REPORT

TO THE

NEW JERSEY LEGISLATURE

ON

Air Pollution in New Jersey and Recommendations for its Abatement

MARCH 19, 1952

NEW JERSEY AIR POLLUTION COMMISSION

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On April 12, 1950, a joint resolution was passed by the State Senate and General Assembly creating a Commission charged with the responsibility of studying air pollution in New Jersey and recommending legislation to deal with the problems in the field.

At the request of your Commission, the 1951 Legislature extended by one year the time allotted and allocated $30,000 for this study. Of this amount, less than $4,000 has been spent.

The term "air pollution" at present means a variety of things, depending upon one's experiences. For example, in Donora, Pennsylvania, because of the combination of unusual atmospheric conditions (atmospheric inversion) and a topography (valley surrounded by mountains) that did not allow for dispersion of pollutants, a sufficient build-up of pollutants occurred over a 3- or 4-day period to cause illness and even death.

To Los Angeles residents the term "air pollution" has a different meaning. There, frequent atmospheric inversions, coupled with mountains on three sides and air pressure from the ocean side, frequently interfere with the proper dispersion of pollutants. During these periods of atmospheric stability, eye-smarting and injury to vegetation are of common occurrence. Those in charge of air pollution abatement work in this area report that, despite claims to the contrary, there is no evidence of air pollution adversely affecting human health in Los Angeles.

To residents of Pittsburgh, Salt Lake City, and other places, "air pollution" might mean excessive soot, dirt, or fly ash in the air, necessitating excessive laundry and

cleaning bills. To others, it means paint corrosion or darkening; to others, unpleasant odors; and to still others, damaged agricultural crops or injured animals.

In addition to the aforementioned types of atmospheric pollutants, which may be considered man-made, "air pollution" to some persons means pollutants that are not man-made. For example, to a farmer in Kansas, "air pollution" means dust storms; to an allergic person, it may mean ragweed pollen.

For the purpose of our study we chose to limit "air pollution" to the presence in the atmosphere of substances put there by the acts of man, excluding all aspects of employer-employee relationships respecting health or safety hazards on the job. Air pollution encountered on the job is normally considered to be the province of the Department of Labor and Industry.

As a preliminary to a study of legislation dealing with air pollution, the Commission invited representatives from the State Departments of Health and of Labor and Industry, together with a representative of the New Jersey Agricultural Experiment Station, to discuss with the Commission their experiences with air pollution in New Jersey. These agencies were chosen because they are the ones currently dealing with problems created by air pollution. During these discussions, which occurred during several meetings, all three groups reported that air pollution had presented a number of problems. They also reported that all bona fide cases involving air pollution in the fields covered by the various departments concerned were settled by recourse to existing legislation or by co-operative efforts.

From these discussions the Air Pollution Commission learned that in 30 instances in New Jersey in the free air outside industrial plants, air pollution had been classified as "alleged" threats to health. Not a single instance was cited, however, where air pollution had been established as adversely affecting health. This was confirmed at the recent Governor's Conference on Air Pollution (Trenton, February 19 and 20, 1952), when the Commissioner of

Health reported that there had been no demonstrable instances in New Jersey where air pollution had adversely affected health. However, he added that research on the subject was needed. As a summary of the Conference, Mr. C. A. Gosline, Technical Program Chairman, said among other things, that the evidence brought forth indicated that air pollution does not have health implications except under such a combination of unusual atmospheric and topographical conditions as occurred at Donora. It is indeed fortunate that the topography of our industrial areas is such as to afford good air drainage. At the manufacturing chemist association meetings held in New York City on February 25th of this year, Dr. John H. Foulger reported that air pollution, as it occurs in our industrial cities, does not produce demonstrable pathological conditions in man. He also reported, that air pollution may produce physiological disturbances that are not now understood. In view of these findings, the Commission is of the opinion that air pollution as it now exists in New Jersey cannot be considered to present a demonstrable health hazard. So far as damage to plant life by air pollution is concerned, 13 cases since 1944 have been investigated in New Jersey where such damage has occurred. A large majority of all complaints investigated by all agencies concerned were of the nuisance type.

During the interviews with representatives of the three State agencies, an effort was also made to ascertain whether additional legislation was needed to aid these agencies in carrying out their responsibilities to the people of the State. In reply to this inquiry, the State Department of Health indicated a desire to have all air pollution control, including the right of entry, placed under its jurisdiction. Since, according to Dr. Bergsma, failure to grant these requests would not curtail the activities of the department, and since his request seemed to justify study, no legislation was proposed at that time (1951).

The representative from the Experiment Station urged that the funds now being appropriated for the investiga-

tion of air pollution as it affects agriculture be continued. He further urged that, if legislation is prepared, it provide ways and means for those acquainted with the problems of agriculture to have a voice, especially in such cases as affect agriculture.

Following these meetings, the Commission met with representatives of industry to determine what they were doing about the problem and what recommendations they had to offer. From this series of conferences we learned that industry in general was very much aware of the problem, as indicated by the fact that industry in New Jersey spent more than $18,700,000 on air pollution abatement equipment between 1945 and 1950 and that plans called for the installation of more than $4,700,000 worth of abatement equipment during the following two years. This air pollution abatement equipment is operated at an annual cost in excess of $1,600,000.

In addition, we found that the New Jersey State Chamber of Commerce had organized an air pollution committee with subcommittees covering much of the industrial segment of the State. These committees were organized to study air pollution in their respective areas, to encourage industries which need such encouragement to reduce their atmospheric pollutants, and to supply "know how" to small organizations which lack this specialized information.

In an attempt to determine whether these efforts on the part of the State Chamber of Commerce could in themselves adequately control air pollution in New Jersey, two approaches were employed.

The first was an inside-the-plant survey conducted by qualified engineers of Rutgers, the State University, to determine the following points: A. To what extent industry is currently making an effort to abate air pollution; B. Whether industries are making plans of their own accord to reduce air pollution in the future; C. Whether, in the surveyors' opinion (gained from what they saw and heard), air pollution would be adequately handled voluntarily, or whether legislation would be necessary to take care of the job properly.

The second approach was to visit key areas in the United States where air pollution legislation is in effect, to determine, among other things, what voluntary efforts industry had employed prior to enactment of legislation and the degree of success achieved by their efforts.

Rutgers Survey

As a preliminary to an inside-the-plant survey by qualified engineers belonging to the faculty of the State University, approximately 650 questionnaires were sent to the municipal departments of health in the communities of the State and to the 20 county agricultural agents. Of these, 234, or 36 per cent, were returned. The newspapers of the State were also sent the questionnaire because many of them had indicated interest in the subject.

The 234 questionnaires returned by the local departments of health and the agricultural agents indicated the existence of more than 300 individual sources of air pollution complaints in the areas covered. It must be remembered that these were not necessarily demonstrated sources of pollution. They were only suspected sources. It is important to note also that this approach probably excluded the hundreds of industrial plants in which air pollution had not been a problem or where the necessary steps had been taken to abate the nuisance. It is of interest to note that of these total complaints, 67.2 per cent involved industry as the source of the pollution, and 18.2 per cent represented complaints against facilities used in the disposal of sewage and garbage. Railroads were the source of 9.8 per cent of the complaints, and agricultural and domestic sources accounted for 3.3 and 1.4 per cent respectively.

Since industry represents the largest single source of the complaints received and was the one source where representatives had initiated, on their own accord, a program designed to abate air pollution, it was decided that the

group from Rutgers, because of an acute shortage of time, should restrict their survey efforts to industrial operations. This was done despite the fact that city dumps, piggeries, etc., provide some of our most odoriferous pollutants.

The thirty-five plants visited were selected from all parts of the State and represented many types of industries. From these inspections it was found that although individual industries, particularly the larger ones have done much to abate air pollution, there is a sizable group that apparently has no interest in curtailing this nuisance. It is for this group that regulative legislation seems necessary.

Experiences Outside of New Jersey

The Commission decided to send two of its members to several places around the country where air pollution legislation is in effect. The purpose of this trip, in addition to a study of air pollution legislation and its effects on all concerned, was to learn what efforts to effect abatement had been made prior to the enactment of legislation, and the degree of success achieved.

In *Los Angeles* the Chamber of Commerce reports having had in effect for 20 or more years a program designed to reduce air pollution. Among other steps taken, a man was kept on duty 24 hours a day to receive and investigate complaints. Where complaints were found to be legitimate, the offender was so notified and was urged to correct the situation. Despite this effort prior to the enactment of legislation, air pollution in Los Angeles increased steadily. On the basis of these experiences, Mr. Cole (Manager of the Industries Department, Los Angeles Chamber of Commerce) expressed the opinion that legislation was necessary to properly control air pollution in that city.

In *Oregon,* injury to agriculture and to forestry by a fluorine-containing gas provided the impetus for the formation, by the Governor, of a committee to study the problem. Mr. Sterrett, Manager of the Industrial Department

of Portland Chamber of Commerce, who served on the Governor's committee, considers legislation to be necessary to control air pollution.

In *Salt Lake City* air pollution control legislation has been in effect since 1919. Here, as elsewhere, co-operative efforts to control the smoke problem were not adequate. However, Mr. Butler, Chief of the Smoke Control Division, expressed the opinion that an educational program, coupled with attempts by industry to police itself, would probably result in substantial correction. Mr. Backman, Manager of the Industries Division of the Salt Lake Chamber of Commerce, expressed the opinion that legislation is necessary to control air pollution.

Experience in each of the remaining places visited (St. Louis, Cleveland and Pittsburgh) indicated that voluntary efforts were, of themselves, insufficient to abate the problem, and all of these cities considered legislation to be necessary and helpful. Those interviewed also expressed the belief that legislation had not kept industry from coming into their areas. They readily agreed, however, that poor legislation unwisely administered could have very harmful effects on industry.

The evidence gathered during this two-year investigation indicates that although much can be done on a co-operative basis to reduce air pollution, the problem cannot be adequately handled voluntarily. If the air is to be freed of much of its ash, haze, and foul odors, legislation is necessary, but legislation alone will not clear the air. To do this, a properly equipped, highly skilled staff and time, perhaps much time, will be needed. In several cities where the problem has been relatively simple (smoke), smoke reduction was not evident to an observer until legislation had been in effect for approximately three years. In Los Angeles it has taken a large, highly skilled staff about four years to identify the pollutant (unburned gasoline vapors) responsible for its smog. The method for controlling these vapors has yet to be found.

Despite the many difficulties to be encountered in solving the complex air pollution problems, we confidently believe that good legislation, wisely administered, cannot fail to produce the desired results utimately.

Types of Legislation

There is currently in effect in the United States three types of legislation dealing with air pollution: 1. Ordinances enacted on the local level; 2. State enabling legislation, authorizing lesser political entities, such as counties or groups of counties, to create control authorities and establish regulations; and 3. Provision for decisions and control entirely on the State level.

Each of these plans has obvious advantages, and each seems also to have certain disadvantages. For example, ordinances enacted by individual cities, and to a lesser extent by counties, place the full economic impact of cleaning up the atmosphere upon the local area which desires the action. On the other hand, the technical complexity of many air pollution problems and the resulting need for a sound technical approach, to minimize costly mistakes, necessitate the availability of adequate facilities and properly trained personnel. With the exception of a few of our nation's largest metropolitan centers, these would be unobtainable because of investment and operating costs. It is also true that air pollution does not recognize political boundaries, and thus wholly local control allows the possibility of conflict between municipalities or counties.

A State level organization can be expected to have the potential capacity for dealing adequately with the technical aspects of air pollution control. However, it is feared that the State legislation now in effect may not have included adequate provisions for the interpretation of local sentiments. This failure would be especially magnified in a State such as New Jersey, which has such a heterogeneous air pollution situation. The likelihood of atmospheric pollutants crossing political lines to create problems in neighboring States is real and indicates the desirability of New Jersey's participation in regional attempts at air pollution control.

Regardless of the type of air pollution control enacted, it is of utmost importance because of possible economic implications, that the rules and regulations be determined by the combined wisdom of men of varied backgrounds of experience and training and this only after local interests and sentiment have been accurately ascertained.

The best solution to the legislative problem is believed to lie in a system which utilizes the advantages of both State and local control plans. Basically this provides that the State handle the technical aspects combined with provisions for exerting local influence to make certain that the local interests are adequately taken into account.

Recommended Legislation

We favor State legislation that will (a) authorize a commission to develop air pollution standards for the State, for atmospheric pollutants that may be found to produce demonstrable health implications in man or other animals, or that damage vegetation or property; (b) and also develop codes to be applied on a county or area basis dealing with air pollutants that are considered to have nuisance value only.

So far as the pollution standards are concerned, they should be adopted only after adequate discussions are held on county, area, and State levels as provided for hereafter.

Organization

We further suggest that an Air Pollution Commission consisting of seven persons having a term of office of four years' duration (staggered) be appointed by the Governor with the approval of the Senate. (Refer to diagram of organization at end of discussion.) This Commission should consist of one representative from the Department of Health, one from the Department of Labor and Industry,

and one from the New Jersey Agricultural Experiment Station; together with a representative of industry; a professional engineer, and two representatives from the public-at-large. The Chairman of the Commission should be elected annually by the Commission from its own membership. Each member of this Commission should continue to serve until his successor is approved.

The Commission should, 1. Receive State and private appropriations; 2. Formulate policies; 3. Determine codes on State, area, and local bases and have the authority for their enforcement; 4. Appoint a full-time director who should be designated Director of New Jersey Air Pollution Control and have a salary of $12,000 per annum; 5. Review director's rulings and 6. Represent New Jersey in interstate air pollution matters. The Commission should be compensated on a per diem basis ($25.00) excluding those heads of State Departments who may be appointed to this Commission. The Commission members should also be reimbursed for expenses incurred in carrying out their assignments.

The Commission and Director should be empowered to employ consultants to supply scientific knowledge or judgment when desired.

The Director should be primarily an administrator, but should be sufficiently well trained to direct and evaluate a research program. He should be a good public relations man and should enjoy the confidence of industry, agriculture, and the public.

The Director, with the Commission's approval, should develop a suitable organization, including that required for the necessary research, and employ the necessary personnel.

In order that nonallowable concentration standards (codes) may reflect public thinking and desires, an Air Pollution Control Association on the State and local level is also proposed. This plan will give an excellent opportunity for all interests to be presented and considered.

On the State level the Air Pollution Control Association should consist of three members from each county who should be appointed by the Air Pollution Commission. These three members should include a representative of agriculture, a technically trained man to represent the public, and a represenative of industry. This Association should choose its own chairman and perfect its own committee organization. The Director should attend the meetings of this Association. This would enable him to keep abreast of local problems throughout the State and to supply information to the Association.

It is suggested that each county Air Pollution Control Association be appointed by the State Air Pollution Control Association after receiving nominations from appropriate groups within the county. The purpose of this organization, county and State, would be to give everyone concerned an opportunity for expression before action was taken on codes and penalties.

After a thorough study, followed by public hearings, the county associations might decide on the codes needed to serve the interests of the county or area in which they may be zoned. These decisions would be taken to the State Association for further study and hearings. Thereafter, the recommendations would be forwarded to the Air Pollution Commission. The members of the Commission, together with the Director and such consultants as seemed desirable, would further consider the recommendations and finally either return the recommendations to the Association for further study or on the basis of the information at hand, adopt codes for the State and, where necessary, codes for special areas.

Enforcement

As a check and balance for the decisions of the Commission, it is suggested that the Governor also appoint a three-man Appeal Board which shall include a lawyer and an engineer. These appointments are also to be approved by the Senate. This Board would review contested rulings

made by the Director and upheld by the Commission. This Board should also have authority either to uphold the Director's and Commission's ruling or to overrule it. If either party wished to contest a ruling made by the Appeal Board, that party then would have redress in the courts.

The Appeal Board members should serve for a period of six years (staggered) and be paid $25.00 per diem for the days they meet. The Appeal Board members should also be reimbursed for expenses incurred in performing their assignments. Each member of the Appeal Board should continue to serve until his successor is approved.

Where Administered

At present, air pollution in New Jersey is handled by 1. the State Department of Health and 2. the New Jersey Agricultural Experiment Station. Many types of pollution receive no attention from any government agency. Since there are no known instances in New Jersey of air pollution with demonstrable health implications; and since placing all air pollution problems in one agency is generally considered to conserve manpower and hence expense, as well as equipment; and since jurisdictional disputes and duplication may be avoided by a common leadership, we propose that all air pollution, regardless of its location and nature, be placed in one department. However, we recommend that such research as seems advisable in agriculture or human health be referred to the appropriate groups in the State that deal with these respective fields. We further propose that since the problems of air pollution far exceed the present fields of any interested group, and to avoid the overemphasis of any one group, the air pollution control authority be placed in the Department of Law and Public Safety.

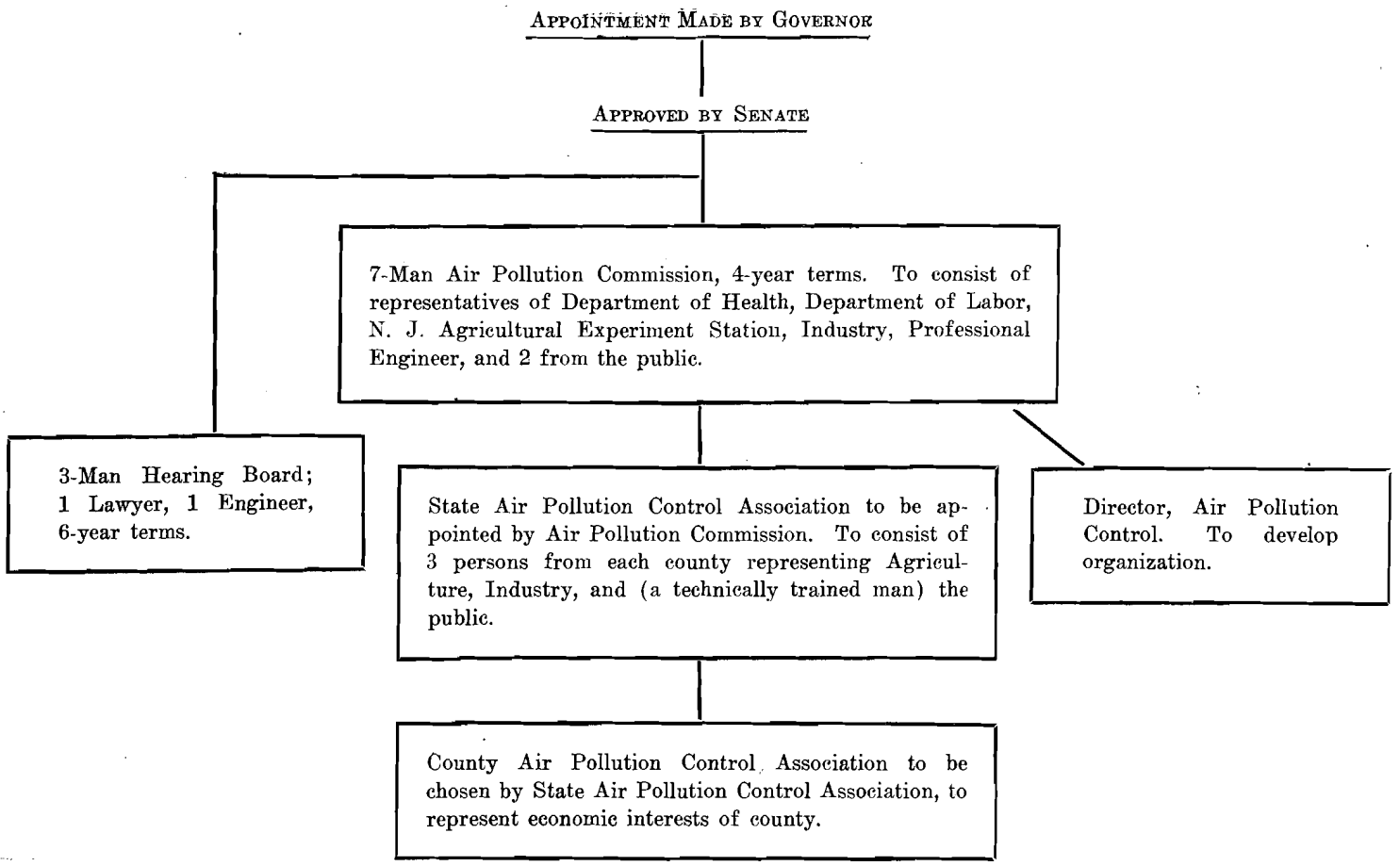
The foregoing plan is sound and democratic. It means that the Director must be selected with extreme care. He should be a practical man who fully realizes the importance of industry and other interests to the State. In addition,

he should be a man who will endeavor to quiet rather than arouse fears. He should also be one who will invoke his powers with discretion where industry or those in charge of community dumps or other causes of air pollution are honestly trying to solve their problem of abatement, even though the letter of the law may give him authority to act. Further, he must be one to whom industry can bring its problems without fear of betrayal.

The foregoing plan has brought forth the following words of praise from Salt Lake City, St. Louis and Cleveland: "This is truly a wonderful plan;" "This plan should serve as a pattern for future State legislation."

According to this plan, codes or standards and penalties would not be included in the present bill. They would be determined later through the channels outlined.

The bill would, 1. authorize the creation of the organization as outlined; 2. grant to authorized personnel the right of entry to inspect all points relating to the emissions of the air pollutant in question; 3. authorize the Air Pollution Commission to set standards (codes) regulating emission into the atmosphere and recommend the classification of the violation; 4. authorize the Air Pollution Commission to require registration to be filed with the Director of Air Pollution Control, together with such specific information concerning the air pollutant and such sources of air-polluting emissions and potential sources of emissions as may be required; 5. authorize the Director of the New Jersey Air Pollution Control, on approval of a majority of the Air Pollution Commission, to require that air-polluting operations cease, should conditions develop resulting in the accumulation of pollutants in dangerous concentrations in the atmosphere.



The Air Pollution Commission has found the assignment of studying air pollution in New Jersey and recommending legislation to deal with the problems, a challenging one. It is our desire that the foregoing will assist you of the Legislature to deal wisely with this important problem. It is in this spirit that this report is respectfully submitted.

Former Senator Freas L. Hess, *Chairman*

Senator Bernard W. Vogel

Assemblyman Donald D. Mackey

Assemblyman William Kurtz

Former Assemblyman Lewis M. Herrmann

Dr. Robert H. Daines, *Secretary*

Julius G. Berger

Donald L. Ferguson

Fred Kraissl, Jr.

Frederick E. Trogler

Howard H. Eberle

Edward F. O'Brien

Report on Introductory Survey of Sources of Air Pollution in the State of New Jersey

Submitted to the

State of New Jersey
Commission on Air Pollution
Senator Freas L. Hess, *Chairman*

by the

Rutgers University
Committee on Air Pollution
Dr. Elmer C. Easton, *Chairman*

January 28, 1952

Rutgers University
The State University of New Jersey
New Brunswick, New Jersey

Report on Introductory Survey of Sources of Air Pollution in the State of New Jersey

This survey was conducted by members of the faculty of the College of Engineering and the College of Agriculture at the request of the New Jersey Air Pollution Commission. The first step was the sending of Questionnaire No. 1 with an accompanying letter, as attached hereto, to the local boards of health and county agents throughout the State. Dr. Robert H. Daines, Professor of Plant Pathology at the College of Agriculture and Secretary of the State of New Jersey Commission on Air Pollution, distributed approximately 650 questionnaires, out of which 234 were returned.

Table I shows the results of this questionnaire. About one-third of those to whom such questionnaire was sent had replied. In several instances, there was wide discrepancy. For example, the officer of one community replied that there were no complaints, no pollution, and no smoke. From the officer of the adjacent community came the report that he had sixty complaints about smoke and seventy-five complaints about fumes. By indirect means, it was learned that many board of health officers were afraid of political and perhaps other repercussions, and therefore either did not reply or presented an untrue picture in their reply. In view of this attitude, some of these questionnaires were sent to various newspapers throughout the State, and here again the results were far from the expected. Many large communities, e.g Jersey City and Newark, did not reply. It became obvious that this method of gathering information is inadequate and unsatisfactory.

TABLE I

QUESTIONNAIRE NO. 1 RESULTS

County	No. of Replies	No. Reporting Complaints	Approximate Number of Complaints — Smoke	Dust	Fumes	Odors
Atlantic	8	3	81	..	76	1
Bergen	22	14	29	23	39	over 1,100
Burlington	12	8	4	1	1	30
Camden	14	7	23	20	3	4
Cape May	7	2	2	..	..	1
Cumberland	9	6	3	1	1	5
Essex	10	8	75	12	10	16
Gloucester	11	4	5	1	1	3
Hudson	5	5	9	1	5	2
Hunterdon	11	5	1	2	1	1
Mercer	6	4	27	5	2	5
Middlesex	8	6	64	..	4	104
Monmouth	27	16	55	10	4	46
Morris	17	9	10	1	..	12
Ocean	17	4	9	..	..	10
Passaic	5	4	3	2	1	5
Salem	8	3	11	1	..	4
Somerset	10	6	6	10	..	10
Sussex	12	5	4	3	2	5
Union	8	8	20	8	10	22
Warren	7	..	..	..	..	..
Totals	234	95	441	101	160	over 1,386

The replies to Questionnaire No. 1, meager as they were, indicated rather strongly that many complaints were voiced against municipal dumps, incinerators, sewage disposal plants and cesspools. Seventy-two replies, an overwhelming majority of the 95 reporting complaints, expressed the opinion that any contemplated legislation should be enacted on the State level, since local officials seem to be powerless or unwilling to take proper action. In some instances, this is probably due to the fact that sufficient evidence about the pollutant or against the perpetrator could not be obtained, while in other cases, probably the local officials did not care to jeopardize their positions in the community by taking action. In still others, the source of pollution was in another community in which local officials exercised no jurisdiction.

The next step in the study was to send members of the faculty of the Rutgers College of Engineering to visit as many potential pollution sources as time and personnel would allow. This was done by a committee composed of Professors Charles P. Bacha, C. R. Grafly Dougherty, and Dr. Joseph D. Stett of the Department of Mechanical Engineering; Professor Thomas R. Glenn of the Department of Civil Engineering, and under the chairmanship of Dean Elmer C. Easton of the College of Engineering. Dr. Stett was in charge of the technical work of the committee, and was also responsible for the final report. In consultation with the management, these engineers filled out the second questionnaire, a copy of which is attached hereto. This part of the survey was aimed primarily at industrial establishments in the more seriously affected areas. Thirty-five plants were inspected inside and data obtained from plant personnel directly. In approximately half of these cases, the inspectors were gladly received, and learned that the management was well aware of the fact that they were contributing to the pollution of the area, but that an effort was being made to rectify the situation. In the other half of the cases, it was immediately evident that the information presented was incorrect, and that there was a deplorable lack of co-operation. In one instance of evasion, the plant manager stated that in his opinion one of his stacks was contributing only lightly to the pollution, whereas the writer knows from a confidential, private source that the stack emission is approximately 50 tons of sulfur dioxide per day. In another case where the management co-operated, it was admitted that 25 tons of fly ash were emanating from a stack each day, and that every effort is being made to solve the problem. In general, it was found that among the worst pollution offenders were the oil refineries, metal smelters and refineries, public utility power stations, foundries, chemical processing industries, dumps and incinerators, sewage disposal and treatment plants, and railroads. A total of 135 additional sites were inspected outside, 31 of which should be further investigated inside.

From conversations with various plant managers, it was learned that several county chambers of commerce have formed very active air pollution committees consisting of technical men who are willing to help smaller manufacturers with their individual problems. It was also substantiated that the Bureau on Adult and Industrial Health, of the State Department of Health, under the able leadership of such individuals as Dr. Marie Sena and Dr. Miriam Sachs has been very active, in spite of limited staff, facilities and funds, in heeding complaints and attempting to trace sources of pollution and recommending action.

All those contacted were hoping to avoid legislation, and many are spending large sums in a sincere effort to minimize their effluent effects. However, there are also those who will do nothing unless forced. In one case, it was admitted that a Cottrell precipitator was installed at great expense to eliminate a dust problem, and that they operate it only when the pressure of complaints forces such operation.

One company complained that the pollution caused by a neighboring plant was creating havoc with its processing, and that many units of production had to be rejected. A few companies were not even willing to discuss the problem of air pollution.

Table II shows the results of the visits inside 35 industrial plants. The indications are that about two-thirds of them have no intentions of correcting the situation. It is for this group that legislation should be enacted, the mere existence of which acts as a lever to effect action.

TABLE II

PLANTS INSPECTED INSIDE

	Community	*Type of Industry*	*Kind of Pollution*	*Source*	*Correction Planned?*
1.	Vineland	glass	smoke	boiler	no
2.	Elizabeth	metal refinery	fumes	tank house	no
3.	Elizabeth	synthetic resins	fumes and odors	aldehydes	no
4.	Irvington	laundry	smoke	boilers	no
5.	Irvington	foundry	smoke	cupola	no
6.	Irvington	hand tools	smoke and fumes	boiler and paint spraying	no
7.	Barber	oil refinery	smoke, gases, odors	burning of oil, gas and coke	no
8.	Barber	metal refinery	sfoke, dust	ZnO, $AlCl_3$ burning insulation	yes
9.	Grasselli	chemicals	smoke, odors, fumes, gases	pyridine, halogens, SO_2, HAc	no
10.	Grasselli	chemicals	fumes, odors	contact plant	yes
11.	Camden	tannery	smoke, dust	boiler and ground bark	no
12.	Camden	chemicals	smoke	lamp black	no
13.	Carteret	metal refinery	smoke, fumes, odors	burning insulation, smelter, (SO_2)	yes
14.	Carteret	chemicals	smoke, dust, fumes, odors	power house, SO_2, fluorides, NO_2	no
15.	Kearny	coke, gas and chemicals	smoke, gases, odors	coke ovens, acid plant	yes
16.	Kearny	chemicals	smoke, dust	boiler process	no
17.	Newark	chemicals	smoke, fumes, odors	thiophenols, crysillic acid	yes
18.	Newark	brewery	smoke, odors	boilers, mash	no
19.	Newark	paint	smoke, odors	boilers, varnish kettles	yes
20.	Newark	coal tar	odors	thiophenol	no
21.	Harrison	scrap metal	smoke, fumes	burning of insulation, etc.	no
22.	Harrison	heavy machinery	smoke, fumes, odors	power plant, cupolas, etc.	no
23.	Harrison	foundry	smoke, fumes, odors	cupola	no
24.	New Brunswick	sewage disposal	odors	sludge	no
25.	Hillside	cork products	dust, odors	steaming of ground cork	yes
26.	Beverly	cordage	smoke, odors	waste of burning and tar	no
27.	Manville	asbestos and insulation	smoke, dust, fumes, odors	power plant, asphalt, processing	yes
28.	Trenton	mineral wool	smoke, fumes	slag melting	yes
29.	Bridgeton	glass	smoke, dust	process	no
30.	Deepwater	chemicals	dust, gases, fumes	burning of waste, NH_4Cl	yes
31.	Gibbstown	chemicals	smoke, fumes, gases	boiler, NO_2	yes
32.	Bound Brook	chemicals	odors	processes	yes
33.	Rahway	chemicals	smoke, odors, fumes	power plant, processes	yes
34.	Millville	glass	smoke, fumes	processing	no
35.	Bayway	oil refinery	smoke, fumes, odors	burning of oil, gases, etc.	yes

The problem of air pollution is by no means a simple one to solve, nor can it be expected that its solution will come about in a short space of time and at little cost. If the general public is discovering that such pollution is detrimental not only to health but also to vegetation and property, it must realize that industry is a necessity to our economic welfare. With the growth of such industry come such evils as stream and air pollution, a certain amount of which can be tolerated. However, the public must also realize that with the industrial growth of a community there is the accompanying physical growth, which brings with it such problems as sewage and garbage disposal, more homes which require fuel for heating purposes, more automobile and truck traffic through and within the community, all of which also add to the pollution problem of the area.

This must be kept in mind, because blaming industry for all the air pollution ills is wrong and cannot be supported by fact. The people of Los Angeles have been sparring with their smog problem for some time, and only recently they were embarassed to find that after having blamed industry for their plight, it was learned that of the total combustion and evaporation products poured into the air each day about 40 per cent came from industrial sources, and that about 60 per cent was caused by the general public by such activities as heating of homes, stores, and office buildings, driving automobiles, trucks, and buses, and the burning of garden trash.

Air pollution must be considered man-made, if dust storms, etc., are excluded. If this is recognized, it will go a long way towards producing agreement on a definition of the term. The pollutants commonly found in areas of high concentration of industry and population include such particulate matter as dust which may include particles of sand, carbon, fly ash (usually from establishments burning pulverized coal), limestone, carbon (soot), rubber from tires, clay, brick, inorganic salts such as sodium chloride, ammonium sulfate and nitrate, calcium sulfate, metallic compounds of aluminum, titanium, lead, iron, etc. Included

among the non-particulate or gaseous pollutants are such items as sulfur dioxide, aldehydes, oxides of nitrogen, ozone, organic peroxides and chlorides, hydrogen sulfide and mercaptans, ammonia, formic acid, fluorides, tarry and volatile organics, carbon monoxide, etc. The above constitute only a partial list of what may be polluting the air. Individually they may be detrimental enough, and it may be difficult to identify and measure quantitatively the amount and the effect, but what makes the problem so extremely complicated is the effect of mixtures of these contaminants, the difficulty met in isolating a culprit and its source, or measuring the amount and its effect. Each of two effluents from two sources may be harmless by itself, but when combined may become toxic or become a nuisance because of the resulting odor. The general public must be warned against jumping at the conclusion that the smoking stack is the chief offender. The air pollution menace is due as much to invisible contaminants as it is to the black smoke caused by improper or incomplete combusion of fuel or waste material. The burning of garbage at the municipal and industrial dump is a serious source of air pollution in many instances. Among the factors influencing air pollution of an area include density of population, geographic location, barometric conditions, wind velocities, relative humidity and industrial activity.

This preliminary and limited survey must not be accepted as a complete picture of the overall problem, but rather, should serve as an introduction to the complexity of the problem, and as a guide for further procedure. It must be realized that to do a thorough job will take more time than most people expect. A figure often quoted as a guide to the amount of expenditure for an adequate program of inspection and control, with a limited amount of research and investigation, is between 15 and 25 cents per capita per year. This cost may seem prohibitive at the present time, especially since funds are urgently needed for other essential purposes throughout the State. However, if all those knowingly or unknowingly contributing to this problem of air pollution would agree to co-operate on a volun-

tary basis in a program co-ordinated by a State agency, and if by so doing each offender can work out his individual problem so that objectionable contaminants poured into the atmosphere is substantially reduced, the results will be very noticeable and welcome to all, and the cost could be lowered substantially. The subject is so complicated that for the solution we must draw on the co-operative skills and experiences of many professions. Chemical, mechanical and sanitary engineers, as well as agricultural scientists, climatologists, medical men, chemists, and physicists must be called upon for their services.

A smoke and pollution abatement program will never be secured merely by making surveys and recommending action. The essentials of a successful and progressive plan include an aroused public opinion which demands action and is willing to support a program. Continuous pressure in the education of both the public and industry and a policy of future prevention rather than immediate prohibition is recommended. This requires the unstinting efforts of a group of public-spirited citizens in whom the public has confidence. There should be established, as soon as possible, a board of competent full-time engineers and consultants in whom is vested the power to pass judgment or make recommendations on matters pertaining to air pollution. After a trial period of about one year during which offenders may correct conditions, there should be enacted legislation of a preliminary nature, perhaps limiting laws to smoke abatement, since this is the easiest to observe and control, and most convincing to the general public that progress is being made, and at a later time expand the ordinances to cover other pollutants as the need arises. Such legislation should put teeth into any accepted program and force compliance with certain unquestionably accepted requirements. The existence of such ordinances has proven their value as evidenced by the very few occasions for which they were needed. Without the presence of such laws, however, there would have been much less co-operation.

It is strongly recommended that any agency set up for this purpose be entirely free of politics, since air pollution

affects all parties. The agency should be on the State level for better co-ordination of effort in all areas.

The first step of such an agency should be a comprehensive survey to determine the amount of present pollution, to obtain from each source of pollution, be it municipal, industrial or domestic, a complete report meeting satisfactory standards of accuracy. This must serve as a means of gauging present conditions and their subsequent improvement.

STATE OF NEW JERSEY

COMMISSION ON AIR POLLUTION

DEAR SIR:

At the last meeting of the Air Pollution Commission, I was asked to send you the enclosed questionnaire. It is hoped that you will answer the questions as accurately as possible, since information gained from this questionnaire will serve as the basis for future work. After the questionnaire has been filled out please return it to Dr. Robert H. Daines, New Jersey Agricultural Experiment Station, New Brunswick, New Jersey. Since we are anxious to begin on the spot inspections at an early date, we would appreciate it if you would return the enclosed form by September 7.

Please be assured that the information that you supply will be used for a good purpose and that our source of the information will be held in strict confidence.

For your information, the New Jersey Air Pollution Commission was formed, by legislative action, to study air pollution as it exists in our State, and to make such recommendations to the Legislature as are deemed necessary to control this pollution. After questionnaire No. 1 has been returned to us, members of the College of Engineering and Agriculture at Rutgers, the State University, will inspect certain of the suspected sources of air pollution where further information will be obtained. We expect that information gained from the enclosed questionnaire and the survey conducted by the State University will aid us in making recommendations that will benefit our State.

Please accept my sincere thanks for assisting us in this assignment by filling out and returning these forms at an early date.

Sincerely yours,

FREAS L. HESS, *Chairman,*
Air Pollution Commission.

AIR POLLUTION SURVEY—NEW JERSEY

Questionnaire No. 1

1. Have you received complaints within the past year relative to air pollution due to smoke, dust, fumes or odors?
2. If complaints have been received during the past year please indicate cause, number and probable source of pollution, using table below.

Complaints Received During Past Year

Number Due to	*Did Pollution Seem to Occur Continuously or Intermittently?*	*Suspected Source of Pollution**
Smoke	.....	.....
Dust	.....	.....
Fumes	.....	.....
Odors	.....	.....
Other Gases	.....	.....

* Please name industries, dumps, etc., that are the suspected offenders.

3. Do you know of cases of air pollution during the past year that have occurred in your area concerning which complaints have not been received?
4. If so, please list using table below.

Air Pollution Not Followed by Complaints

Number Due to	*Did Pollution Seem to Occur Continuously or Intermittently?*	*Suspected Source of Pollution**
Smoke	.....	.....
Dust	.....	.....
Fumes	.....	.....
Odors	.....	.....
Other Gases	.....	.....

*Please name industries, dumps, etc., that are the suspected offenders.

5. Does the vegetation surrounding industrial plants, dumps, etc., continually or intermittently show damage, possibly as a result of air pollution? If so, name possible offenders.
6. Has air pollution in your area during the past year been worse ....., same....., or not so bad as a year ago?
7. Is there local legislation, that will adequately handle such air pollution as exists?
8. Do you think additional legislation either on a local or State level would serve a useful purpose? (Comment.) If so, give points you would like to see in legislation.

9. Do you have suggestions other than new legislation that would held solve this problem?
10. Remarks.
11. Form filled out by.....

    Title..... Date.....

Please return to: Dr. Robert H. Daines,
N. J. Agricultural Experiment Station,
New Brunswick, N. J.

Information on Air Pollution to be gained at time of inspection of factory, dump, or other possible sources of pollution.

1. Community .....
2. Date of Inspection .....
3. Name and title of person or persons interviewed .....
   .....
4. Name of industry or area inspected .....
5. Type of industry or area .....
6. Was inspection made inside.....or outside of plant?.....
7. Does establishment inspected cause air pollution? .....
8. If so, give nature of pollution .....
   .....
   Identify, if possible .....
9. Indicate intensity of pollution at the source (heavy, medium, light)
   .....
   If smoke, indicate ringleman chart number .....
10. Is damage being done?..... If so, to what?..... and To what extent?.....
    .....
11. Give approximate area involved in pollution .....
    .....
12. Reasons for pollution .....
    .....
13. How long has pollution occurred?.....
14. What is being done to abate pollution? .....
    .....
15. Is the installation of air pollution abatement equipment contemplated?
    .....
    If so, when? .....
16. Is a change in manufacturing procedures contemplated that would be expected to decrease air pollution? .....
    If so, when? .....
17. Is there any source of radioactivity in this plant? .....
    .....

18. If so, how are radioactive wastes disposed of? .....
.....
19. Is there any opportunity for radioactive materials to escape into the atmosphere during period of its use? .....
20. Remarks .....
.....
.....

To be Filled Out by Inspector After Visit

21. Were recommendations made? .....
.....
.....
22. What is needed to correct the air pollution problem of this industry or area? .....
.....
23. Can you give a cost estimate of such correction? .....
24. Do you expect that the air pollution problem reported here will be abated without enforcing legislation? .....
25. Name of inspector who has prepared this report .....

Report on Study of Air Pollution Legislation and Its Effects on Industry at Several Places in the United States

January 21, 1952

Dr. Robert H. Daines

To conserve both your time and mine, this report will be brief. Although much information of value to succeeding stages of an air pollution project was learned, it is omitted from this report, since it does not pertain to the immediate problem of legislation. Suggestions on legislation resulting from this study will be given at appropriate times.

During the last two weeks the writer visited Los Angeles, California; Portland, Oregon; Salt Lake City, Logan, and Utah County, Utah; St. Louis, Missouri; Cleveland, Ohio. The visits to Los Angeles and Portland were made in company with Mr. Berger of this Commission. At all places visited, discussions were held with Air Pollution Authorities in an effort to learn as much as possible about:

1. (Reasons for legislation) The events responsible for the drafting and enactment of their legislation; 2. (Department in which administered) The department of government in which their legislation is administered and the reasons for its being placed where it is; 3. (Jurisdiction) Any jurisdictional disputes that have arisen; 4. (Organization and responsibilities) The organization and responsibilities of their Air Pollution group; 5. (Research) Place of research in their setup; 6. (Codes) Reasons for choosing the standards set forth in their legislation; 7. (Effect of legislation) Effect of the law on the general situation and on industry; 8. (Cost) The cost of conducting air pollution control activities; and 9. (Miscellaneous) Miscellaneous information.

In each of the areas, an effort was made to visit with either the executive secretary or the manager of the industries Department of the Chamber of Commerce, to discuss with him, among other things, experiences of industries under the legislation; whether legislation is the answer and has helped the situation; and what provisions of the act now in effect should be changed and how.

***Los Angeles, California*—MR. LARSON**

Our principal conferences in Los Angeles were held with Mr. Larson, Director of the Air Pollution Control District, and with Mr. Cole, Manager of the Business Service Department of the local Chamber of Commerce.

From conversation with Mr. Larson:

1. (Reasons for legislation) Eye-tearing and injury to agriculture were first noted in Los Angeles County in 1943. The Los Angeles Times was the first to agitate for action against menace of air pollution, and encouraged the formation of a citizens' committee to consider the problem. A committee of citizens was formed in 1945 which was headed by Bill Jeffers (war time rubber czar). The Pasadena town fathers helped spark the study and the enactment of air pollution legislation. The Department of Health was not involved in the study. Enabling legislation was passed by the State of California in 1947. Their State law permits counties or groups of counties to develop their own air pollution control units and codes.

2. (Department in which administered) The Air Pollution Control District in Los Angeles is a separate department in the county government. It was not placed in the Department of Health because the major air pollution problems bear no relationship to public health. In fact, there is no evidence that air pollution has health implications in Los Angeles.

3. (Jurisdictional) No jurisdictional disputes with Department of Health have occurred.

4. (Organization and responsibilities) In Los Angeles the county Board of Supervisors (Freeholders) serves as the Air Pollution Control Board. They furnish the money used by the Air Pollution Control District. (A.P.C.D.)

The Board of Supervisors appoints the Director of the A.P.C.D. The Director is a law enforcing officer (Deputy Sheriff). He serves as director of his bureau and represents A.P.C.D. in public. His organization consists of three divisions; namely, research; engineering, which conducts permit system, and inspection.

In addition to the above personnel, consultants are employed to serve in an advisory capacity.

The control board also appoints a three-man Hearing Board (two attorneys and one engineer). The Hearing Board members are paid $50.00 a day when meetings are held. This Board is not under the Director.

The Hearing Board's duties are to review and render decisions on disputed rulings made by the Director. The Board has power to set aside the Director's rulings. Further appeals may be made to the courts by either the A.P.C.D. or the other party in the dispute.

The Los Angeles bill requires new industries to obtain permits before construction can begin. In addition, air pollution codes are set to which all must conform.

5. (Research) Mr. Larson considers research to be the brain and backbone of their organization. He considers it to be indispensable in this new field.

6. (Codes) The Los Angeles law regulates permissible smoke intensity by the Ringleman Chart, while dust emissions are based on pounds of dust per size of operation. Sulfur dioxide shall not exceed 0.2 per cent by volume of stack gases. Nuisance shall include contaminants which cause injury, detriment, or annoyance to any considerable number of persons.

Mr. Larson considers all standards but the one for sulfur dioxide to be good. He considers all to be obtainable.

All standards are chosen to prevent poor visibility, injury to crops and belongings, and nuisance.

7. (Effect of legislation) Legislation has improved the general air pollution situation. However, big improvement cannot occur until a way is found to prevent escape of large quantities of hydrocarbons into the atmosphere, since they, in oxidized forms, are the real offenders in Los Angeles.

Air Pollution Legislation has not kept industry out of Los Angeles as shown by industrial expansion of 223 million in last 12 months.

8. (Cost) The A.P.C.D. collects 12-15 thousand dollars in fees every year. The present asking budget, including fees, is $650,000 for the year.

9. (Miscellaneous) Mr. Larson commented that State legislation would have to be a compromise between all areas and hence could not be adequate for certain areas.

Mr. Larson feels a license system is essential, since without it no positive action would occur.

***Los Angeles*—MR. COLE**

1. (Reasons for legislation) Chambers of Commerce have worked on controlling air pollution in that area for 20 or more years. They succeeded in having area zoned as industrial and residential. Mr. Cole reports that 10 years ago they started work to reduce black smoke. This project met with success. They advised the public that they would process smoke complaints. They received about 600 complaints a year of which about 10 per cent were legitimate. Where the complaints were legitimate they advised the industry involved of the complaints and encouraged abatement of the nuisance. Mr. Cole also reported that the refineries had a man on 24-hour duty to service complaints.

2. (Department in which administered) He considers air pollution agency should be separate from other agencies of government, since problems encountered are much broader than field covered by any one department. He further stated that he thinks control agency should contain medics in organization.

7. (Effect of legislation) Mr. Cole objects to bureaucratic setup in effect in Los Angeles. He claims Director has power to completely stymie business, and states there is too much power in hands of one man. He agrees, however, that legislation is necessary and desirable.

Mr. Cole objects to license system on grounds given above. He further objects to the A.P.C.A. specifying control equipment to be used without assuming any responsibility for its satisfactory performance. He also objects to Hearing Board collecting penalties, on the ground that to do so may become a dangerous tool.

Mr. Cole agrees that legislation has not kept industry out of the area. He states that industry has the attitude that if it must come to California it will be under legislation sooner or later anyway regardless of the place where it is located.

5. & 9. (Research and miscellaneous) Advise Air Pollution Control Authority to supply consultants to counsel with industries where trouble from air pollution is experienced or expected and to co-operate with industry on research projects.

Believe visible particulate matter and odors can be curtailed without research. Curtailment of other pollutants should be preceded by adequate research.

Mr. Cole prefers registering to a permit system. In preference to the present system whereby the A.P.C.D. dictates the abatement equipment to be used, he favors establishment of maximums and would permit industries to meet these standards by any means they select.

He commented that if an air pollutant affects health, the law should be tough. Where a pollutant does not affect health, the law should not be so tough.

The air pollutants in Los Angeles that are responsible for eye-tearing and injury to vegetation are hydrocarbons. These hydrocarbons, which are oxidized in the atmosphere to form peroxides, come from automobile exhausts, home fires, and industry.

***Portland, Oregon*—MR. C. M. EVERTS**

1. (Reasons for legislation) Air pollution problems in Oregon thus far are almost solely problems of injury to agriculture. Since much of Oregon's wealth consists of her natural resources, the Governor formed a committee, in 1949, consisting of the Governor and the heads of State Departments that deal with the conservation of natural resources. In addition to these, two representatives from the university and one from the State Chamber of Commerce were included.

Since one-third of the potential electric power in the United States is located in the northwest, industry is expected to come into the area. They favor air pollution legislation in advance of industrialization to avoid some of the problems that accompany industrialization.

2. (Department in which administered) Air and water pollution control is administered similarly in Oregon. Mr. Everts serves as executive secretary for both groups. Air pollution control would have been placed in water pollution control group had this move been constitutional. Air pollution control sometimes requires scrubbing with water, which may then become problem of water pollution.

Mr. Everts expressed the opinion that he sees no objection to legislation administered in the Department of Health or to its administration in some other department. If it is placed in the Department of Health the air pollution section should have a separate commission independent of the department in which it is placed.

3. (Jurisdiction) Legislation concerning air pollution in Oregon was enacted one year ago but has not yet been enforced. Jurisdictional disputes should not occur, since all are under Department of Health.

4. (Organization and responsibility) Board on Air Pollution authority consists of five men having four-year terms. One must be head of State Department of Health, and one, head of State sanitary authority (which is also in Department of Health). The other three are appointed by the Governor. The State sanitary engineer (also Department of Health) serves as secretary of the authority. This board serves as the policy forming group and as an Appeal Board. A committee of the board may be appointed for specific hearings.

The Board on Air Pollution and its secretary chooses the chief of the air pollution control section, who employs and directs the field force and the research staff.

This organization can be shown by the following diagram:

Governor

Board on Air Pollution—5-man

Chief Engineer
(Who is in State Department of Health)

Public Health Engineer	Water Sanitation	Chief of Air Pollution Control Section

Research if and when — Field Force

The responsibility of the Board of Air Pollution Authority is as follows:

(a) Develop a comprehensive program for the prevention and control of all sources of pollution of the air of the State.

(b) Advise, consult, and co-operate with other agencies of the State, political subdivisions, industries, other States, the Federal Government and with affected groups, in furtherance of the purpose of the Act.

(c) Encourage and conduct studies, investigations, and research relating to air pollution and its causes, prevention, control, and abatement as it may deem advisable and necessary.

(d) Collect and disseminate information relating to air pollution, its prevention and control.

(e) Promulgate rules and regulations.

(f) Consider complaints, make investigations and hold hearings.

(g) Require the submission of plans for the removal of air contaminants.

(h) Encourage voluntary co-operation by individuals, municipalities, counties, industries, and others in restoring and preserving the purity of air within the State.

(i) Employ personnel, including specialists and consultants, purchase materials and supplies, and enter into contracts necessary to carry out the purposes of this Act.

(j) For the purpose of investigating conditions relating to air pollution, the members of the Authority, or its duly authorized representatives, shall have the power to enter at reasonable times upon any private or public property, except private dwellings.

(k) Enforce compliance with the laws of this State relating to pollution of the air.

(l) Represent the State of Oregon in any and all matters pertaining to plans, procedures, or negotiations for interstate compacts in relation to control of air pollution.

5. (Research) Mr. Everts considers research to be important, but he shall endeavor to farm research out to the State University. He expressed the opinion, however, that if problems already exist, the air pollution control section shall have a research group of its own.

6. (Codes) The discharge into the atmosphere of solids, liquids, or gases so as to cause such injury to human, plant, or animal life, or to property, as constitutes a public nuisance, is contrary to the public policy of the State of Oregon.

No maximum allowable concentrations have been set for air pollutants. Each violation must be proved during hearing or trial.

7. (Effect of legislation) It is too early to determine what effect the law will have in controlling air pollution, or on industry itself; however, industry supports bill in present form and public reaction has been favorable.

8. (Cost) The present appropriation is $90,000 biannually.

9. (Miscellaneous) Mr. Everts considers hearing board, such as exists in California, should not have on it a person engaged in research or other activities that may prejudice him in case of hearing.

He considers that air pollution occurring both within manufacturing plant and outside of plant should be administered in the same bureau.

He further considers that lawyers or engineers are not needed on board since they may be obtained as consultants if needed.

Mr. Everts believes enforcement should not precede knowledge, and a hearing should precede action.

In Oregon problems arising from the dusting of crops are placed in State aeronautical board.

Garbage disposal is accomplished by land fills and incineration. Permits are not required before factories can be built in Oregon.

***Portland*—MR. C. K. STERRETT**

1. (Reasons for legislation) Aluminum plants emitted fluorine-containing gas which damaged vegetation and injured cattle. Paper mills emitted odoriferous sulfur effluent, when they blew digest. This injury to agriculture and forestry led to the establishment of the Governor's committee, on which Mr. Sterrett, Manager Industrial Department of Chamber of Commerce was industry's representative.

Mr. Sterrett explained that the Oregon bill gives a framework on which codes can be built. Before bill was prepared Dr. Gleeson of Oregon State studied legislation in effect in different locations in the United States.

9. (Miscellaneous) Recommend that lawyers representing industry be given an opportunity to review the bill before it is presented to the Legislature.

Considers legislation to be necessary to properly control air pollution.

Salt Lake City—MR. BUTLER

2. & 4. (Department in which administered, organization and responsibility) In 1919 Salt Lake passed an ordinance on smoke abatement. Here the Smoke Control Division is placed in the Department of Streets and Public Improvement. It consists of the chief of the division with staff. Here the city commission appointed an advisory committee of seven men to advise and pass on decisions made by chief of Smoke Control Division. Board of appeals consisting of three members also appointed to hear appeals of decisions made by smoke control authority. This law dealt only with smoke and fly ash. In 1941 a new law was adopted. This law was recommended by Mr. Butler and covers all types of air pollutants.

3. (Jurisdiction) No conflicts. Mr. Butler claims that where air pollution authority does its job, there is no reason for complaints concerning health. Department of Health refers complaints received to smoke authority.

5. (Research) The smoke abatement group in Salt Lake conducts very little research. However, they consider research to be necessary where problems other than those of smoke and dust occur.

6. (Codes) Black smoke, having an intensity equal to No. 2 on the Ringleman Chart, is unlawful in Salt Lake City. This is true for homes and industries alike, or for tall or short stacks. When smoke of No. 2 intensity is allowed for a certain number of minutes every hour, inspectors are required to waste time standing around timing the black smoke emissions. Odors are considered a nuisance when they annoy the majority of people in a vicinity.

7. (Effect of legislation) Smoke in that city is now only 15 per cent of what it was in 1938. Chamber of Commerce claims smoke reduction largely due to conversion of home soft coal furnaces to gas burners. Mr. Manley of the coal producers' association stated that more coal is burned in Salt Lake City now than in 1938.

Public reaction to legislation has been good. Industry accepts restrictions without complaint.

During the first three years after air pollution legislation was enacted the smoke control division had an average of from 50 to 100 court cases per month. They have, however, had no court cases during the last year.

8. (Cost) The air pollution enforcement group has an annual budget of $50,000.

9. (Miscellaneous) Plans for new constructions or alterations must be submitted to smoke authority, which requires that all fuel-burning equipment be licensed. Mr. Butler believes knowledge of combustion equipment is sufficient to justify this requirement. Sources of other types of air pollutants are not required to be licensed. Knowledge concerning them, is not sufficient to justify this requirement.

The Air Pollution Authority gives course of instruction on combustion to everyone operating a furnace of a certain size range. After successfully completing this required course, a person is licensed to operate a furnace in Salt Lake City. If combustion equipment is in good condition, complaints are directed to the furnace operator and not to the owner of the property. Where fines are imposed they are levied against the furnace operator. If the operator is found guilty of three violations he loses his license to operate a furnace in Salt Lake City. This course is taken to eliminate carelessness on the part of the furnace operator.

Mr. Butler believes educational programs together with appeals from Chamber of Commerce will result in about 75 per cent of the industries taking the necessary steps to abate air pollution. The remaining 25 per cent require legislation to insure positive action. Believe air pollution authority should include problems occurring both inside and outside of industrial plants.

Sale Lake City—MR. BACKMAN

7. (Effect of legislation) Mr. Backman, manager of the industrial division of the Salt Lake Chamber of Commerce, states that the smoke control law has not harmed

industry, largely because Mr. Butler has exercised good judgment in its administration. He has not shut down plants where they were making adequate effort to abate the nuisance.

Mr. Backman gave it as his opinion that legislation is needed to get some industries to abate air pollution.

Mr. Manley, President of the Utah Coal Producers Corporation, states that the air pollution control law has kept us on our toes. Industry in Salt Lake has more than doubled during the last 12 years.

9. (Miscellaneous) Mr. Manley advised against expecting noticeable improvement in air pollution situation too soon after legislation adopted as air pollutants must be reduced by approximately 35 per cent before you can notice improvement.

***St. Louis*—MR. CARTER**

1. (Reasons for legislation) Because of severe smoky situation from use of soft coal, public clamored for action to clear up smoke situation. Mayor formed committee of citizens to consider situation. They considered central heating, bringing in gas, coaking of coal, etc. Discarded all on grounds they were too expensive. Recommended present legislation, which was adopted in 1937.

2. (Department in which administered) Smoke abatement control is placed in the Department of Commerce and Engineering. Nuisance complaints are placed in the Department of Health. The Department of Health gives no help in border line cases. Mr. Carter believes control would be more effective and less costly if all air pollution were included in one department.

4. (Organization and responsibility) Director of smoke abatement has staff of inspectors. Director is responsible to head of Commerce and Engineering Department.

5. (Research) The smoke abatement group conduct no research, as they believe black smoke problems are well understood. They feel, however, that where other air pollution problems exist research would be necessary.

6. (Codes) They require that where furnaces are hand-operated, smokeless fuel must be used. Gas has come into the area since the adoption of legislation and it is now used in most homes. Soft coal used in mechanically operated furnaces, must be washed to lower sulfur and ash content.

Dust—Quantity of fly ash allowed is based on the amount of fuel burned. Mr. Carter believes fly ash should be based on size of furnace. Before building the combustion equipment is checked and licensed. Coal dealers are also required to be licensed in order to operate in St. Louis.

7. (Effect of legislation) The air pollution situation is very much improved since the enactment of legislation. Industry does not oppose legislation and is not adversely affected. Legislation has not kept industry out of the area.

8. (Cost) The annual smoke abatement budget is $100,000 a year.

9. (Miscellaneous) Mr. Carter gave it as his opinion that the department in which the bureau is placed and the field in which the director is trained is not as important as choosing a man of good judgment to head the bureau. He must, however, be allowed freedom of action and be technically trained in some field relating to the general subject. He feels that a fair knowledge of chemistry is indispensable. In addition to the job requiring a technically trained man to fill it well, such a requirement will reduce likelihood of a political appointment being made.

Letter from Thomas C. Grimm of the St. Louis Chamber of Commerce states:

> "With reference to your letter of December 18th, as you know, St. Louis has had a satisfactory Smoke Ordinance for a number of years which has effectively eliminated much of our air pollution due to smoke.
>
> The Chamber of Commerce did co-operate with the original committee which formulated the Ordinance but, as that was some ten or fifteen years ago, we have no one on the staff now who was actively engaged or connected with the program at that time.

The Director of our Industrial Bureau, Mr. John D. Kerr, Jr., will, of course, be glad to talk with you gentlemen if you would like to stop in at our office, although he has not had direct contact with the air pollution problem."

Due to late arrival in St. Louis (storms) and lack of active interest in problem, Chamber of Commerce in this city was not visited.

***Cleveland*—MR. DYKTOR (Commissioner)**

1. (Reasons for legislation) Citizens committee was formed to consider legislation. The legislation presently in force was enacted in 1947.

2. & 4. (Department in which administered, organization and responsibility) The Bureau of Air Pollution Control is placed in the Department of Health and Welfare and is headed by a commissioner.

The air pollution control organization consists of three divisions: 1. Industrial Hygiene, 2. Industrial Nuisances, and 3. Smoke Abatement. The commissioner has a Board of Directors who are not active. He consults instead with a committee representing industry.

3. (Jurisdiction) No jurisdictional disputes are experienced. If problem of health arose, bureau of air pollution control (industrial hygiene) would handle it.

5. (Research) They have a limited research program. Believed this activity should be carried by a larger political division than a city.

6. (Codes) Black smoke regulations are based on the Ringleman Chart. In Cleveland licensing of combustion equipment is required. Dust standards established by general agreement. They will adopt more exact standards as experience indicates this can be done.

Fume standards make unlawful those that create uncleanly, destructive, offensive or unhealthful conditions.

Mr. Dyktor enforces nuisance by newspaper publicity.

7. (Effect of legislation) Legislation has improved general situation considerably, and has not materially affected

industry. Some industries may have gone elsewhere because of the law but believe that most industries expect legislation to become widespread.

8. (Cost) City of Cleveland appropriated $175,000 for air pollution control this year.

9. (Miscellaneous) Industry in United States would need to spend $5,000,000,000 to control air pollution.

Mr. Dyktor expressed opinion that it would save money if all air pollution problems were included in one division. If administered on State level he stated he believes it should be in separate division with head equal in authority to head of Department of Health. He objects to placing it in Department of Health since activities much broader than health alone. Also, if under health officials interests would be limited too much to health.

Due to the late hour that Cleveland was added to our list, contacts with Chamber of Commerce not established.

GENERAL

The opinion that legislation is necessary to adequately control air pollution was expressed by everyone interviewed on this trip. This is equally true for Chamber of Commerce and air pollution authorities alike. The opinion was also commonly expressed that air pollution is a local problem. One that is not only influenced by local topographical and meteorological conditions but by interests of the local citizens as well. The point seems to have been well taken by Mr. Larson, that State-wide legislation regulating all pollutants on the State level would of necessity have to be a compromise between our 21 counties. In such an event certain standards that could receive support of the whole would have to be inadequate for certain counties.

We are also aware of the fact that if small areas control air pollution within their borders, the value of their work can be largely negotiated by adjoining areas where exces-

sive air pollution is not prevented. Another major objection to wholly local air pollution authorities is the problem of a local area bearing the expense of securing adequate equipment and competent administration and staff.

Report by J. G. Berger, M.E., P.E. To the Air Pollution Commission

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Gentlemen:

Dr. Robert H. Daines and I carefully checked, interviewed and inspected what has been going on as to air pollution in Los Angeles County, California, and in Oregon. At that point we separated and I covered Pittsburgh, Pennsylvania and Donora, Pennsylvania, while Dr. Daines covered other territories.

I am now pleased to report in detail in the following pages on Los Angeles, Portland, Oregon, Pittsburgh and Donora. Dr. Daines will separately report his findings and observations.

Pittsburgh, Pennsylvania

January 11, 12, 1952

Party Interviewed.....Dr. Sumner Boyer Ely
Bureau of Smoke Prevention, Department of Public Health

Before writing the act Professor Ely said they sent men to St. Louis to study their experience there and based their Ordinance No. 344 of 1941 on St. Louis experience and since then it has been amended in 1943 and 1945.

Cannot prove that health is affected by smoke or smog but seeming to affect health was placed in that department. Says it cannot be tied together as miners are a healthy people but vegetation is affected. Reason Professor Ely gave was that 1 ppm sulphur denudes vegetation, gets erosion, but it takes 20 ppm sulphur to affect people.

New installations must be approved by the Bureau; a permit is issued to start work if design seems to apply, when properly completed a Certificate of Operation is given to the industry. The act, though primarily for smoke prevention, covers all other kinds of pollution.

For research called upon the University of Pennsylvania, are not much concerned with the affect on vegetation as in the city there is practically no farming, and the Allegheny County Code recently issued in 1949, though modeled after the Pittsburgh Code and in an area with a little agriculture, does not concern itself with agriculture. County has too little personnel. City has sufficient personnel.

Each code goes into detail about several industries as well as boilers to cover the area and does a thorough job.

A good laboratory is maintained for testing samples of dust collected in cans at 12 locations and for testing electrically precipitated particles at these locations and accurate records kept of very complete analyses made. Air sampled for dust, not for anything else.

Fuels are also tested and in Pittsburgh it is a violation for hand firing to burn other than Disco (a treated coal costing three times price of regular high volatile coal), low volatile like Pocahontas, or must burn natural gas. A very few use anthracite as it is too expensive.

Budget for 13 inspectors, laboratory personnel and Professor Ely himself is $90,000.00. If could get more, would establish research instead of depending on University of Pennsylvania but nothing regarding agriculture.

Says industry on the whole is for the law, safe to say at least 80 per cent but with county doing a minor job, Pittsburgh though much better, is not good enough.

Professor Ely, however, does not believe in a State law, thinks each area has different problems. Might consider the law on the basis of California so that each area could or could not enforce smoke regulation, claims some areas are stony, others, forest, and others, grazing lands.

Railroads have been bad offenders and departments got the P. R. R. to consider going to diesels; the Pennsylvania R. R. System has spent 60 million dollars, per Professor Ely, all local and through trains now dieselized, only one steam switching locomotive left. Railroad co-operates by having its own inspectors to stop smoke. An engineer who

violates the smoke code on the railroad gets laid off one day for each minute he violates the code, thus railroad is co-operating and self-enforcing.

Dr. Ely, however, thinks self-policing by industry does not work as there are too many of the kind who would not co-operate. Big industries, yes, like the P. R. R. and steel mills, but small industries, no.

Since the code mentions in its preamble soot, cinders, fly ash, noxious acids, fumes and gases they can follow up any pollution but primarily are after smoke, dust in the atmosphere and sulphur dioxide. No eye smart problems here, hence do not analyze for hydrocarbons or any organic compounds but go through a long analysis for all kinds of metals such as cadmium, titanium, iron, zinc, lead, etc., as well as for SO_2 and H_2S.

They have gotten Fed. Metals Division, Amer. Smelting & Refining Co. to install separate Cottrells on each furnace.

Says their Ordinance could stand a general modernizing as it is 10 years old but made no detail comment.

Referring to his yellow report for 1950 on Stationary Stacks and his 1950 red report on Railroad Smoke, he points out the good done and says they can do no more.

For simplification the inspectors check the 30 coal yards instead of the 150,000 homes and catch bootleg fuel at its source. Mr. Bergamasco caught one fuel bootlegger on a Christmas morning when he expected no inspection would take place.

United Smoke Council of 12 prominent citizens does a lot by lecturing to civic clubs, women's clubs and on radio which helps a lot as women talk about it and get action for they are not afraid like men of losing a job.

Inspector A. Bergamasco and laboratory technician G. Popiel helped give me information.

Party Interviewed.....DONALD J. HOWARD
Pittsburgh Chamber of Commerce, Executive Secretary, his recent new title

Mr. Howard says industry is satisfied with the enforcement 100 per cent and the clean-up of Pittsburgh in the past five or six years has been remarkable.

As to policing by industry itself as proposed in New Jersey, Mr. Howard feels that the old proverb of a "New Broom Sweeping Clean," applies from his many years' experience in Chamber of Commerce work. For a short time it may work and then the enthusiasm wanes and he said to tell Mr. A. H. Acken that he said so.

First, coal dealers objected, also the miners objected, but now there is 100 per cent approval of the idea.

Thinks Pennsylvania should have a State-wide mandatory law and adjust the number of inspectors in each county or section to the local conditions. Says Donora is just outside Allegheny County and cannot be controlled at present from polluting part of Allegheny County, whereas with a State law they could be regulated. He would consider a law like California's as a satisfactory alternate to avoid regulation in possibly agricultural or forest areas.

Very important—Says New Jersey Commission will accomplish nothing unless we have a good public relations man to continually get into the newspapers and on the radio what we are doing and why.

He considers $90,000 per year peanuts for the results obtained and the large volume of business done in Pittsburgh.

In eight years the improvement is remarkable, not only with industry but by many going to natural gas—the homes that were 50 per cent of the pollution have contributed to cleaning the air.

DONORA, PENNSYLVANIA

JANUARY 12, 1952

Party Interviewed.....JOHN DUDA
Chairman of the Special Investigating Committee of the October, 1948, Disaster due to Air Pollution

Since this Borough of Donora has not adopted any ordinance to control its air pollution, chiefly from the zinc plant where ore containing much sulphur is smelted, the investigation here was of a little different character.

The community lies in a valley on the Monongahela River, on a bend of the river and with hills all around, an inversion can occur readily particularly when there is a minimum of air movement. This meteorological lid occurred in October, 1948, and gases from the area so polluted the air that deaths occurred due to the pollution as autopsies seemed to prove.

In Donora itself there are blast furnaces, a steel mill, a rod mill, a wire works, a zinc smelter, a sulphuric acid plant and a small cadmium and silver recovery plant, all owned by American Steel and Wire Company and United States Steel Company.

The prevailing wind is west and blows the fumes over to Webster where there is more soil erosion than in Donora, particularly opposite the zinc plant due to the vegetation being killed so that the soil washes out. In Donora, a cemetery near the zinc plant is badly eroded and no grass seems to grow there.

Public Health Bulletin No. 306, Superintendent of Documents, Washington 25, D. C., gives a very comprehensive report, price $1.25, so I will omit the details except to primarily state that SO_2 and H_2SO_4 are not considered the only cause of the deaths as a special bulletin of the Pittsburgh Bureau of Smoke Prevention points out. Government autopsies seemed to prove it was due to various pollutions, chiefly from the zinc plant.

There are 10 recommendations in the No. 306 Bulletin to which industry are living up to the eight that concern them, a meteorological station is the ninth and checks the

weather continually and found an inversion started last fall and was about to shut down the plants but a wind came up and changed the picture so no shut-down was required. The tenth is a requirement for residents to stop burning untreated coal and recommending the use of natural gas but this is not being carried out as the adjacent towns do not require it.

Donora is on the border of Allegheny County but not in it so no controls from that source, though the government report makes it obligatory to do something now, for example, the sulphuric acid plant had permitted its controls to become inoperative prior to the disaster.

Mr. John Duda is strongly in favor of State legislation to make every area comply with pollution control, for right where they are, three counties meet and each one pollutes the other as all have industry close by each other.

He advises that Donora has a population a little over 12,000 and that a check up was made by the Federal Government and locally by his committee with $10,000.00 of C. I. O. money, showed the following:

People interviewed	11,765
People affected	4,951
People not affected	6,814
People receiving treatment	820
People unable to get a doctor	360
People in hospital	47
People had to leave town	68
People deceased	21*

*Of these deaths all were nearer steel plant than zinc mill, 12 in Donora and 5 in Webster.

Portland, Oregon

January 9, 10, 1952

Party Interviewed.....Mr. Curtiss M. Everts, Jr. Civil and Sanitary Engineers, as executive secretary, when fully organized, of the State Air Pollution Law, similarly of the Stream Pollution and a similar position in the State Department of Health

The new law only became effective in August, 1951, and Mr. Everts has not been able to find any personnel to get into operation.

Suit against the Reynolds Metals Co., aluminum plant, which damaged bulbs (gladioli and others) and other agricultural injury, spark-plugged the desire for an air pollution law.

Dean Price and Ralph Besse's research on how fluorine affected agriculture supplied information.

The real background, Mr. Everts states, was the Governor's Natural Resources Committee, a group of heads of all government agencies, an informal group, as listed on memo supplied, and Mr. Everts is executive secretary of same. This is separate from the Governor's cabinet.

Because one-third of the future potential of hydropower in the United States is in the Columbia River Valley they planned ahead to protect the State from air pollution before it happens to become a more serious menace.

Due to very low prices firm power, substantially under five mills per KWH including demand and energy charges, will attract more aluminum and other chemical plants to this area in the future. Bauxite comes in by rail and sulphur by boat from the Gulf Coast cheaply. Of course paper mills are plentiful in Oregon because of the forests, and sulphite pulp mills have polluted streams, killed fish and are being compelled now, from both a stream pollution and air pollution, to correct same, though no code has as yet been drawn to make the new Air Pollution Contract Act, Chapter 425, Oregon Laws, 1951, specific on what they must do.

It was the thought to place air pollution under the Water Pollution Commission but the act as required in Oregon, defined exactly the duties of the Water Pollution Commission, making it impossible without an amendment to place it there. Without legal difficulties it was found the Board of Health Act was broad enough to include it and since water pollution is in the Board of Health, it simplified it to do it this way, even though they recognized that air pollution was only in part a health problem. By default it was placed in the Board of Health.

Mr. Everts specifically stated he felt it made no difference which department of the State of Oregon Air Pollution was placed as a matter of convenience but he felt it should be a separate commission and stand on its own feet.

As the State is still small populationwise, for economy they will have the laboratory of industrial hygiene do the air pollution work. At present Department of Health does laboratory work for and supplies nurses for the Department of Labor and Industry.

Mr. Everts holds a sort of multiposition. He is on the water, air and health departments as an executive secretary, and the same on the Governor's fact-finding committee, all as previously mentioned in this report, he is in on everything which saves the State money in operation, and he is doing a good job as the State is not as large in population as some other States.

Mr. Everts feels that men who do the research at the university should not be on the boards and feels the Appeal Panel shall have one or no lawyers, one or two lay persons, like bankers or accountants, one engineer, a consultant of good reputation who therefore professionally is by nature neutral no matter whom he generally serves. This reasoning about the engineer on which I will comment here should in my opinion also apply to and permit a college research professor to be on the Appeal Panel as he, too, can be neutral. In all these things, in my opinion, it depends on the integrity of the person in question rather

than what profession he follows, for whom he works or who his clients may be.

In Oregon the board which heads the air pollution is also the appeal panel for complaints and consists of six men, namely, I—head of the Department of Health who is Dr. Harold M. Erickson, 4—to be appointed and an executive secretary for which Mr. Everts is slated. For hearings the board can designate one or more of its members to act for the board.

Hence, complaints will all be heard in Portland and they can issue a mandatory order if industry were damaging homes or affecting animals or plant life or sort of enforce in advance of knowledge but it becomes obligatory to prove legally that a public nuisance has been committed to make it stick.

In their original draft of the law they had defined the nuisances but industry objected so to get the law passed over an otherwise strong industrial lobby, they changed Section 7 to read: "The discharge into the air of solids, liquids, or gases so as to cause such injury to human, plant or animal life, or to property, as constitutes a public nuisance, is contrary to the public policy of the State of Oregon." This means that whatever damage is done must first be proved as to whether it is a nuisance based on existing Oregon law.

No fines in Water Pollution Act but misdemeanor sets fines of $100.00 to $500.00 and/or 30 days in jail, putting everything to injunctive proceedings and Section 8 of the Air Pollution Act is similar to it.

The planned setup at present is as follows:

The five-man commission through executive secretary, an engineer, Mr. Everts, who is the sixth member and under him an assistant chief engineer in charge of functioning—Element + 3 Sanitary Engineers + 2 Health Engineers + Meteorologist + Stenographer. The engineers who inspect will be located in area they serve.

Salaries now offered for the Civil Service jobs are as follows but may be changed:

Clerk Stenographer II	$2,778
Chemist II	4,593
Sanitary Engineer III	6,441
Ind. Hygiene Engineer II	10,710
Meteorologist	4,458
	$28,980
Operating and Maintenance	13,375
Capital Outlay for '52/'53	20,926
Partial Total	$63,281
Appropriation	$90,000

Mr. Everts' policy is no standards set but will do so in time, but is telling industry now they must comply. Industry can determine what they wish to do but take the chances if pollution is not properly overcome.

The Aeronautic Association and the Pilots' Association supported the bill as landing in smoky areas from waste wood or sawdust burning was a problem for them.

The Cascade Mountains which hold fog banks of considerable height may lead themselves to problems similar to those in California when industry becomes heavy enough to produce a problem, though in Portland they have no back yard incinerators as in Los Angeles.

Mr. Everts recommends that we submit our law when drawn to industry for suggestions and comments which they did not do originally and caused the trouble with original Section 7. He says that as they draw codes they will let industry check and suggest before they make the codes mandatory.

Party Interviewed.....MR. CHESTER K. STERRETT
Portland Oregon Chamber of Commerce, Executive Secretary

Mr. Sterrett says that this air pollution regulation started by gladioli and cattle being affected in this area due to two aluminum plants emitting fluorine in both Portland, Oregon, and Vancouver, Washington, which are across the Willamette River from each other.

The bulb growers sued and were awarded by the courts $90,000,000 divided among the group so that each one does not get very much.

The paper mills have been ordered to stop dumping sulphite in the streams by May, 1952, and are now faced with eventually doing something on air pollution.

Mr. Sterrett was a member of the Governor's Natural Resources Committee and says most industries wanted regulation but objected to the definition of nuisances of items not now so defined in the common law. This was covered in write-up on interview with Mr. Everts.

The Grange thinks the bill is weak but Mr. Sterrett feels codes can be written from this bill that will be strong.

If industry appeals what the six-man commission calls a nuisance, the attorney general defends the commission but he may be so busy, that it will be a long time before the pollution matter can be settled in court and in the meantime the public suffers. That is why the Committee wanted nuisances defined definitely but the strong industrial lobby would have killed the bill had the definitions been left.

Some of the iron foundries of Portland have branches in Los Angeles and think the law there is too costly for their operation but satisfied so far with the Oregon status.

Portland City has a Smoke Abatement Code that is weak, says Mr. Sterrett, and they are now writing a better code on fees, permits, etc.

The new Oregon law requires no permits to be given to new industry but it requires later proof that there is no pollution.

Recommends if law is drawn, it is a good idea to have industries' attorneys go over it for suggestions which is what Mr. Everts suggested.

He felt it is not wise to make each county suggest codes as he thinks the top level experience that knows more about it is better.

Says they expect more industry like aluminum as they have firm power at two mills per KWH.

They based their law of air pollution on the sanitary control but were not able to put it in that department as previously covered under interview with Mr. Everts.

Los Angeles, California

January 7, 8, 1952

Party Interviewed.....Director Col. Gordon P. Larson
Air Pollution Control District, not affiliated with any other department in Los Angeles County

In 1943 eye irritation became evident in Los Angeles, hence through the *Los Angeles Times,* a Citizens Committee was formed. It was spearheaded by Pasadena where the pollution was the worst. I noticed on January 6th that in Hollywood and Beverly Hills there was some eye irritation, while in the city of Los Angeles it was not so evident.

The committee was headed by William Jeffers of the Union Pacific Railroad, rubber czar during World War II, and they called Mr. Tucker from St. Louis, as an adviser and the first steps were a small smoke bureau.

There are 45 incorporated cities in Los Angeles County and 3,000,000 people in these cities with 1,000,000 people in the unincorporated parts of the county.

Jeffers, as an industrial and railroad man, kept the oil industry and railroads in line and compromised on planning for the farmers.

During 1943 to 1945 they appointed committees, got to work on legislation in 1946, presented it in 1947 and on June 10, 1947, it became a law.

In order to be most effective, and have no special departmental influence like Health, Labor, Industry, Conservation, etc., so they could really "go to town" on air pollution, they made the department independent of any connections except that Colonel Larson carries sheriff powers, has a badge and each inspector is a deputy sheriff with power of arrest or other police duties. It therefore only ties in with the legal department of the county.

Co-operation exists to the fullest extent between the Air Pollution Department, the State Health Department, State Labor Department, who all exchange complaints for the best interest of the citizens. This ideal co-operation makes the matter of enforcement better.

Of course the law is a State law, Assembly No. 1, Chapter 632, permitting each county (or group of counties as amended) to establish an Air Pollution Control in their area. Los Angeles County took advantage of this and at present seven counties in the San Francisco area are considering setting up an authority there under the law.

It is set up as follows in Los Angeles County at present and per Colonel Larson, has reached its maximum requirement:

There are 5 elected men Board of Supervisors
Like New Jersey Freeholders
Salary $12,000/year

They automatically become the Air Pollution Control Board.

Supervisors appoint Hearing Panel of 3 men, two are lawyers and one is an engineer, pay $50/day for their hearings, experience is 90 to 100 hearings per month, about 3 per month go to court, most appealed any month in 3½ years was 8 in one month.

Supervisors have an Advisory Committee they select from the public or 1 man each has one assistant at no pay, just good public relations.

Supervisors appoint Director and assistants.

Director Larson
Assistant Director Chass
Full-time Consultants
Chief Cons. Engr. Chief Research Consultant
Part-time Consultants
There are several

Accounting and Clerical	Air Pollution Engineers as Inspectors	Research	Engineering Division Permits, etc.

Under Col. Larson there are 100 employed and 35 of these are engaged in research.

Colonel Larson says law is good, cannot be contested, no improvements could be made. No one has successfully contested the act.

Before an alteration, change or new plant does anything, they must secure permit from Air Pollution Department, pay small fee, collect $12,000 to $13,000 per year, thus while to run the department costs $600,000 per year, and in their 1952 budget they are asking for $630,000.

Suggests we do not use title of inspectors, better call them air pollution engineers and thus able to get better men and pay more.

Colonel Larson says do not let non-technical people set standards, use experienced consultants.

The Appeal Board can overrule decisions by Colonel Larson's department, namely, 1—revoke; 2—grant variance; and 3—overrule denial.

If company does nothing after being instructed by Colonel Larson's department, they can act through the Hearing Board and through the courts.

Research is done on a large scale in the Air Pollution Department of Los Angeles County, includes air sampling, stack and vent sampling, air analyses for dust, chemicals, vapor, etc., plant life experimental work, checking for fly ash, dust, etc.

Air Pollution Department tells industry definitely what to do, grants a permit but tells industry to work out the details in its own engineering department if a large company and with consulting engineers if a smaller company.

The code sets up standards but is being added to, changed or improved as research and experience shows.

Showed Dr. Daines and myself tables in their code where SO_2 in per cent stack gases was no control as by adding air could reduce the percentage and still place the same amount of SO_2 in the Los Angeles County area. However, if for every pound of material processed, a fixed amount of pollutant by weight could be blown into the air you had a definite or fixed condition. Colonel Larson thinks all rules should be positive and definite making it impossible to get around the law.

They have reduced the SO_2 materially but not the hydrocarbons, hence one eye irritant is eliminated but the other is still bad and is now receiving attention. This is an organic compound that must be incinerated or catalytically removed to get results.

Los Angeles County has been tough but it believes no industries were kept away and none moved because of the

enforcement and recommends that we be equally tough in our New Jersey law.

To sample air or gases it takes four men and to do the laboratory work on it takes another four men from their experience.

Colonel Larson has established standards and is working on colorometric testing for hydrocarbons and is willing to give other parts of the country his experience.

In conclusion, Colonel Larson stated the only arbitrary authority he had was he could revoke a permit to operate if any company showed willful failure to comply. It can, of course, be appealed.

The above took all day but the next afternoon Mr. Deckert of Colonel Larson's department showed us what the oil industry had done to decrease sulphur going into the air. Several refineries collect their H_2S by absorption into a liquid, pump it to the Hancock Chemical Company, where it is burned into SO_2 (70 per cent) and the remainder and this gas are passed through a catalyst and the sulphur taken out of it, only 3 per cent goes to the air now, whereas formerly 100 per cent went to the air and besides it is profitable.

The liquid sulphur is trucked to the Stouffer Chemical Company where I believe sulphuric acid is manufactured.

There are many oil wells and refineries operating in this area, some wells pumping continuously since 1932.

Saw *Mr. Harold W. Kennedy,* Los Angeles County attorney, who drafted the California Act, Assembly Bill No. 1, chapter 632, who felt their law was doing a good job, could not be contested and because of experience in writing many bills, it was so well drafted, aside from the amendment permitting more than one county as a unit, set up an air pollution authority under the law, neither improvements could be made.

Party Interviewed.....MR. FRANKLIN B. COLE
Manager, Business Service Department of the Los Angeles Chamber of Commerce, and formerly of Newark, New Jersey

Los Angeles has two chief sources of pollution, (1) industry, (2) back yard fires.

Los Angeles Times fathered the idea, beginning in 1943, even though Los Angeles had a smoke ordinance as early as 1907 which was inadequate, as in these later years eye smart and vegetation damage became more evident and it was believed that refineries, foundries and burning dumps were major causes for intense pollution that first seems to go out over the Pacific and come back with a wind off the ocean and stays when there are successive days of the invert atmosphere. In fact, smoke always seems to stay in the Los Angeles Valley and early explorers called it the "Valley of the Smoke."

Mr. Cole's opinion is that the California law is too tough, can crack down too easily on industry and that Mr. McCabe who was there before Colonel Larson cracked down too soon; says Colonel Larson does a better and more reasonable enforcing job.

Mr. Cole objects that the department does not take the technical responsibility to assure the workability of what it requests industry to do to stop the pollution. He believes if the job requested does not solve the problem entirely but required industry to spend more, that then the Air Pollution Authority should pay a proportionate part of the extra cost. Mr. Cole is voicing industry's viewpoint.

Mr. Cole claims he is talking for the 11,023 small industries employing less than 25 people who are hurt most by the control, but I remember Colonel Larson saying he waived the request at one small industry that could not afford to pay to correct the pollution and still remain in business. In this manner Colonel Larson is reasonable, I presume from Mr. Cole's viewpoint.

The law has deprived Los Angeles County of but few industries, as they know going to San Francisco where seven counties are uniting to form an authority or other parts of California, is only postponing the day of reckoning but a short time, as soon, most of California will be so controlled.

Chamber of Commerce supplies voluntary consultants to help members who pay only for plans and they sponsor research to help industry. But Mr. Cole believes visible

pollution of Philco like cement plants should stop dusting the neighborhood and research should concentrate on invisible pollutants.

Mr. Cole objects to the Appeal Board.

Mr. Cole thinks the licensing system could be eliminated by telling industry here is the code, live up to it, and enforce the law, but give industry a free hand to solve it their own way.

Mr. Cole believes the act to be unconstitutional but nobody in California has enough money to prove it.

Census made by industry shows that for every one person employed by industry in Los Angeles County, that 4.6 persons are otherwise engaged or the vote is against industry.

He believes, however, some legislation is needed even if the act does not meet with his wholehearted approval, and that industry wants some regulation.

The back yard fires should be stopped and there should be rubbish collections. Says when inversion occurs Colonel Larson talks on the radio asking people to hold back on trash burning.

Another large pollution is automobile exhaust from one million cars that come downtown Los Angeles daily, due to inadequate transportation having forced the population to own one and one-half cars per family average.

Thinks in the factories it is a health matter and of interest to the State Department of Health but outside it is not a Health Department matter but one for an Air Pollution Department to solve, in fact, Dr. Mills' stories are not true.