment for a second violation of the statute, with fines for a second violation ranging from $500 to $1,000, and imprisonment of up to one year being an additional penalty available. Special notice should be taken of the provision that the Board of Health, under both Articles XVII and XVIII, may petition the Court of Common Pleas of Allegheny County for an injunction to abate a particular air pollution problem.

IV. Secondary Levels of Control

A. State

The Pennsylvania Air Pollution Control Act is basically not applicable to the control of pollutants in Allegheny County since the local authority is autonomous. Nonetheless, the state legislation conceivably is applicable with regard to the criminal penalties, civil penalties, and citizens' suits. The recent amendments to section 4012, "Powers Reserved to Political Subdivisions," included a provision that irrespective of the autonomy granted local authorities, the state act was meant to provide uniform penalties and remedies. Thus, the

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123. Art. XVIII § 1817.1.
124. Id.
125. Id. § 1817.2; see pp. 645-47 infra (discussion of the impact of the recent state legislation which apparently abrogates Article XVIII's penalties and provides for more stringent fines and a civil penalty).
126. Art. XVII § 1723; Art. XVIII § 1819.
129. Id. § 4009. PA. STAT. ANN. tit. 35, § 4008 (Additional Supp. No. 3 1972) makes it unlawful per se "to fail to comply with any rule or regulation . . . to cause air pollution, or to . . . in any way interfere . . . with the department or its personnel in the performance of any duty hereunder."
130. Id. § 4009.1.
131. Id. § 4010(f).
132. For a general discussion of the recent amendments see Picadio, supra note 23, at 209-18.
134. Id. § 4012(g):

Irrespective of subsection (b) above, and in order that the civil and criminal penalties and equitable remedies for air pollution violations shall be uniform except insofar as they are inconsistent with the jurisdictional limitations of the minor judiciary and the Philadelphia municipal court, throughout the Commonwealth, the penalties and remedies set forth in this act in sections 9, 9.1, 10 and 11, shall be the penalties and remedies available for enforcement of any municipal air pollution ordinances or regulations, and shall be available to any municipality, public official, or other person having standing to initiate proceedings for the enforcement of such municipal ordinances or regulations and the amounts of the fines or civil penalties set forth herein
state penalties and remedies would be available for enforcing local regulations. Specifically, the amounts of the fines will be applicable to Article XVIII. Thus, for a summary offense the minimum fine would be $100 with a maximum fine of $1,000. Alternatively, in default of the fine a sentence of imprisonment of from ten to thirty days may be imposed. For a misdemeanor the fine is a minimum of $500 with a maximum of $5,000. Additionally, the defendant may be imprisoned for a maximum period of a year for each separate offense. Interestingly, the penalty section specifically states the term of imprisonment if an association, partnership, or corporation is convicted of a summary offense or a misdemeanor shall be served by “the responsible members, officers, employes or agents.”

The civil penalty available to a local autonomous authority is strikingly smaller. The state imposes on areas not autonomous a maximum fine of $10,000 for the first day and $2,500 for each additional day of a continued violation. If a local authority does not provide for a...
civil penalty the minimum fine is $25 with a maximum of $500 per day.  

Similarly, the new amendments arguably make available the remedies provided in subsection 4010(f). Thus, citizens, without having to prove property damage or personal injury, may sue to enforce the provisions of Article XVIII. One difficult problem, however, may be the question of standing to sue. Subsection 4012(g) states that the remedies under the state act will be available to a "person having standing." The citizen suit provision gives standing to any resident of the

provided at law for the collection of debt. If any person liable to pay any such penalty neglects or refuses to pay the same after demand, the amount, together with interest and any costs that may accrue, shall be a lien in favor of the Commonwealth upon the property, both real and personal, of such person, but only after same has been entered and docketed of record by the prothonotary of the county where such is situated. The hearing board may, at any time, transmit to the prothonotaries of the respective counties certified copies of all such liens, and it shall be the duty of each prothonotary to enter and docket the same of record in his office, and to index the same as judgments are indexed, without requiring the payment of costs as a condition precedent to the entry thereof.

141. Id. § 4012(f):

Any person, as herein defined, except a department, board, bureau, or agency of the Commonwealth, engaging in conduct in violation of a municipal air pollution control ordinance, shall, for each offense, upon conviction thereof in a civil proceeding before a judge of municipal court of Philadelphia, district justice, magistrate, alderman or justice of the peace be sentenced to pay the cost of prosecution and a civil penalty of not less than twenty-five dollars ($25.00), nor more than five hundred dollars ($500.00) for each day of continued violation. Such a penalty may be assessed whether or not the violation was wilful. Failure to pay any such penalty within the time prescribed by law shall be punishable as a civil contempt. Notwithstanding anything contained in section 9.2 of this act, all civil penalties and fees collected under this subsection shall be paid to the appropriate political subdivision, as provided by law, and shall be collectible in any manner provided by law for the collection of debt. If any person liable to pay any such penalty neglects or refuses to pay the same after demand, the amount, together with interest and any costs that may accrue, shall be a lien in favor of the appropriate political subdivision upon the property, both real and personal, of such person, but only after the same has been entered and docketed of record by the prothonotary of the county where such is situated: Provided, That nothing contained in this subsection shall preclude any public official from seeking, at law or at equity or before any appropriate administrative body, the assessment of civil penalties in the amount provided by section 9.1 of this act.

142. Id. § 4012(g).

143. Id. § 4010(f):

Suits to abate such nuisances or suits to restrain or prevent any violation of this act may be instituted at law or in equity by any resident of the Commonwealth after thirty (30) days notice has first been served upon the Attorney General of the intention to so proceed. Such proceedings may be prosecuted in the court of common pleas of the county where the activity has taken place, the condition exists, or the public is affected, and to that end jurisdiction is hereby conferred in law and equity upon such courts. Except in cases of emergency where, in the opinion of the court, the exigencies of the case require immediate abatement of said nuisances, the court may in its decree, fix a reasonable time during which the person responsible for the nuisances may make provision for the abatement of the same. The court may provide for the payment of civil penalty as specified in section 9.1 of this act during the time when air pollution will continue under its decree. It shall not be necessary to the maintenance of such suit by any resident of the Commonwealth that he shall prove that he has suffered or will suffer any personal loss or damage.
Comments:

Commonwealth who has first served the Attorney General with notice of his intention to sue to “abate . . . nuisances or to restrain or prevent any violation” of the state act.\textsuperscript{144} If by standing in subsection 4012(g) the statute means that the citizen must be a resident of the Commonwealth and give notice to the Attorney General, then clearly the citizen suit provision is effective to enforce Article XVIII. If the standing is interpreted, however, to be distinct from subsection 4010(f) and to require standing under the local regulation, then no citizen suits may be maintained in Allegheny County. Arguably, this position may warrant application since otherwise any resident of Pennsylvania, even those outside Allegheny County, may sue in Allegheny County to enforce the local regulation. If the courts construe standing to refer to subsection 4010(f) but also to be limited to residents of the autonomous locality, then perhaps the argument that citizens’ suits may be maintained in Allegheny County is more feasible. Citizen participation in enforcing the provisions of Article XVIII is of great importance in supplementing the existing governmental machinery.\textsuperscript{145} Witness the effectiveness of the Group Against Smog and Pollution (GASP) with its purely public relations and informative role.\textsuperscript{146} One cautionary note, the state citizen suit provision does not provide for the recovery of litigation costs. The expense of hiring counsel, experts, and conducting scientific tests may well mean that although citizens have the right to sue they may be unable financially to exercise that right.\textsuperscript{147}

\textsuperscript{144} Id.

\textsuperscript{145} Six states explicitly permit private citizens to sue to protect the environment. The following is a compilation of the number of suits brought under such enabling legislation: Connecticut—one; Florida—three; Indiana—two; Massachusetts—six; Michigan—33; Minnesota—seven. It should be noted that the first state to pass such legislation is Michigan, whose law allowing citizen environment actions was effective in October, 1970. Pittsburgh Press, Mar. 18, 1973, § A, at 26, col. 1.

\textsuperscript{146} See Appendix C.

\textsuperscript{147} A hypothetical plaintiff faces enormous financial burdens in pursuing his right to clean air, without the right to recover his attorney’s fees. How can an average plaintiff with an average of $309 damage per year (P. Johnson, Testimony Presented at the Regional Hearing of the President’s Committee on Health Education, Pittsburgh, Pa., Jan. 10, 1972) afford expert witnesses, let alone the costs of litigation? In La Raza Unida v. Volpe, 2 ENVIR. L. REP. 20691 (N.D. Cal. Oct. 19, 1972), the court awarded attorney’s fees and expert witness’ fees in a suit brought to enjoin the construction of a highway for failure to comply with the Department of Transportation Act of 1966. The court commented on the litigation expenses:

[Ex]hortations towards citizen participation can sound somewhat hollow against the background of the economic realities of vigorous litigation. In many “public interest” cases only injunctive relief is sought, and the average attorney or litigant must hesitate, if not shudder, at the thought of “taking on” an entity such as the California Department of Highways, with no prospect of financial compensation for the efforts and expenses rendered. The expense of litigation in such a case poses a formidable, if not insurmountable obstacle. Id. at 20693.

\textsuperscript{144} Id. at 20693.
The problems of the effects of the new amendments have been considered by the Bureau. Proposals have been submitted to the Air Pollution Control Advisory Committee to amend Article XVIII to bring it into conformity with the state penalties and remedies.\textsuperscript{148}

The state legislation effects the local administration of Article XVIII in three other ways:

1. If a complaint is made to or initiated by the Pennsylvania Department of Environmental Resources, and if the department finds a violation of the local regulations, it will notify the polluter and the local agency and if no action is taken after notification, the department may bring an abatement action under the state act.\textsuperscript{149}

2. If the local autonomous agency fails to perform its duties, the department may step in to enforce the local provisions.\textsuperscript{150}

3. If the department finds the local agency is unable or unwilling to handle air pollution problems, the department may suspend or rescind the prior approval given to the local agency to function autonomously.\textsuperscript{151}

The state legislation applies to all persons and entities, with one exception. Criminal penalties do not apply to governmental bodies.\textsuperscript{152} Civil penalties, however, apparently apply to such groups since no specific exemption is created for governmental bodies; civil penalties may be imposed on persons, and the definition given to "person" under section 4003 is:

Any individual, public or private corporation for profit or not for profit, association, partnership, firm, trust, estate, department, board, bureau or agency of the Commonwealth, political subdivision, municipality, district, authority or any other legal entity whatsoever which is recognized by law as the subject of rights and duties.\textsuperscript{153}

Class actions under \textit{Fed. R. Civ. P. 23(b)(3)} have not yet extensively been employed for combating the air pollution problems; however, some authorities feel that this type of a suit might be effectively used in the pollution area, once some problems, such as calculation of damages, have been worked out. TA C. WRIGHT & A. MILLER, \textit{FEDERAL PRACTICE AND PROCEDURE: CIVIL} \textsection{1782} (1972), see Koen & Ain, \textit{The Availability of Individual or Class Actions for Damages as a Deterrent to Air Pollution}, 16 N.Y.L.F. 751 (1970).

\textsuperscript{148} Amendments proposed by Gerald P. Dodson, Attorney for the Bureau of Air Pollution Control, at a hearing before the Air Pollution Control Advisory Committee, Mar. 1, 1973.


\textsuperscript{150} \textit{Id.} \textsection{4012(d)}

\textsuperscript{151} \textit{Id.} \textsection{4012(e)}

\textsuperscript{152} \textit{Id.} \textsection{4009(a)-(b)}

\textsuperscript{153} \textit{Id.} \textsection{4009.1}. \textit{But see} Bortz Coal Co. v. Commonwealth, 2 Pa. Comm. Ct. 441, 279 A.2d 568 (1971). Judge Kramer, in deciding the exemption of governmental bodies from

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The civil penalty provision for the autonomous municipalities, however, expressly exempts "a department, board, bureau or agency of the Commonwealth." The recent state legislation has yet to be judicially tested, but its significant effect upon the country cannot be overestimated.

B. Federal

The National Environmental Protection Agency (NEPA) was given a great deal of responsibility for carrying out the amendments to the Clean Air Act of 1970. There are four basic titles under the amendments: I. Air Pollution Prevention and Control; II. Emission Standards for Moving Sources; III. General Provisions (relating to administration and procedures); and IV. Noise Pollution.

Under Title I. Air Pollution, the amendments have recognized that:

The prevention and control of air pollution at its source is the primary responsibility of the states and local governments.

Although the basic responsibility has been given to the state and local governments, the federal statute has functioned to establish national primary (to protect the public health) and secondary (to protect the public welfare) ambient air quality standards, which set minimum levels for the states to implement.

The Administrator of the Environmental Protection Agency performs both administrative and enforcement duties. The Administrator and the NEPA have been given the primary responsibility of examining and approving the individual state implementation plans for the primary and secondary ambient air quality standards. Additionally, the penalty provision was constitutional, remarked there would be no meaning to exacting criminal penalties from the Commonwealth to return them to the Commonwealth's coffers. Id. at 453, 279 A.2d at 395. Perhaps this reasoning will be applied to the civil penalties section and the courts will judicially grant an exception for governmental bodies.

158. Id. §§ 1857f-1 to -12.
159. Id. §§ 1857g-e.
160. Id. §§ 1858-a.
161. Id. § 1857(a)(3).
162. Id. § 1857c-4.
163. Id. § 1857c-5.
Administrator may personally act to ensure that the provisions of the Act are obeyed, through the civil and penal sections of the Act. If the Administrator has not acted, a private citizen may either sue to have him enforce the Act or he may bring suit directly to enforce the provisions of the Act, for example, by suing for an injunction. The penal provisions of the Act include both fines and imprisonment. Noncompliance entails a fine of $25,000 per day and the possibility of imprisonment up to a year. For a second conviction the penalty is increased to $50,000 per day with possible imprisonment for up to two years. These provisions are initiated through the Administrator if the state has failed to enforce its plan of implementation, or these provisions may be enforced by an individual citizen who has brought suit to compel the Administrator to perform his duties under the provisions of the Act.

One criticism of the citizen-suit provision of the Act is the failure to allow private citizens to sue to recover private damages. Also, a citi-
 Comments

zen may not sue if the Administrator or the state has acted. The citizen does, however, have the right to intervene.

V. CONCLUSION

The experiences of Allegheny County give witness to effective local control. This industrial community has had a measure of success in implementing the provisions of its first important local legislation—Article XVII—and this community has taken a second step of using experiences under Article XVII to write Article XVIII. Article XVIII was drafted to meet the changing needs of the community, and its effectiveness is yet to be proven. If anything is to come out of the experiences of Allegheny County it is that local control can work. Second, that local success should be made available to other communities, and hopefully the experiences of other communities will be shared with Allegheny County. Only through such an exchange of information on problems and control techniques can the local experiment of control be brought to fruition, to provide better air and a cleaner environment for all communities and for the nation.

On February 15, 1973, President Nixon stated in his environmental message to Congress:

Now there is encouraging evidence that the United States has moved away from the environmental crisis that could have been and toward a new era of restoration and renewal. Today, in 1973, I can report to the Congress that we are well on the way to winning the war against environmental degradation—well on the way to making our peace with nature.

The President's remarks are true, that is, if one is content to look only to the immediate past and what is easily obtainable without sacrifice or compromise in the present or future. The authors agree not with the statements of the President, but with the remarks of the Honorable Carl Albert, the Speaker of the United States House of Representatives, who stated:

ever, that the section would specifically preserve any rights or remedies under any other law. Thus, if damages are shown, other remedies would remain available.

172. Id.
Today the problems of pollution, waste and environmental degradation are critical. They threaten us on a long range as well as day to day basis. As solutions for old problems are found, new problems are uncovered.

Our air may be a bit cleaner, as the President says, but it is not clean enough.

The battle is not yet won. It is only just beginning. Only if we use every resource at our command will we ever begin to catch sight of victory.\textsuperscript{173}

For over a decade the industrial community of Allegheny County has been working on its air pollution problems, and recently it has experienced some breakthroughs. If this country were to regard its efforts under Article XVII and Article XVIII as the conclusion of a successful battle against air pollution, there would hardly have been any point to the efforts made under the regulations. Air pollution has been taking place for a long time, and air pollution control will also take place for a long time. What has been accomplished under Article XVII and Article XVIII is one small step in a progression of steps towards optimum environmental regulation to meet the changing needs of man in an industrial community. Realistically, the most conclusive statement that can be made about the Allegheny County experience is "We have begun."

\textbf{Joy Flowers Conti}

\textbf{Janice I. Gambino}

VI. APPENDICES

Appendix A

Administrative Framework Under Articles XVII and XVIII

Board of County Commissioners

Board of Health

(Subdivision: Bureau of Air Pollution Control)

Air Pollution Control Advisory Committee

Board

1. Appointed by the Board of County Commissioners.

2. Art. XVII § 1703.1E; Art. XVIII § 1806.2. This Committee is appointed by the Board of County Commissioners. There are fifteen members, residents of Allegheny County, with no more than one-third from industry. They serve a one-year term. Under Article XVII, the Committee functioned to inform the Department of Health of enforcement problems, to coordinate activities and to make recommendations on solving problems, and to conduct studies on improving technology. Under Article XVIII, the Committee is to make periodic reports to the Department of Health on air pollution control technology.

3. Under Article XVII, the Board was named the Board of Air Pollution Appeals and Variance Review. Art. XVII § 1703.1F. Under Article XVIII, the name was changed to the Air Pollution Variance Board. Art. XVIII § 1814. The membership of both Boards was set as follows:

Required Under Both Articles

- Appointed by the Board of County Commissioners
- Five Members with term of four years (first Board to have shorter staggered terms: two members for two years each, two for three years each, and one for four years)
- Composition of Board:
  1. One member, physician licensed in Pennsylvania
  2. One member, engineer licensed in Pennsylvania
  3. Members at large
- Residency Requirement—Allegheny County

New Under Article XVIII

- One member, attorney, admitted to practice law before any United States court

Art. XVII § 1703.1F; Art. XVIII § 1814.1A.
What is GASP?
In October, 1969, a group of citizens who had participated in a public hearing to consider Pennsylvania’s air quality standards decided that concerted citizen action was the only way to fight pollution. This group, 43 strong, got together in a private home and formed GASP, Group Against Smog and Pollution—a non-profit citizens’ organization dedicated to improving the environment in Pittsburgh and Allegheny County. Today, thousands of concerned “breathers”—business people, students, homemakers, doctors, scientists, lawyers, white and blue collar workers, senior citizens—comprise the membership of GASP.

What GASP is Doing
GASP conducts an extensive education program. Through its speakers bureau, it tells the pollution story throughout the County. It conducts seminars for students, teachers, the clergy and the general public. It distributes information kits and sponsors guided tours of “pollution land” in the Pittsburgh area. Representatives of GASP, along with attorneys and scientists, appear on behalf of the public at all Variance Board hearings. GASP is researching available technology for pollution abatement and working to get enforcement of the regulation.

With the exception of one paid office secretary, all expertise and talent in GASP is volunteer.

What GASP Has Accomplished
GASP was responsible for strengthening the County’s air pollution code. Four of the five members of the Variance Board were recommended by GASP. GASP worked out an air pollution index to be given along with the daily weather report. GASP members have been appointed to the environmental advisory board at both the county and state levels. GASP established its own complaint department which forwards complaints to the control agency and keeps track of action taken.

What the U.S. Environmental Protection Agency says about GASP (EPA Citizens Bulletin)
"The impact of this citizen group can be measured by these facts: Allegheny County has one of the most stringent air pollution control codes in the nation and one of the most effective control agencies. Most polluters in the area are on planned compliance schedules and most are meeting their commitments. Polluters who fail to take corrective measures face the prospect that GASP will take them to court. . . ."

GASP’s Position
GASP works within the system in a responsible manner—prodding or supporting as necessary. GASP does not ask the impossible, but does demand compliance at the earliest possible moment within the state of the art of pollution control.


Appendix C²

DESCRIPTION AND SOURCES

SULFUR OXIDES

Chemical compounds of sulfur and oxygen. The most significant pollutants are:

-sulfur dioxide, a colorless gas, which has a pungent and irritating odor at concentrations above 3 ppm and which can be tasted at concentrations from .3 ppm to 1 ppm in air. In the atmosphere sulfur dioxide is partially converted to sulfur trioxide.

-sulfur trioxide, a gas which combines with water in the atmosphere to form sulfuric acid, or with other materials in the atmosphere to form various sulfate compounds.

U.S. emissions in 1967: 31.2 million tons

Nearly three-fourths of the sulfur oxides emitted in the U.S. in 1967 resulted from the burning of sulfur-bearing fuels in order to produce electric power and space heating.

(Coal combustion alone accounted for more than 60 percent of total emissions). Industrial processes, primarily smelting and petroleum refining, accounted for most of the remainder.

EFFECTS

ON HUMANS:

Sulfur dioxide gas alone can irritate the upper respiratory tract. If it is adsorbed on particulate matter, or if it is converted into sulfuric acid, it can be carried deep into the lungs, where it can injure delicate tissue.

Prolonged exposure to relatively low levels of sulfur dioxide has been associated with an increase in the number of deaths from cardiovascular disease in older persons.

Prolonged exposure to higher concentrations has been associated with an increase in respiratory death rates and an increase in complaints by schoolchildren of cough, mucous membrane irritation and mucous secretion.

Very heavy concentrations of sulfur oxides (as the four-day October 1948 air disaster in Donora, Pennsylvania) cause cough, sore throat, chest constriction, headache, a burning sensation of the eyes, nasal discharge and vomiting. During the year following the disaster, 20 people died in Donora, where the normal mortality would have been two.

ON PLANTS:

Damage to or death of trees and plants may occur as far as 52 miles from smelters discharging large amounts of sulfur oxides, and levels routinely observed in U.S. cities are damaging to plants. The plants most sensitive to sulfur pollution are those with leaves having high physiological activity—alfalfa, grains, squash, cotton, grapes, white pine, apple and endive.

ON MATERIALS:

Sulfur oxides attack and destroy even the most durable of materials. Steel corrodes two to four times faster in urban and industrial areas than it does in rural areas, where much less sulfur-bearing coal and oil are burned. Sulfur pollution also destroys zinc, silver and palladium (used in electrical contacts), paint pigments and fresh paint (thus delaying drying), nylon hose (which can be destroyed during a lunch hour in a high-sulfur atmosphere), and stone buildings and statuary.

Cleopatra's Needle, a famous sculpture from ancient Egypt, has deteriorated more in the 90 years since its arrival in New York City than it did during the more than 3,000 years it spent in Egypt. The corrosive action of the sulfur oxides is accelerated by the presence of particulates and water.

ON VISIBILITY:

When high concentrations of sulfur oxides are coupled with relatively high humidity, visibility goes down because of the formation of sulfuric acid, which scatters light. Reduced visibility is a hazard to land, water and air transportation.

ABATEMENT AND CONTROL METHODS

1. Change from high-sulfur coal and oil to low-sulfur fuels or electricity.
2. Removal of sulfur from fuel before use. For coal, cleaning techniques (crushing and flotation); for fuel oil, catalytic treatment with hydrogen or blending with low-sulfur distillate oils.
3. Increased combustion efficiency.
4. Removal of sulfur oxides from flue gases by:
   - Reaction with calcined limestone, then removal by fly ash control devices or wet scrubbers;
   - Reaction with alkalized alumina, followed by recovery of sulfur (which has commercial value);
   - Catalytic oxidation to sulfuric acid (which has commercial value).
5. Dispersion by use of tall stacks. Limited by local meteorological and topographic conditions.
REDUCTION—33 1/3 %