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A Functional Analysis Of The Albuquerque Department Of Environmental Health.

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A FUNCTIONAL ANALYSIS OF THE ALBUQUERQUE DEPARTMENT OF ENVIRONMENTAL HEALTH

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A FUNCTIONAL ANALYSIS OF THE ALBUQUERQUE DEPARTMENT OF ENVIRONMENTAL HEALTH

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THESIS

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A FUNCTIONAL ANALYSIS OF THE ALBUQUERQUE DEPARTMENT OF ENVIRONMENTAL HEALTH

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ABSTRACT OF THESIS

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ABSTRACT

This study is a functional analysis of the Albuquerque Department of Environmental Health (DEH). The first phase of the study was a literature search to determine current concepts of organization and functions of environmental health agencies. The second phase involved interviewing key DEH personnel. Finally, the effectiveness of the DEH was evaluated using the author's five years of experience in directing environmental health programs. The information about the DEH obtained in the interviews was compared to the characteristics of a modern and effective environmental health agency as defined in the literature.

There is a nationwide trend to separate environmental quality and pollution control programs from traditional public health departments by creating "environmental health," or "environmental quality" agencies. It is hoped that creation of either type of environmental agency will expand the objectives of pollution control beyond health considerations to include esthetics, recreation, and social and economic interests. The establishment of an independent environmental agency also allows the agency director to act as an "environmental advocate," watching all other

government agencies for possible environmental damage or environmental mismanagement.

Interviews with key DEH personnel revealed that the agency conducts programs in almost all of the environmental health program areas listed in the literature. However, the DEH seems to stress "health" rather than "environmental quality" programs. Only one of the six DEH divisions is primarily concerned with environmental quality; the remainder are primarily concerned with health protection. This was attributed to the public health background of DEH management since most were sanitarians in the Public Health Department before the DEH was created in 1967. Environmental protection efforts have also suffered because the DEH Director does not act as an environmental advocate. The City Manager does not rely on the Director to examine city government programs for possible environmental damage. Consolidating the present six divisions into three divisions concerned with general sanitation, environmental protection, and consumer protection would give greater emphasis to environmental quality programs. The proposed reorganization would unite environmental quality programs such as water quality and noise abatement with air management in the new

environmental protection division.

Chronic manpower shortages in the DEH have hampered both health and environmental quality programs. One reason for the shortage is that all DEH personnel are not fully utilized. Many professional sanitarians are assigned to routine inspection duties which could be performed by subprofessional inspectors at a saving to the city. Another solution to the manpower crisis is to eliminate programs that are of marginal value.

The quality of DEH management was judged to be high. Each member of the management team has extensive experience. Many innovations were observed in the DEH that increased the value of the Department's services to the public. Communications within the DEH and with other agencies are effective. All members of management seemed to be dedicated to achieving the DEH's goals of health and environmental protection.

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ABBREVIATIONS

AEC	U.S. Atomic Energy Commission
AQB	Albuquerque-Bernalillo County Air Quality Board
DEH	Albuquerque Department of Environmental Health
AMD	Air Management Division
FID	Food and Institutional Division
GESD	General Environmental Services Division
MSD	Milk Sanitation Division
OHD	Occupational Health Division
EIA	New Mexico Environmental Improvement Agency
EPA	U.S. Environmental Protection Agency
FY	Fiscal Year
HSS	New Mexico Department of Health and Social Services
MEHAB	Metropolitan Environmental Health Advisory Board

Chapter 1

INTRODUCTION

The Albuquerque Department of Environmental Health (DEH) provides a wide range of environmental health services to the Albuquerque-Bernalillo County community. The Department was established in 1967 when all public health activities in the city and county were consolidated into two separate agencies: the Albuquerque Department of Environmental Health; and the Bernalillo County Personal Health and Preventive Medicine Department. One major reason for separating the public health activities into two departments was to focus attention on environmental health problems such as pollution control, water supply sanitation, and pure food protection. Another reason for creating a Department of Environmental Health was to give the Department Director enough prestige within the city and county governments so that he could play the leading role in protecting the overall environment of the metropolitan area.[1]

This thesis presents a functional analysis of the Department of Environmental Health. The DEH was chosen since this study will aid an Albuquerque Urban Observatory analysis of all Albuquerque city government operating

departments. In addition, recent personnel changes in the Department, including a new Director, along with proposed increases in Department functions and responsibilities make an evaluation of present functions worthwhile.

The first phase of the thesis research was a literature search to determine current concepts of environmental health agency organization and functions. The second phase involved interviews with key DEH personnel to determine the Department's organization and functions. The effectiveness of the DEH was then evaluated using the author's five years of experience in directing environmental health programs. The information about the DEH obtained in the interviews was compared to the characteristics of a modern and effective environmental health agency as revealed in the literature. Conclusions about the DEH and recommendations to improve certain areas were developed from the findings of the analysis.

FOOTNOTE

[1]L.J. Gordon, "Comments on Environmental Health Programs of Metropolitan Areas," Journal of Environmental Health, XXX (July/August, 1967), 71.

Chapter 2

METHODOLOGY OF APPRAISAL

This evaluation of the Albuquerque Department of Environmental Health (DEH) is basically a functional analysis. Function was chosen as the major focus for analysis since the agency has a readily defined mission: to protect the health of citizens against environmental stresses and also to protect the environment of Albuquerque and Bernalillo County. As with all government agencies the organization, budget, and personnel authorizations are important factors since they affect the agency's ability to carry out its function. However, the key aspect is how the agency performs its mission.

To appraise the DEH, two types of information were needed: what the agency should be doing to protect health and environmental quality; and what it actually is doing. Obtaining this information constituted the research portion of this study.

To determine what the DEH should be doing, a literature search was conducted to define current concepts of environmental health agency organization and program areas. The literature search revealed the major organizational

approaches that have been considered recently as government bodies throughout the nation have tried to solve complex environmental problems. In addition, a list of environmental health programs and functions was compiled that might be typical of a modern agency that is effectively promoting the goals of health and environmental protection. An alternative approach that was considered to determine what the DEH should be doing was to examine city and county ordinances and other documents to determine DEH responsibities for later comparison to Department functions. However, this approach was rejected since most environmental health ordinances are drafted by DEH personnel and so reflect what they want to do as well as what they should do. Also, ordinance preparation is a time consuming process and so it is not uncommon to find outdated and obsolete ordinances on the books, especially when more important functions take priority over ordinance revision.

To determine the Department's present functions and plans, key DEH personnel were interviewed by the author. The Department Director, his Administrative Assistant, and each of the six division heads were interviewed separately.

The Director, Mr. J.P. Kneafsey, outlined his impressions of the DEH since he was appointed Director in September 1971. He described its strong and weak points, its role in city/county government, its problem areas, and his plans for the future. The Administrative Assistant, Mr. John Servis, discussed budget, inventory, manpower, and the DEH Fiscal Year 1971 Annual Report that was used in this study as a supplementary source of statistical data about Department programs. Interviews with each division head centered on the specific programs of their division, the manpower assigned to each, and whether the programs were achieving their goals. Relationships and communications with other DEH divisions, DEH management, other government agencies, and the public were also explored. Finally, the division heads' comments were solicited on needed changes to existing programs, and their plans or hopes for new programs.

After the information gathering phase was completed, the data obtained in the interviews was combined with work-load statistics in the FY '71 Annual Report to yield a summary of DEH organization and functions. In order to evaluate the DEH, the summaries were compared to the in-

formation about other environmental health agencies obtained in the literature search. Finally, findings were summarized and recommendations to improve certain areas were made.

Chapter 3

ENVIRONMENTAL HEALTH

"Environmental Health" was once the specialized part of public health that sought to control environmental factors that impair human health. Examples of environmental health programs in public health departments included restaurant sanitation, insect control, and water supply sanitation. During the last few years, however, the term "environment" has, in the mind of the public, become synonymous with pollution. The health effects of pollution have become secondary to the ecological and esthetic considerations of preserving wildlife and a high quality environment. The result has been a general recognition that pollution and environmental health programs need more flexibility and visibility than they receive in public health departments. Two organizational trends based on this idea have been gaining popularity:

- To organize separate "environmental health" agencies by dividing public health agencies into a "personal health department" dealing with communicable diseases, prenatal care, etc. and an "environmental health department" concerned with pollution control, environmental sanitation,

and consumer safety.

- To organize an "environmental quality agency" separate from all public health functions which would be responsible for pollution control, natural resource development, game and fish activities, and other ecological and environmental programs.

The State of New Mexico has followed the first organizational trend by establishing separate environmental health and public health agencies. Early in 1972 the New Mexico Environmental Improvement Agency (EIA) was separated from the New Mexico Health and Social Services Department (HSS). The EIA provides comprehensive services in pollution control, occupational health and safety, radiation control, food protection, noise control, water supply surveillance, solid waste management, insect and rodent control, environmental injury protection, and swimming pool sanitation. Establishment of the EIA was seen as a major achievement in providing environmental health services since, according to the Environmental News Digest, "a few years ago the Environmental Services Division (of HSS) was a typical sanitary engineering/sanitation operation characterized by purely health objectives, a lack of funds

and dominance by local medical officers." [1]

The separate environmental health agency has the advantage of increasing the visibility of environmental health services. Another advantage important to many sanitarians and health engineers is that it establishes an organization dealing with environmental health that is not dominated by physicians, as is typical of public health departments. Potential disadvantages from this type of organization are that the overall health protection effort is divided between two health agencies, and also that pollution control and environmental quality programs may still not receive sufficient support if health needs take priority over environmental quality activities. As part of the trend the term "sanitarian," which is the legally recognized title for professional environmental sanitation experts, is being changed to "environmentalist" in many jurisdictions throughout the nation.

New York State illustrates the environmental quality agency choice. A new Department of Environmental Conservation (DEC), created in April 1970, has responsibility for most pollution and resource management programs in the state. Typical programs that the Department inherited

from other state agencies include:

- Air and water pollution control from the Health Department.
- Pesticide control from an interagency board representing health and agricultural interests.
- Water resource, forest, fish, wildlife, marine, and mineral management from the now-defunct Conservation Department.
- Beautification activities from the Natural Beauty Commission.[2]

The main reason for the reorganization in New York was to encourage a comprehensive approach to environmental quality by combining pollution control and natural resource management activities in a single agency. Other considerations were that the previous organization gave almost all policy making authority to part-time advisory boards and commissions, and there was no single "environmental advocate" within state government to watch all government programs for possible environmental damage or mismanagement. In New York, environmental policy making was thought to be too important to be left to part-time bodies. Instead many boards and commissions were consolidated and

made purely advisory groups. Their policy making powers were given to the DEC Director who is appointed by and serves at the pleasure of the Governor.[3] To assure that policies would be comprehensive, the DEC was empowered to formulate a statement of environmental goals and strategies to guide its own and other state agencies' activities.[4] The law also gives the DEC the authority to review other agencies' programs and "formulate guides for measuring presently unquantified environmental values and relationships."[5] In addition to encouraging a comprehensive view of environmental problems and creating an environmental advocate, the environmental quality organization has these advantages:

- It increases the visibility and prestige of the agency and allows it to compete for financing on its own merits rather than as separate programs in several other agencies.

- It focuses attention on environmental programs not directly related to health which many public or environmental health departments have been unable to do.

- It provides public accountability so that voters know which agency is responsible for all environmental

problems. It also shows what the elected officials are doing about environmental quality.[6]

In New York both the conservation and health groups opposed the reorganization despite the advantages cited by the measure's proponents. Both groups feared that their interests would be diluted in a large organization, especially if the new DEC Director was more interest in pollution control than health or conservation. In addition, some environmental groups were publicly skeptical of the reorganization feeling that tough enforcement actions, stiff standards, and increased funding of existing programs would do more to improve the environment than the creation of a super-agency made up of diverse and possibly conflicting interests. However, despite opposition the bill was enacted into law within two weeks after being introduced in the legislature during 1970.[7]

Both organizational trends discussed in this chapter have benefits and disadvantages. Either one, however, can be used by a local, a state, or the federal government to provide comprehensive environmental control services to the public. A recent survey of new environmental organizations in nine states identified these suggestions for

environmental health or quality agencies to follow to assure that comprehensive environmental services are being provided:

- The objectives of environmental control should be expanded beyond purely health considerations to include esthetics, recreation, and social/economic interests.
- Environmental policies, especially pollution control, should be comprehensive and integrative. For example, policy planners should trace pollutants through all environmental media and develop strategies to intercept them at the most appropriate and economical point.
- Environmental control programs should emphasize legal enforcement of health and environmental quality laws when voluntary compliance is not achieved. A tough regulatory posture may be possible due to stronger political support resulting from increased visibility of programs and also the new coalition of environmental and conservation interest groups.[8]

Environmental Health Programs

There is a wide range of programs that may be part of an environmental health agency. Only a very comprehensive agency will have all programs since some can log-

ically placed in public health, public works, or some other department. The following list of environmental programs was compiled from the literature search.[9] [10]

Air Pollution Control is usually one of the major programs in an environmental agency. Almost every metropolitan area has air pollution problems due to automobile exhausts, industrial pollution, or emissions from residential incinerators. A comprehensive program involves air quality monitoring to determine the extent of pollution, air pollution emission regulations limiting the amount of pollutants that can legally be discharged into the atmosphere, systematic investigations to determine if emission regulations are being violated, and a method of forcing compliance by legal means when voluntary compliance is not achieved.

Water Pollution Control is another important environmental program area. However, with this program the type, location, and size of water resources dictate the level of government best able to enhance water quality and stop pollution. For example a city located on a major river would have little power to stop pollution occurring many miles upstream, perhaps even in another state. In this

case the state or federal government would be better equipped to protect the quality of water reaching the city. A comprehensive water pollution control effort involves water quality studies, effluent regulations to limit pollutants discharged from industrial plants or sewage treatment facilities, an effluent sampling program to determine compliance with the regulations, and a legal enforcement capability.

Solid Waste Management is now recognized as an important environmental program. Attention was focused on solid wastes when landfill disposal sites around many cities became depleted. Concern for natural resources that were being used once and then discarded rather than recycled also focused attention on the problem. A typical solid waste management program is based on standards for waste handling and disposal that are designed to insure sanitary operation of disposal or reuse sites and also prohibit open dumps. Often solid waste disposal or recycling facilities are registered with the health agency so that they can be inspected periodically to determine if they meet the legal standards.

Noise is now identified as a serious "pollutant" with

esthetic and possible health effects. The problem has reached critical proportions in many cities and suburbs as airports have expanded and noisy expressways have been built near residential areas. Control of aircraft noise has been preempted by the federal government. However, cities such as New York and Chicago have established programs to limit construction machinery and garbage truck noise in attempts to make the city a more pleasant place to live and work.[11] Noise regulations usually specify a maximum sound level that is permissible at property boundary lines. An inspector with a noise meter makes inspections of commercial or industrial areas, and also answers complaints. Violators are either warned or issued a citation.

Occupational Health and Safety programs have recently gained strength through enactment of the U.S. Occupational Safety and Health Act of 1970. This Act requires employers to furnish workers with a safe working environment and also authorizes grants to states or local governments that have occupational health and safety programs approved by the U.S. Secretary of Labor. At present many states are establishing new programs or expanding existing

ones to ensure that their program will meet federal criteria. The actual health and safety standards, such as permissible noise levels or safe levels of airborne dust in coal mines, will be set by the federal government. The states must demonstrate that they are able to enforce the federal standards, and operate accident reporting and health education programs if they hope to qualify for federal grants.[12]

Radiation has been recognized as a potential health hazard long before the birth of the Atomic Age nearly thirty years ago. Since that time radioactive isotopes in all but the smallest quantities have been controlled by the U.S. Atomic Energy Commission (AEC) with an excellent safety record. The rapid growth in medical, educational, and research use of x-rays and small quantities of radioactive isotopes not controlled by the AEC has caused concern regarding the harmful effect of this radiation on the public and the environment. Regulations governing the storage, use, and disposal of x-ray machines and radioactive materials are needed. Surveys of medical and industrial x-ray machines, and radioactive materials should be made to detect leaks or poor operating pro-

cedures that cause abnormal personnel exposures. Since most radiation exposure occurs as a result of medical and dental x-rays, education of x-ray technicians regarding the use of modern high speed film that requires less exposure time, and the use of lead patient shields is important to minimize exposure of the general population to radiation.

Water Supply and Sewage Disposal Sanitation are health programs designed to assure a safe supply of drinking water for every citizen. They are more important in rural locations where most households have individual wells and septic tanks rather than access to municipal water supply and sewer systems. Usually a health ordinance establishes minimum acceptable bacteriological standards for water, and also outlines distance criteria between wells and septic tanks. A permit certifying that the water supply and sewage disposal systems are safe should be required from the health agency before the systems are used.

Food and Milk Sanitation are health programs designed to assure that all food and milk offered to the public is safe to consume. Health standards establish sanitary

requirements for food and milk processing plants, restaurants, and retail sales stores. Routine inspection of all food processing and selling establishments should be conducted with provisions for suspending health permits if too many health code violations are discovered. Training programs for food workers should be intensive and continuous due to the rapid turnover and relatively low educational level of this career group.

Disease vectors include mosquitoes, flies, rats, and other insects and animals that carry disease. Controlling disease vectors involves surveys to determine the population of vectors and the percentage that are infective for different diseases. Coupled with these surveys are tests to measure the vectors' resistance to chemical pesticides. With this information recommendations for vector control can be made to responsible agencies such as the sanitation or public works departments. Control methods include chemical treatment, sanitiation improvements to eliminate breeding areas or food supplies, and construction projects to drain mosquito breeding areas in swamps or other wet areas.

Pesticides are important from both a public health

standpoint for disease control and an economic standpoint as they are considered necessary for an adequate, low cost food supply. The toxic nature of pesticides and the possibility of long term ecological damage due to chemicals remaining in the environment make pesticide surveillance and control necessary. The main part of a pesticide control program should be approving chemicals that are safe for use and banning those that are extremely toxic or persistent. Training pest control operators as to the proper and safe use of chemicals is also important. Finally, some provision should be included in the program to sample water, vegetation, and wildlife to determine buildup of pesticides in the environment.

Consumer Protection is a growing program at all levels of government. Ralph Nader's impact has been felt by public and business officials. One unusual aspect of the consumer protection problem is that the U.S. Food and Drug Administration, the National Highway Traffic Safety Administration, and other federal and state agencies have information available on specific hazards but are reluctant to publicize it widely.[13] While this trend is changing, a state or local government could organize an effective

program based on research and reports describing hazards or consumer frauds available from federal agencies. A modest number of local inspectors would be needed to investigate complaints and check for compliance if hazardous products are banned under public health codes.

Housing and Institutional Sanitation is important in communities having significant public housing projects or institutions, or where the sanitary condition of one property may affect the health of people living close to it. Minimum housing standards are often contained in health codes and may apply to private dwellings, institutions and apartment buildings. Permits are usually required for operation of institutions, and periodic inspections should be made to assure that adequate sanitary conditions are maintained. Private dwellings are usually inspected only in response to complaints.

Epidemiological Investigations attempt to control the outbreak of disease by tracing the sources of disease. The two most important prerequisites for an effective epidemiological program are a rapid and comprehensive disease reporting system, and trained investigators to interview patients, collect food or other samples, and

statistically determine the probable disease sources. In many health agencies this is an intermittent program with few personnel assigned to it until a large outbreak of food poisoning or an epidemic of communicable disease occurs, making it necessary to assign sanitarians from other programs to complete the investigation.

Rabies Control is an important health program that relies on limiting the number of stray animals, requiring rabies immunizations of domestic pets, and educating the public to avoid stray dogs and wild animals. Health ordinances usually require rabies immunizations and prohibit allowing animals to run loose. Some animal licensing ordinances attempt to limit the animal population by offering a lower license fee for sterile female pets. Although the stray animal control, and the licensing activities might logically be part of the health, police, or licensing departments, the health agency usually retains a staff responsibility for determining the incidence of rabies and other diseases in the local animal population, and for recommending measures to protect humans from these diseases.

Swimming Pool Sanitation is important where there are

public or semipublic (motels, clubs, etc.) swimming pools. Health regulations usually require that a chlorine residual be maintained in the water for disinfection, that the water meet certain bacteriological and chemical standards, and that the water be clear enough that lifeguards can observe swimmers at all times. Routine inspections of pools during the bathing season is the only method of assuring that health standards are being met. If violations are discovered the pool should be closed until water quality or other problems are improved.

Nuisance Abatement is a general health program that is normally based on an ordinance that assigns to the health department responsibility for abating health nuisances. Health inspectors answer citizen complaints and try to eliminate the nuisances that they find. Many health agencies find that they spend a large portion of their time answering complaints involving neighborhood disagreements or esthetic nuisances such as pet odors rather than complaints involving health problems.

Effective programs in each of these areas usually have certain characteristics in common. For example a law or ordinance establishes the scope of a program, sets stand-

ards that must be followed and assigns responsibility for achieving the goals outlined in the legislation. Most environmental programs are similar in that they rely heavily on inspections, sampling and surveys to obtain environmental data. Restaurant inspections, air pollution sampling and mosquito counting surveys are just a few examples of typical data gathering efforts by environmental health agencies. The data can be used to determine if laws are being followed and is also useful in measuring disease or pollution trends to evaluate the effectiveness of health and environmental protection programs. Many environmental health programs are also similar in that they use permit systems extensively. Often restaurants, food processors, water system operators, and even potential polluters are required to obtain a permit from the health agency. Before the permit is issued the facility must meet health or pollution code provisions, and the permit can be suspended or revoked if subsequent inspections reveal too many violations.

Prosecution of code violators is another important part of environmental health programs, especially with the current concern about environmental pollution. Sanitary engineers in many health departments have attempted to

control pollution by providing consulting services to polluters, such as reviewing plans for pollution control facilities, and by relying on voluntary compliance with pollution control laws. Health departments have filed only a small number of enforcement actions in the last few years. Inadequate prosecution by public health agencies is one reason for the trend toward separate agencies for environmental conservation.[14]

Finally, all programs rely on public relations or information to generate support for their activities and to inform the public about potential dangers discovered by health inspectors. Press coverage is usually easy to obtain when a pollution emergency or disease epidemic threatens, or when the agency is involved in a controversial issue. During the rest of the time most agencies encourage personnel to appear before civic and other groups, and to take part in special events such as Cleaner Air Week or yearly campaigns to administer low cost rabies immunizations at public clinics.

Quality of Management

The success of health or environmental programs depends on the quality of the management that organizes and

directs them. The quality of management in an environmental agency can be gauged by comparing the agency's performance with the criteria for effective programs discussed in this chapter. Agency administrators must do their utmost to assure that:

- Adequate funding is provided to finance inspections, legal prosecution, and public education programs.
- Effective programs exist in the functional areas listed in this chapter.
- Organizational structures permit optimum solutions to health and environmental problems.

FOOTNOTES

[1]"Improvement Agency," Environmental News Digest (May/June, 1971), p. 14.

[2]E.H. Haskell and others, Managing the Environment: Nine States Look for New Answers, Smithsonian Institution (Washington, D.C., 1971), p. 258.

[3]Ibid., p. 15.

[4]Ibid., p. 26.

[5]Laws of New York, Chapter 140, 1970, signed by the Governor on April 22, 1970, effective July 1, 1970.

[6]Haskell, p. 11.

[7]Ibid., p. 26.

[8]Ibid., pp. 29-30.

[9]J.R. Goldsmith, "Managing Man's Habitat," Archives of Environmental Health, IXX (July, 1969), 5.

[10]J.J. Hanlon, "Who Manages the Environment?" Journal of Environmental Health, XXXII (January/February, 1970), 411.

[11]M. Eisenbud, "Environmental Protection in the City of New York," Science, CLXX (November 13, 1970), 706.

[12]Occupational Safety and Health Act of 1970, Public Law 91-596, approved December 29, 1970 (84 Statutes at Large 1590 et Seq.).

[13]"Chevrolet's Failing Engine Mounts," Consumer Reports (February, 1972), p. 120.

[14]Haskell, p. 17.

Chapter 4

THE ALBUQUERQUE DEPARTMENT OF ENVIRONMENTAL HEALTH

Albuquerque and Bernalillo County chose to strengthen environmental programs by establishing separate environmental health and personal health agencies, one of the popular organizational trends discussed in Chapter 3. In 1967 all city and county public health activities were consolidated into the Albuquerque Department of Environmental Health (DEH), and the Bernalillo County Department of Personal Health and Preventive Medicine. Both agencies provide their distinct services to all city and county residents.

Organization

The Department of Environmental Health structure includes a Department Director, an Assistant Director, an Administrative Assistant, and six division heads. Each division has the responsibility for all DEH activities in specific program areas. The programs each division is concerned with is evident from their titles: Air Management, Food and Institutional, General Environmental Services, Milk Sanitation, Animal Control, and Occupational Health. Each division head reports to the Department

Director and is responsible for the day to day operations of the division.

The most striking feature of the DEH organizational structure (Figure 1) is the relatively large number of advisors to the Department Director. Because the New Mexico Environmental Improvement Agency (EIA) has overall responsibility for all environmental health activities in the state, it makes recommendations to the Department of Environmental Health.[1] The Bernalillo County Commission and Manager have contact with the DEH Director because the Department performs all environmental health activities in the county under a contract paid by the county and the state. Two part-time policy making boards exist: The Metropolitan Environmental Health Advisory Board (MEHAB); and the Air Quality Board (AQB). Both boards have the same citizens as members. The MEHAB has not met in more than a year because most DEH programs have been underway for several years and its advice has not been needed by the DEH Director. The AQB, however, is active and meets monthly. To remove air quality considerations from political pressures, the AQB has the authority to establish air quality regulations and to act on requests for

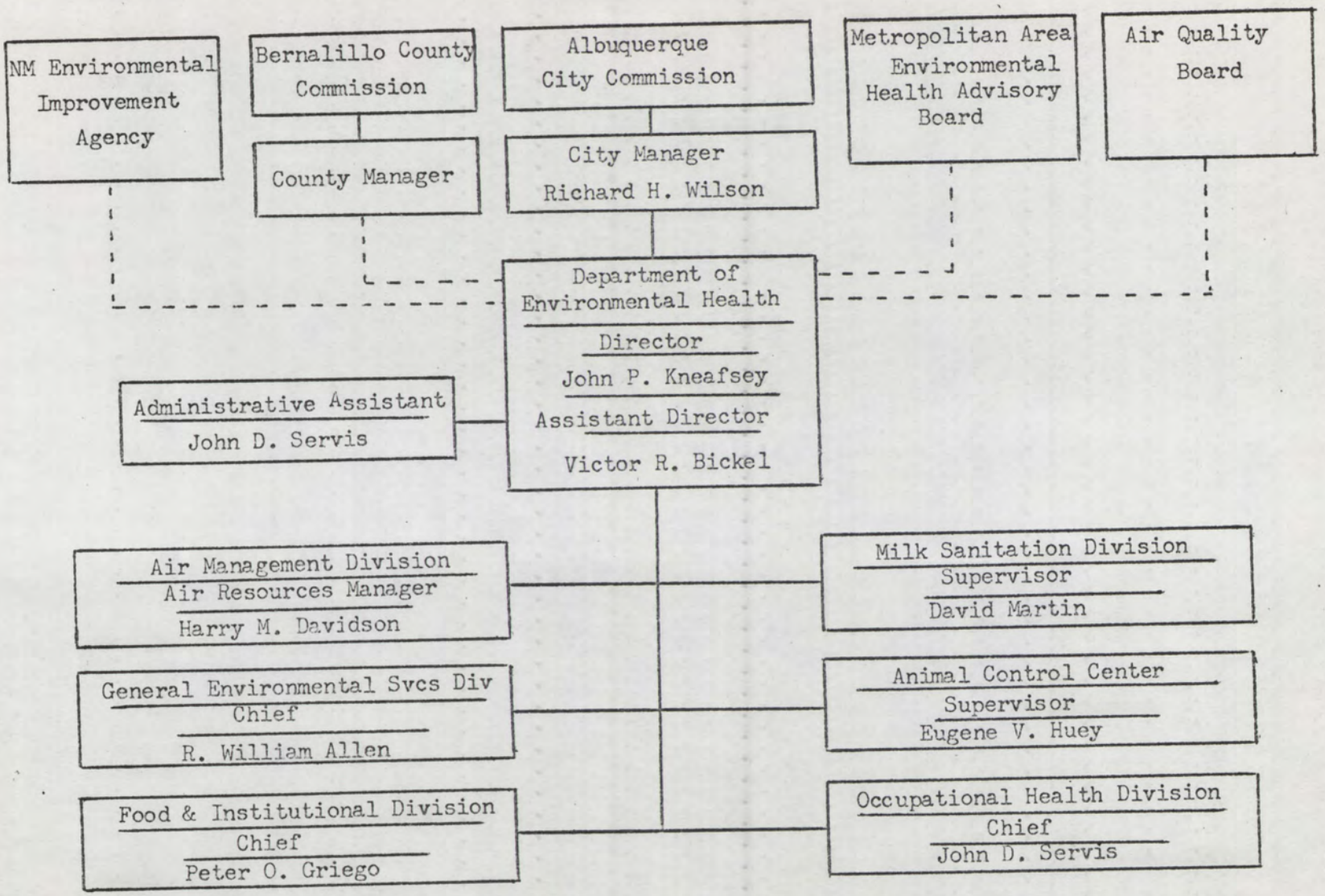

Figure 1.

Department of Environmental Health Organization Chart

variances from the regulations without any review by city or county governments. Its actions must be appealed directly to the District Court.[2]

Since Albuquerque has a council-manager form of government, the City Manager has administrative responsibility for government operations. He selects the Department Director with the approval of the City Commission and can dismiss him with its approval. City ordinances give responsibility and authority to the City Manager who in turn delegates them to departments either orally or in writing. Day to day contact between the DEH Director and the City Manager is through an Assistant to the City Manager who acts as liaison with several city departments. Almost all important Departmental decisions are reviewed by the Assistant to the City Manager for Environmental Health.[3]

The DEH Director has both an Administrative Assistant and an Assistant Director. The Administrative Assistant has been responsible for budget preparation, inventory records, and clerical staff supervision. The role of the Administrative Assistant is now uncertain as he is also the head of the newly formed Occupational Health Division.

Many of his functions may be transferred to the Director or the Assistant Director. The Assistant Director is a new position that was created in September 1971, and is being filled by the former DEH Director who was replaced at that time. It is envisioned that the Assistant Director will relieve the Director of many administrative tasks and will handle public information work.[4]

Figure 1 indicates that all of the division heads do not have similar titles. Three of the divisions are headed by "chiefs." The Air Management Division is headed by an "Air Resources Manager." Both the Milk Sanitation Division and the Animal Control Center are headed by "supervisors." The division heads also do not have similar job descriptions or a common pay scale. The DEH Director hopes to align salaries and to reduce the number of job descriptions in the near future after program changes and additions have been considered.[5]

Communications within the DEH are informal. Instead of holding regular staff meetings, the Director discusses problems or plans directly with the division head involved. Each division head has expressed satisfaction with this arrangement. Each feels that he is aware of what is

happening in the Department and that he has enough contact with the Director. There is little official interaction among the division staffs since each division has carefully defined responsibilities. However, there is frequent informal interaction among DEH personnel in five of the six divisions. The Animal Control Center is separated from the main Department offices in the Municipal Building so there is little contact between the Animal Control Center staff and other DEH personnel.

A reorganization of the DEH into Environmental Protection, Consumer Protection, and General Sanitation Divisions is under consideration by the Director.[6] This would expand Department influence into consumer activities. It would also increase efficiency since a single sanitary inspector could survey an industrial plant for general sanitation, food service sanitation, and occupational safety, whereas the present organization requires inspections by personnel from three different divisions. The reorganization would reduce the present six operating divisions to only three, thereby reducing the Director's span of control. It would also free three professional sanitarians from administrative tasks for field or other professional work.

Funding

All funds for DEH operations are appropriated by the Albuquerque City Commission from the general fund. During FY '71 this appropriation totalled $496,742. The DEH differs from most of the other city agencies in that almost half of its appropriation was recouped by the city through permit fees, state/county payments, and a federal grant paid into the general fund. A U.S. Environmental Protection Agency grant of $71,481 for the air pollution control program paid for 95% of the Air Management Division's total budget. This grant was the only federal aid received by the DEH. Bernalillo County and the state together paid $49,300 for environmental health services in the county outside Albuquerque city limits. The state/county contribution accounted for only about 60% of the cost attributed to the county environmental health program with the city paying the remaining 40% of the cost. Animal control fees generated $22,000 and inspection/permit fees for milk and food processors, restaurants, and vending machines accounted for about $85,000. Air pollution inspection fees and contractual charges for the insect control activities in Sandoval County and on nearby Indian lands accounted for

$12,000 of the total revenues of $240,000 generated by DEH operations.[7] The remaining $260,000 of the total appropriation was, of course, taken from general city revenues such as taxes.

Table 1 shows how the appropriation was divided among the various DEH functions. Since most of the appropriation was spent for salary costs, the amount of money appropriated for each division was strongly linked to the number of employees in that division. The two largest divisions, Animal Control and General Environmental Services, each received about $125,000, or 25%, of the total DEH appropriation. The Food and Institutional Division has the third largest number of employees and received $92,316. The Air Management Division is next in size and received $75,671. The administrative section, although not an operating division, was allocated $56,296 for management salaries and overhead expenses. Finally, the two-man Milk Sanitation Division received $21,353, which was the smallest appropriation. The Occupational Health Division had not been established at the time of the FY '71 appropriation and received no funds.

Throughout this chapter reference will be made to a

Table 1.

Department of Environmental Health Appropriation, FY '71

Department Function	Appropriation	Percent of Total
Animal Control	$ 126,390	25.4
General Environmental Services	124,716	25.2
Food and Institutional Sanitation	92,316	18.6
Air Management	75,671	15.2
Administration	56,296	11.3
Milk Sanitation	21,353	4.3
Occupational Health*	-0-	-0-
	$ 496,742	100.0

*The Occupational Health Division has not yet been established at the time of the FY '71 Appropriation.

Source: DEH FY '71 Annual Report

manpower shortage in the DEH. This is largely the result of a hiring freeze in the city government ordered by the City Manager during the summer of 1971. It was designed to reduce city expenditures after a proposed increase in sewer and refuse collection charges was temporarily blocked by a taxpayers' suit and the city faced a budget deficit.[8] Within the DEH the hiring freeze was felt most acutely by the Animal Control Center. The Center operated at reduced manpower levels for several months since three employees who left the Center could not be replaced.

Relationships With
Other Governmental Agencies

The Department relies heavily on cooperation from other government agencies in carrying out its environmental programs.

The DEH looks to the federal government primarily for funding of the air management program. The U.S. Environmental Protection Agency grant for this program has already been mentioned. The DEH has recently created an Occupational Health Division which will plan a program to qualify for a U.S. Department of Labor grant under the U.S. Occupational Safety and Health Act of 1970.

Relations with the state are mainly with the Environmental Improvement Agency (EIA). The EIA Director, Mr. Larry Gordon, was once the Department of Environmental Health Director so most of the DEH management have known him for a long time. The EIA Director has responsibility for all environmental health activities in the state so he has the authority to overrule the DEH Director.[9] However, relations between the state and city agencies are cordial and little, if any, friction exists.

The Bernalillo County Manager deals directly with the DEH Director rather than the City Manager or DEH division heads. Although relations are usually cordial, a current problem exists involving enforcement of the air pollution code. The county government would like to have a time period in which warnings rather than citations are issued to polluters. Some county judges refuse to hear cases involving air pollution citations unless a warning was issued first. The DEH's Air Resource Manager maintains that U.S. Environmental Protection Agency regulations governing the federal grant do not allow warnings once a pollution control program enters the enforcement phase. However, warnings are being issued to county residents on

a temporary basis until a permanent solution can be worked out.[10]

Since the DEH is a city agency, most of its relations and many of its problems involve other city offices or agencies. The City Manager has a highly centralized administration in terms of decision making but relies on assistants for day to day contact with department directors. The result is that most directors have little personal contact with the City Manager although almost all decisions must go through his office.

The DEH has relations with almost all city agencies. Most of the relations are informal with direct communications between staff members in the DEH and other agencies without recourse to formal requests for information or action through department heads. Contact between the different city department heads is sporadic. The City Manager holds weekly staff meetings but they have been more a preparation for the upcoming City Commission meeting rather than an opportunity for exchanging information or expressing opinions about city government affairs.

The one major problem area in intracity relations has been with the Legal Department. Due to manpower

shortages, the Legal Department has been unable to fully support the DEH's Air Management Division when local firms request variances from the air pollution regulations before the Air Quality Board. The DEH Director feels that, since specialized terminology and industrial processes are discussed at the hearings, one staff attorney should be assigned to work with the DEH when required. This has not been possible to date and legal help is supplied at the last minute when available.

Overall DEH relationships with other governmental agencies are cordial and informal. However, the DEH Director does not seem to have sufficient visibility or prestige within the city government to allow him to act as an environmental advocate. As the city/county environmental expert, the DEH Director should have the authority to review all governmental programs for possible environmental damage or mismanagement. As discussed in Chapter 3, the creation of an environmental advocate was a major reason for consolidating the New York State environmental programs into a single agency. The Albuquerque DEH Director's inability to act as an environmental advocate is probably due to the City Manager's lack of emphasis on

environmental quality. The nature of the city staff meetings is a contributing factor since the DEH Director would need to have comprehensive information about other agencies' programs before he could advise the City Manager about the environmental impact of the programs.

Programs

The DEH conducts programs in 15 of the 19 program areas discussed in Chapter 3. A list of DEH programs is contained in Table 2. No programs exist in water pollution, radiation protection, pesticide control, or consumer protection. Water pollution control is administered by the Albuquerque Department of Public Works which has the responsibility for operating and monitoring the sewage treatment plants. The New Mexico Environmental Improvement Agency has effective programs in radiation protection and pesticide control which cover Albuquerque. Consumer protection does not receive adequate attention from any government agency. The DEH Director recognizes this and would like to include consumer protection activities in the DEH.

Of the six divisions of DEH only one, the Air Management Division, is primarily concerned with protecting environmental quality. The other five divisions are

Table 2.

Department of Environmental Health Programs

Division	Program
Air Management	Air Pollution Control
General Environmental Services	Water Supply Sanitation
	Sewage Disposal Sanitation
	Disease Vector Control
	Solid Waste Disposal
	Swimming Pool Sanitation
	Noise Abatement
	Housing Sanitation
	Nuisance Abatement
	*Weed Control
Food and Institutional	Food Sanitation
	Institutional Sanitation
	Epidemiological Investigations
	*Ambulance Inspections
Milk Sanitation	Milk and Milk Products Sanitation
Animal Control	Rabies and Animal Bite Prevention
Occupational Health	Occupational Health and Safety

*Programs not usually associated with environmental health agencies.

primarily concerned with safeguarding the public health. This reflects one goal of the Department as stated in the FY '71 Annual Report, "to protect and promote the health of citizens within Bernalillo County,"[11] but ignores the great need for comprehensive environmental quality programs.

The Air Management Division (AMD) is responsible for the air pollution control program in the city and county. The air pollution control program has a staff of four professionals, two inspectors, two aides, and a secretary.[12] To date the AMD staff has not been able to reduce the automobile emissions and dust from unpaved roads which are responsible for 90% of Albuquerque's air pollution.[13] The AMD has succeeded, however, in defining the scope and the cause of the local pollution, and in increasing public awareness of these threats to Albuquerque's clean environment.

The AMD is divided into three staffs: Pollution Control; Engineering; and Technical Services. The Pollution Control Staff is responsible for air pollution inspections and actions to abate pollution such as issuing citations to pollution code violators. The Technical Services Staff conducts the ambient air sampling program and performs

smoke stack emissions testing. The Engineering Staff reviews plans for construction or modification of equipment that might cause pollution such as large boilers, cement kilns, and petroleum storage tanks. Personnel shortages in the Division make staffing the Engineering group impossible at this time.[14] The eventual role of the Engineering Staff in reviewing and approving plans could compromise later DEH enforcement efforts. If the Engineering Staff approves plans for construction of a plant that later fails to meet the emission standards, enforcement may be difficult. To avoid this situation, consulting activities should be separated from enforcement actions. This can be done by requiring the industrial firm to employ or retain technical experts to evaluate plans for plant construction.

The AMD routinely operates a total of 13 air samplers located throughout the county that collected about 29,000 samples in FY'71. Eleven samplers collect dust and other particulates on filter paper for later weighing to determine the quantity of dust in the air. One sampler, located in the Albuquerque Municipal Building, measures the carbon monoxide concentration in city air. Another device measures the "haze" that reduces visibility in the city. The AMD

also has two instruments on loan from the U.S. Environmental Protection Agency to measure carbon monoxide and total oxidants (a component of smog) at other locations in the county. The city plans to buy two similar instruments with $50,000 in bond money that will be available over the next three years. Federal matching funds are expected to pay salary costs for the sampler operators.[15] Although the dust sampling capability appears to be adequate at present, the carbon monoxide sampling capability is inadequate until the additional instruments are acquired.

The results of the sampling program will be used to determine if local air quality meets standards set by the U.S. Environmental Protection Agency (EPA). Under EPA regulations the ambient air quality in each geographical area defined by the EPA must meet certain standards. If it does not, the state or local air pollution agency must submit a plan for achieving the specified air quality or the EPA will set and enforce emission regulations itself to improve air quality.[16] Although the Department study is not complete, Albuquerque appears to satisfy the EPA standards except during crisis periods such as the severe inversion that occurred in the area during December 1971.[17]

Air pollution abatement is the major phase of the air quality improvement effort. Two division personnel patrol the city and county routinely to observe violators of the Air Quality Regulations and to investigate citizens' complaints about air pollution. During FY '71, 499 violations were observed as a result of 245 industrial inspections and 272 public complaints. Only 36 citations were issued during the year.[18] The number of inspections and citations can be expected to increase sharply in FY '72 due to the new Air Quality Regulations enacted into law in July 1971. These Regulations were drafted by AMD personnel and are based on the toughest standards imposed by other states and localities with modifications to recognize Albuquerque's special dust problems and lack of heavy industry. The Regulations outlaw most open burning and severely limit dust and smoke emissions from incinerators, and industrial equipment.[19]

The outlook for success of present abatement activities is limited since existing pollution control technology and the new Air Quality Regulations focus on reducing pollution from stationary sources such as incinerators and industrial equipment. DEH figures show that stationary

air pollution sources account for less than 10% of Albuquerque's visible pollution. Automobile exhaust accounts for 70% and dust from unpaved roads about 20%.[20] These are two major pollution sources that the AMD has been unable to control to any significant degree. The master plan for the downtown Albuquerque business district still calls for more high rise office buildings that will bring more commuters downtown into an area that already suffers from excessive automobile exhaust pollution during commuting periods.[21]

Since more than 90% of Albuquerque's visible air pollution is caused by automobiles, Albuquerque's pollution problem is basically people-related. For this reason the AMD has an aggressive public education program. AMD uses Cleaner Air Week programs to make the public aware of the pollution caused by their automobiles. During Cleaner Air Week in October 1971, six automobile exhaust analyzing stations were located in shopping centers throughout the city for voluntary testing of private automobiles. Approximately 1500 autos were tested during the week.[22] AMD personnel also speak to civic groups and other gatherings whenever possible. In FY '71, 89 public

presentations were made and almost 500 requests for information filled.[23]

The aim of the public education efforts is to assure that every citizen understands the pollution threat to Albuquerque's environment and what can be done about it. The AMD is trying to generate enough support for pollution control to allow passage of a law requiring that every motor vehicle registered in Bernalillo County meet stringent exhaust emission criteria during a mandatory annual exhaust emissions test. It would also like to gain enough public support to pave or close all major dirt roads in the city and county.[24]

An interesting aspect of the air pollution control program is the Air Quality Board (AQB). The Board has seven members, four appointed by the City Commission and three by the County Commission. It has the power to enact air quality standards and air pollution emission regulations, and also to grant variances to the regulations. The city and county governments have no veto power over these activities. AQB decisions must be appealed in District Court.[25] The AQB has shown great concern for Albuquerque's air quality and has carefully considered

proposals designed to protect and improve it. The Air Quality Regulations, enacted in July 1971, were debated for almost a year in both public hearings and regular meetings of the AQB before a final draft was adopted. No variances to the Regulations have been granted although several have been requested by local industry.

The General Environmental Services Division (GESD) is responsible for sanitary inspections in the city and county except those involving food or milk products which are handled by other divisions. Although it has six other programs that receive less attention, the GESD's major programs are water supply and sewage disposal system inspections, and insect control.[26] Its activities to date have been wholly health related. However, a proposed water availability study and a new noise abatement program are signs that the Division is trying to expand into nonhealth areas.

The GESD has a full time staff of five professional sanitarians, seven sanitary inspectors, and a secretary. It also has eight temporary positions for insect control operators that are filled during the spring and summer months.[27] With five sanitarians to administer eight programs, most programs get only part-time attention. The

Division uses trained inspectors, however, to relieve sanitarians of some routine inspection duties.

Division programs include water supply and sewage disposal, vector control, solid waste disposal, swimming pool sanitation, noise abatement, weed control, housing sanitation, and nuisance abatement. Water supply and sewage disposal is the most important single program in the Division with two sanitarians and three inspectors assigned to it on a full-time basis.[28] The major emphasis is on assuring that private water and sewage systems in Bernalillo County meet the applicable provisions of local health ordinances.

Sanitary surveys are conducted for all newly constructed homes and also for property being considered for a Federal Housing Administration or Veterans Administration mortgage since certification from the DEH that the water supply and sewage disposal systems are adequate is required for these types of mortgages.[29] A typical sanitary survey involves inspection of the well, plumbing, and sewage disposal unit. If the systems satisfies the health code in terms of spacing between well and septic tank and other criteria, a water sample is collected from the drinking water supply for

analysis. If the water is pure, a certificate approving the system is issued.

Similar surveys are conducted periodically on semi-public systems such as motels, and restaurants within the county. The GESD also reviews and approves construction plans for all new wells or waste disposal systems. However, manpower shortages precluded review of some plans for construction in 1971. During FY '71, 1600 water and sewage systems were inspected and 375 construction plans reviewed.[30]

Since last autumn the sanitarians assigned to the water and sewage program have been involved in a special study of water availability on the east side of the Sandia Mountains to help determine if enough water exists there to support extensive development. This study is based on data from well-drilling logs and geological surveys conducted by the State Engineer, the U.S. Geological Survey, and other agencies. The study is the first direct involvement for the DEH in land use planning. The project is important since the Department views land use as a key factor in the quality of the community environment.[31] The project is also expanding the Division's work into nonhealth

areas. The project is making better use of professional sanitarians. In the past sanitarians have spent most of their time doing routine tasks such as collecting and analyzing water samples. Since the sanitarians have been working on the water availability study, the routine tasks have been assigned to inspectors.

The water supply and sewage disposal program is effective in monitoring new construction of water and sewage systems in Bernalillo County. However, there are still many unsafe and contaminated private water systems in the county with the attendant high incidence of hepatitis and other water borne diseases. At the very least a disease reporting system should be established with local physicians. In this system physicians would report cases of suspected water borne diseases to the DEH. The DEH would then make surveys of the water system involved.

Vector control (primarily that of flies and mosquitoes) is a seasonal program lasting from April to September each year. During this period, one sanitarian is assigned on a full-time basis to the program with eight seasonal employees who drive vehicles, operate chemical spraying equipment, and make insect counts and breeding surveys.[32]

Vector control is probably the Department's outstanding program in terms of innovation and expanding protection for the public against flies and mosquitoes. For the last three years the Division has conducted research on the use of gambusi minnows to control mosquitoes. These fish have voracious appetites for mosquito larvae in ponds and ditches. During FY '71 almost a quarter million minnows were introduced into permanent and semipermanent waterways in the area. Because of the minnows, chemical costs for pesticides have been reduced by 70% over previous years.[33] This represents both monetary savings and increased protection for the environment since all pesticides are toxic to a certain degree to beneficial insects.

The GESD is now expanding its vector control program to cover mosquitoes flying into the city and county from nearby counties or Indian lands. This effort began in 1967 with a contract from the U.S. Public Health Service's Division of Indian Health to control mosquitoes on the Sandia and Isleta Indian Reservations. The following year the area covered was extended into Sandoval County as far north as the town of Bernalillo with funds provided by Sandoval County and Bernalillo. The GESD is proposing to extend its

vector control activities on a regional basis 35 miles south of Bernalillo County to the town of Belen.[34]

The solid waste disposal program involves surveillance of illegal dumping areas in the county and investigation of complaints about littering or unsanitary disposal of refuse. It is based on the city and the county antilitter ordinances to prevent dumping of garbage and trash in unauthorized areas. Three inspectors work on this program on a part-time basis.[34]

Regular surveillance of illegal dumping areas is necessary because inspectors have found that as soon as one person dumps trash in an area, many others will quickly follow. Apparently these people do not want to be the first to litter an area, but also do not want to go out of their way to drive to a public landfill site. Due to manpower shortages there are no weekend patrols of illegal dumping areas.[36] This is unfortunate as illegal dumping often occurs on weekends.

During FY '71 more than 2000 complaints involving littering or unsanitary disposal of refuse were investigated and only 38 citations were issued to offenders.[37] This is not one of the Division's stronger programs and should be

improved. Littering in and around the city is a serious environmental threat, especially for an area interested in attracting tourists. Regular patrolling of illegal dumping sites would help to decrease the number of offenders. The Police Department could be encouraged to issue citations to motorists observed littering from their cars.

Swimming pool sanitation involves approval of construction plans for new swimming pools and periodic inspections of public and semipublic swimming pools during the bathing season. Plans for new pools are forwarded to the DEH for approval by the Buildings and Inspections Department before a building permit is issued. During the swimming season, the GESD tries to inspect each pool monthly. This was not possible during FY '71 due to manpower shortages. Only a total of 400 pool inspections were conducted in 1971, only about half of the total for the previous year.[38]

To increase the effectiveness of the swimming pool sanitation program, more pool inspections should be conducted. The number of inspections could be increased if inspections of motel pools were performed by the Food and Institutional Division during its routine restaurant inspections for motels having both eating establishments and swimming pools. Since

a water sample to determine the pH and chlorine concentration is all that is needed, an adequate inspection of a small motel pool should take only five minutes.

Noise abatement is the newest responsibility of the Division. The major effort in this area was the preparation of a noise control ordinance in both the city and the county which was enacted in December 1971.[39] The program will probably include checking noise levels in industrial plants and at private property boundary lines to determine whether noise levels exceed the new ordinance levels. It is not certain whether the noise abatement program will remain in the GESD or whether it will be transferred to the Occupational Health Division or some other division.

Weed and cottonwood control is another Division program. Weeds are considered a health problem since they contribute to allergic reactions. The DEH has the responsibility for inspecting private property and motivating the owners to control weeds. The Parks and Recreation Department is responsible for controlling weeds on public property and on rights of way. Usually an oral or written request to a private property owner is sufficient to have him control his weeds. Legal action is possible if he refuses.

A similar inspection and control program banning flowering cottonwood trees is theoretically in effect in the city since the "cotton" released from the trees during the spring also causes allergic reactions. However, due to funding and manpower shortages, essentially no weed or cottonwood control program existed last spring or summer.[40] Weed and cottonwood control is a program that the DEH Director would like to eliminate since it is of marginal health value.[41] The program was effectively eliminated by the manpower shortage and probably should not be renewed in the future.

Housing, motel, trailer court, and boarding home sanitation occupies two sanitarians on a part-time basis. During FY '71, 323 inspections were conducted to check housekeeping and overall sanitation of these facilities.[42] At one time the Division also inspected private housing within the city when required by complaints or if the building was being considered for demolition. However, housing code enforcement is now a responsibility of the Housing and Development Department, and a new city housing ordinance omits all health-related items.[43] Due to this decrease in emphasis, routine housing inspections should probably be abandoned, and inspections made only in reply to complaints.

Nuisance abatement is a catch-all program for the investigation of citizen's complaints and the abatement of general sanitary nuisances such as odors from a neighbor's dog kennel. During FY '71 many of the 1361 general sanitation complaints answered fell into the nuisance abatement category.[44] The Division head is trying to minimize activities in this area since many of the complaints are not really health problems. To investigate each one takes much needed manpower away from other programs.[45]

The Food and Institutional Division (FID) is responsible for the sanitary quality of all food produced or brought into Bernalillo County except milk which is inspected by a separate division. The FID also conducts epidemiological investigations, school safety inspections, and ambulance inspections. The FID has a staff of seven sanitarians and one secretary. The Division's personnel spend about 80% of their time on inspections within the city and the remainder in Bernalillo County.[46] The lack of serious food-borne disease outbreaks and the relatively good sanitary quality of local eating establishments indicate that the Division is successful in its programs. Its major programs are: pure food and food establishment sanitation, the food service

school, vending machine sanitation, epidemiology, school safety and health inspections, and ambulance inspections.

The pure food and food establishment sanitation program occupies all seven sanitarians on a part-time basis. Approximately 1400 food establishments, including food processors, eating and drinking establishments, school cafeterias, food warehouses, and hospital and child care center kitchens, are inspected every six weeks.[47] Each is inspected for cleanliness, sanitary food handling, storage procedures, and proper labelling. Each food serving establishment is given a permanent grade of "A" or "B" at the time of initial inspection depending on the quality and extent of sanitary and food processing facilities. If subsequent inspections show that the establishments are violating health codes, a temporary "C" rating is given. If sanitary conditions are not improved within 30 days, the operator's permit is suspended. Food processing plants are not graded. Either they comply with the ordinance or they do not. If too many violations are noted, the permit is suspended and an administrative hearing is scheduled to determine why the violation exists.[48]

As part of the sanitary inspections about 200 water

samples are collected each month from the plumbing systems for bacteriological analysis. Ground beef is sampled for tests to determine fat, cereal, and preservative content as well as species analysis to determine whether other animals were illegally ground with the beef. Also bread samples are collected to test for required enrichment of the bread. Vegetables are collected for pesticide analysis. The actual analysis of the samples is performed by the New Mexico State Laboratory.[49]

Food inspections must be frequent and thorough to prevent health threats from impure or spoiled food. Increases in the number of eating establishments have necessitated longer intervals between sanitary inspections. Since each inspection is thorough and operators know that too many violations will result in a downgrading of their establishment which is publicized by a sign on the premises and a notice in the local newspaper, I do not think that the health protection program has been compromised.

The food sercice school is a voluntary six hour school for food service workers. One class is offered each month by the Division without charge. The school has trained more than 3000 people during FY '71.[50] Since food workers

tend to be transient due to low pay and other factors, and are not required to have a health card or medical examination, it is important that they know sanitary food handling procedures. Two sanitarians work part time on this program.[51]

Each of the 440 vending machines operated within the county requires a permit from the DEH signifying that it meets ordinance standards of cleanliness. One sanitarian works part time inspecting vending machines. A sizable amount of time is involved in this type of inspection as the sanitarian accompanying the machine serviceman must wait after the inspection while the serviceman reloads the machine.[52] I feel that the value of this program, when compared to the time it takes, is marginal. Perhaps a random food sampling and analysis program could be developed. This would offer protection to vending machine patrons while conserving agency manpower.

Alleged incidences of food poisoning are investigated by the Food and Institutional Division as part of the epidemiology program. One sanitarian spends approximately 50% of his time in this area. If a large outbreak of food poisoning occurs, all sanitarians in the Division are assigned to investigate it.[53]

Most alleged food poisoning cases reported to the DEH involve only one or two persons who usually have eaten at a public food establishment. The definite cause of the illness is often difficult to prove as other people may have eaten the same food without ill effects. Sometimes there are contributing causes to the illness such as alcohol.

The Division epidemiologist recently investigated an outbreak of salmonella infections in children. The infections appeared to be caused by pet turtles. Children handled the pet turtles which were contaminated, then handled food without thorough hand washing. Bacteria from the turtles was then ingested causing the illness. Eighty per cent of the water samples collected by Division personnel from pet shop turtle tanks in the city were found to contain salmonella bacteria. The Division prepared a press release warning the public about the hazard, and arranged to have the Rio Grande Zoo receive any unwanted pet turtles.[54]

Inspections of local hospitals for practices such as poor housekeeping or sterilization techniques which might spread disease is part of the epidemiology program. However, due to insufficient manpower, hospital inspection is one of the Division's weaker programs. Only 29 hospital

inspections were conducted in nine local hospitals during FY '71.[55]

Once each year a sanitarian accompanies an Albuquerque Public School nurse on a comprehensive inspection of each school to check lighting, heating, and overall safety of classrooms, shops, the gymnasium, and the playground. More than 130 schools are involved.[56] These inspections are separate from routine sanitary inspections of school cafeterias which are conducted on a six-week interval as part of the pure food program. The Division head would like to increase the frequency of school inspections as part of an environmental safety program if sufficient manpower was available.[57]

One sanitarian spends part of his time inspecting ambulance operators to assure that permits are current and that drivers and attendants have a certificate of completion from a special short course on first aid given by the University of New Mexico Medical School. No evaluation is made of the emergency response of the ambulance firms or of actual patient handling techniques; the checks are administrative only. Despite the concern expressed in the press about poor ambulance service during 1970, no complaints were

received by the FID.[58] Perhaps the public is not aware that this is a DEH program.

The DEH Director would like to transfer the ambulance inspection program to another city agency.[59] The Fire and Police Departments have been mentioned as possible candidates. Either of these agencies would be better able to evaluate the quality of the service provided by ambulance firms.

The Milk Sanitation Division (MSD) is responsible for inspecting all milk and milk products produced in or entering Bernalillo County to assure that they meet sanitary quality standards. The Division monitors milk quality from the dairy farm to final delivery to retail stores or restaurants. Beyond that point the Food and Institutional Division assumes responsibility for the sanitary quality of milk products. The Division has a staff of two sanitarians to conduct sanitary inspections.[60] The lack of milk borne diseases in the area is a good indicator that the MSD's programs are successful.

Forty-six dairy farms are inspected by the sanitarians, usually on a monthly basis. The farms are located as far south as Belen and as far east as Estancia, N.M. At the

farms cleanliness is checked, milk samples are collected for bacteriological and other analyses, and immunization records for the herd are reviewed.[61]

There are eight milk processing plants that deliver products to Albuquerque and Bernalillo County consumers. Typical products include pasturized milk, skim milk, ice cream, and butter. These plants are usually inspected each week. A typical inspection involves an evaluation of overall cleanliness, a survey of the plant plumbing and waste disposal systems, and a review of milk storage and handling procedures especially the temperature of milk and milk products. Milk samples are collected and sent to the New Mexico State Laboratory to be tested for bacteriological quality, pesticides, spoilage inhibitors, and water adulteration. The U.S. Department of Agriculture checks milk samples for fat content used in grading milk, and verifies the weight of milk shipments.[62]

The sanitary quality of milk and milk products can easily be measured using standard laboratory tests. This provides a convenient and final check on farm and plant sanitation that is not available to the Food and Institutional Division since it is concerned with many different

food items for which no rapid and convenient laboratory tests are available. Since the results of almost all MSD tests show that the milk quality is adequate, DEH administrators can be fairly sure that the Milk Sanitation Division is meeting its objectives.

The Animal Control Center is part of the Department of Environmental Health due to the threat of rabies or attacks on humans from stray animals. The Center, which is equivalent to a division, has authorizations for 17 employees: seven animal control officers, six kennel men, a superintendent, and an office staff of three people.[63] The control officers operate only within the city limits of Albuquerque since Bernalillo County has a separate enforcement staff.

The seven radio-dispatched animal control officers constitute the field enforcement staff. During FY '71, 2095 complaints were investigated, 4995 requests for cruises through areas with stray dogs were answered, and 690 dogs were captured. Often it was easier to chase a stray dog home, then give the owner a citation rather than capturing the dog. During FY '71, 1252 citations were issued to dog owners who allowed their pets to run loose and another 536

citations were issued to violators of the rabies immunization section of the animal control ordinance. A total of 220 manhours were spent in court by animal control officers.[64]

Animal control officers try to reduce the number of strays by picking up animals from owners no longer able or willing to care for them. During FY '71, 4236 animals were picked up and brought to the Animal Control Center. Efforts to find new homes for these animals usually failed and most of them were destroyed at the Center.[65]

Success in controlling stray animals has been limited by personnel shortages. Patrols are made every day of the year and, since each officer is responsible for patrolling about 25 square miles, unfilled authorizations for officers quickly reduce the effectiveness of the program.[66] Public dissatisfaction with the large number of stray dogs in the city has been aired through several letters to the local newspaper.[67] Many complaints have also been made to the Control Center. The public has suggested several solutions to the problem including more strict enforcement of animal control laws, increasing the number of control officers, and mandatory sterilization of strays brought to the Center.

The Center has a modern new kennel building which was

completed in October 1971, for the care of sick, injured, or stray animals as well as animals confined for observations after a biting incident. A total of 21,424 animals were housed at the kennel during FY '71. Only 3288 were reclaimed by their owners or placed in new homes, 16,249 were destroyed, and the remainder were sold to laboratories, were released in the wild, or escaped.[68]

The Center has a vigorous public information program. During FY '71, 373 children visited the Center for a tour of the kennel and talks on animal care. An additional 130 children and their pets attended obedience classes held at the Center during the summer.[69] Professional dog trainers from a local pet shop donated their time to teach the classes.[70]

Of the 21,424 animals housed at the kennel during the year, only 690, or 3%, were strays captured by the animal control officers. Each control officer, on the average, captured fewer than two stray animals a week during FY '71. This suggests that the control of stray dogs is not effective. I think that improvement could be made by devoting more time to chasing stray dogs. This could be accomplished by increasing the number of control officers, or by reducing

the other work of the control officers such as picking up unwanted animals from owners able to bring pets to the Center themselves.

The Occupational Health Division is the newest division in the DEH, having been organized in autumn 1971. Previously the Air Management Division did any required work in this area when time permitted. The present Occupational Health Division (OHD) is staffed by the Administrative Assistant who has extensive experience in industrial health and safety. The major reason for the organization of a formal occupational health program was the enactment of the U.S. Occupational Safety and Health Act of 1970.[71] This Act requires that each employer provide a safe working environment for his employees. The U.S. Secretary of Labor was assigned the responsibility for setting safety and health standards, and for establishing an enforcement program. The Act has a provision allowing states or local governments to assume responsibility for the enforcement of the safety standards, and to conduct educational programs providing that the state or local government submit a plan that is approved by the U.S. Secretary of Labor to supply occupational health and safety services. The Act authorizes grant up to 90% of the cost of: identifying needs

for occupational health, establishing data collection and analysis systems for occupational diseases or injuries, training local personnel, and otherwise improving the administration and enforcement of occupational health laws.[72]

An effective occupational health and safety program for the Bernalillo County area is still at least three or four years away. At present the scope of occupational health and safety needs are being studied. The next phase will be the development of a tentative program for submission to the U.S. Secretary of Labor. Finally, funding will be requested by the city from the federal government. The level of federal funding will probably be the most important factor in determining the scope of the final program.[73]

Quality of Management

The success of environmental health programs depends to a large extent on the quality of the management that organizes and directs the programs. In this study of the DEH, management is considered to be the Director, the Assistant Director, the Administrative Assistant, and each division head. Factual information and impressions used to evaluate members of the management team were obtained during interviews with DEH personnel.

Each member of the DEH management team appears to be well qualified for the job. All are either registered sanitarians or registered engineers in the state. All have long experience in environmental health programs either with the DEH, state governments, or the federal government. The management personnel try to keep abreast of new developments in their fields of interest by attending professional meetings or short courses. During FY '71, six of the eight managers attended at least one meeting or course.[74]

Innovation, a good indicator of ability, was observed in every division. An illustration of this is the GESD's project to plant minnows in local waterways for the control of mosquito larvae. After three years of experimentation, the cost of the mosquito control program has been reduced by 70% since less chemical pesticides are now required.[75] Another example of innovation is the new Occupational Health Division. Prior to last autumn, no occupational health services were available in the community. The DEH Director hopes that the establishment of the Occupational Health Division will be only the first phase in a program to provide comprehensive occupational health and safety services to local residents.

Each division head appears to be operating his division smoothly. All personnel are kept busy making inspections, collecting and analyzing samples, answering complaints, and doing other environmental health work. All divisions maintain logs showing the number of inspections and other activities accomplished and the time spent on each. These logs are consolidated and forwarded to the Department Director on a quarterly basis.

The management personnel work together well as a team, complementing rather than duplicating each other. One reason for this is that the DEH is organized by program area. The responsibilities of each division are so clearly defined that little confusion exists as to which division should handle a certain problem.

Although program areas are well defined, the programs of one division may interact with the programs of another division. For example, increased surveillance of illegal trash dumps by GESD personnel may influence potential dumpers to burn trash rather than dumping it, thereby increasing air pollution which is the responsibility of the Air Management Division. The DEH Director expressed an opinion that certain division heads exhibit "tunnel vision" on some problems,

meaning that they view these problems only from the standpoint of their own division rather than as complex problems requiring comprehensive and integrative solutions.[76]

Communications both within the DEH and with other agencies are informal. The DEH Director does not schedule regular staff meetings. Instead he prefers to discuss plans and problems directly with the division head involved. This has the advantage of allowing detailed discussions about individual programs that would only waste other staff members' time if these discussions occurred during staff meetings. Periodic staff meetings can be valuable since they provide a regular opportunity for the exchange of information between management personnel. However, each division head stated that he knew what was happening within the Department, and expressed satisfaction with the present system.

Communications with other agencies tend to be directly between the staff members involved rather than by formal requests for action or information through the directors of the departments involved. The DEH Director favors informal communications systems since they permit DEH staff members to become acquainted with other government personnel. Informal communications also seem to be more efficient than

formal contacts. For example, the investigation of many general nuisance complaints involve both the DEH and the Department of Housing and Development. The sanitarian assigned to handle the complaint calls a housing inspector and arranges for a joint inspection. Findings of the investigation are discussed in each agency and a joint course of action agreed upon.[77]

Members of the management team are aware that some programs are of marginal value or are ineffective due to manpower shortages or other reasons. They realize that priorities will have to be established and some marginal programs will have to be eliminated. For example, the General Environmental Services Division Chief readily admits that no effective weed control program existed last summer due to manpower shortages despite the fact that weed control is supposed to be an active division program.[78] The Department Director has compiled a list of present programs, including weed control, that he would like to either eliminate or transfer to another city agency. The Director recognizes the need for more consumer protection services and is planning to establish programs in this area. He is also considering reorganizing the DEH into a structure that would be more responsive than the

present structure to environmental quality and consumer protection needs.[79]

Obtaining adequate resources for DEH operations and allocating the resources received has been a problem. While the city government's hiring freeze has created serious problems for the DEH, manpower problems existed for a long time before the freeze was announced last summer. Many divisions use professional sanitarians for routine sanitary inspection and sampling chores. Probably most of these sanitarians could be replaced with trained inspectors at a savings in salary costs. Additional sanitarians or other professionals could be used efficiently in environmental quality or consumer protection programs if sufficient funds were available to pay the salaries. If the DEH hopes to establish comprehensive environmental quality or consumer protection programs, more funds and personnel authorizations will have to be provided by the City Commission. DEH management should assure that the City Manager and Commission have adequate information about the costs and benefits of comprehensive environmental quality and consumer protection services on which to base funding decisions.

Management personnel vary in the amount of public support

that they generate for DEH operations. All are willing to provide information and speakers upon request. Some divisions, such as the Air Management Division, receive more requests than other divisions. A great deal of public awareness and interest exists about threats to Albuquerque's air quality, and about the AMD's programs to protect the air quality. The Animal Control Center has also been the subject of public attention during the last few months. This attention has been critical, however, as citizens have complained about the number of stray dogs that are roaming the city. Unfortunately, many of the sanitation programs of the General Environmental Services Division, the Food and Institutional Division, and the Milk Sanitation Division appear to be unknown to the community.

The quality of DEH management is difficult to evaluate. This study was not designed to be an in-depth analysis of management. In general, I feel that the present DEH management team is highly capable, and is dedicated to achieving the goals of the agency.

FOOTNOTES

[1]Interview with J.P. Kneafsey, Director, Albuquerque Department of Environmental Health, October 4, 1971.

[2]Interview with H.M. Davidson, Air Resources Manager, Albuquerque Department of Environmental Health, October 26, 1971.

[3]Kneafsey interview [4]Ibid.

[5]Ibid. [6]Ibid.

[7]Fiscal Year 1971 Annual Report, Albuquerque Department of Environmental Health (Albuquerque, 1971), p. 2.

[8]Kneafsey interview. [9]Davidson interview.

[10]Kneafsey interview.

[11]FY '71 Annual Report, p. 1.

[12]Ibid., Appendix 2.

[13]Annual Atmospheric Emissions Inventory for Albuquerque-Bernalillo County, Albuquerque Department of Environmental Health (Albuquerque, 1970), p. 6.

[14]Davidson interview.

[15]FY '71 Annual Report, Appendix 3.

[16]Code of Federal Regulations, Title 42, Part 410, Federal Register (Washington, April 30, 1971).

[17]Davidson interview.

[18]FY '71 Annual Report, Appendix 3.

[19]Air Pollution Control Regulations of the Albuquerque-Bernalillo County Air Quality Board, adopted by the Board

on July 29, 1971, effective on August 29, 1971, pp. 9-13.

[20]H.M. Davidson, "Environmental Enforcement From the Local Standpoint," Lecture at the University of New Mexico Environmental Law Seminar Albuquerque, January 14, 1972).

[21]Ibid. [22]Ibid.

[23]FY '71 Annual Report, Appendix 3.

[24]Davidson lecture. [25]Ibid.

[26]Interview with R.W. Allen, Chief, General Environmental Services Division, Albuquerque Department of Environmental Health, October 28, 1971.

[27]FY '71 Annual Report, Appendix 2.

[28]Allen interview. [29]Ibid.

[30]FY '71 Annual Report, Appendix 3.

[31]Kneafsey interview. [32]Allen interview.

[33]Ibid. [34]Ibid.

[35]Ibid.

[36]FY '71 Annual Report, p. 8.

[37]Ibid., Appendix 3. [38]Ibid.

[39]Allen interview.

[40]Albuquerque Journal, September 8, 1971, pp. A-1, A-3.

[41]Kneafsey interview.

[42]FY '71 Annual Report, Appendix 3.

[43]Kneafsey interview.

[44]FY '71 Annual Report, Appendix 3.

[45]Allen interview.

[46]Interview with P.O. Griego, Chief, Food and Institutional Division, Albuquerque Department of Environmental Health, November 3, 1971.

[47]Ibid. [48]Ibid.

[49]Ibid.

[50]FY '71 Annual Report, Appendix 3.

[51]Griego interview. [52]Ibid.

[53]Ibid. [54]Ibid.

[55]FY '71 Annual Report, Appendix 3.

[56]Ibid. [57]Griego interview.

[58]Ibid. [59]Kneafsey interview.

[60]FY '71 Annual Report, Appendix 2.

[61]Interview with D. Martin, Supervisor, Milk Sanitation Division, Albuquerque Department of Environmental Health, November 2, 1971.

[62]Ibid.

[63]FY '71 Annual Report, Appendix 2.

[64]Ibid., Appendix 3. [65]Ibid.

[66]Interview with E.V. Huey, Supervisor, Animal Control Center, Albuquerque Department of Environmental Health, November 2, 1971.

[67]Albuquerque Journal, February 1, 1972, p. B-4.

[68]FY '71 Annual Report, Appendix 6.

[69]Ibid., p. 7.

[70]Huey interview.

[71]Interview with J.D. Servis, Chief, Occupational Health Division, Albuquerque Department of Environmental Health, November 3, 1971.

[72]Occupational Safety and Health Act of 1970, Public Law 91-596, approved December 29, 1970 (84 Statutes at Large 1590 et Seq.).

[73]Servis interview.

[74]FY '71 Annual Report, Appendix 4.

[75]Allen interview.

[76]Kneafsey interview.

[77]Ibid.

[78]Ibid.

[79]Ibid.

Chapter 5

SUMMARY AND CONCLUSIONS

This study is a functional analysis of the Albuquerque Department of Environmental Health (DEH). The first phase of the study was a literature search to determine current concepts of organization and functions of environmental health agencies. The second phase involved interviewing key DEH personnel. Finally, the effectiveness of the DEH was evaluated using the author's five years of experience in directing environmental health programs. The information about the DEH obtained in the interviews was compared to the characteristics of a modern and effective environmental health agency as defined in the literature.

There is a nationwide trend to separate environmental quality and pollution control programs from the traditional public health department. It is hoped that the creation of either a separate environmental health or an environmental quality agency will expand the objectives of pollution control beyond health considerations to include esthetics, recreation, and social and economic interests. The establishment of an independent environmental agency also allows the agency director to act as an "environmental advocate," watching all other government agencies for

possible environmental damage or environmental mismanagement.

Environmental health agencies are concerned with both the effect of environmental stresses on human health, and the quality of the environment. Typical programs of this type of agency include food and water sanitation, pollution control, housing sanitation, and insect and rodent control. Environmental quality agencies, on the other hand, usually deal only with programs that affect the environment. Typical programs include pollution control, natural resource management, and recreation.

In either type of environmental agency organization most of the programs have certain common characteristics. Most programs are based on a law or ordinance; most rely extensively on inspections and sampling to collect environmental data for evaluating the success of the program. Almost all effective programs have provisions for legal enforcement of environmental quality standards when voluntary compliance is not achieved. Finally, environmental programs try to generate support through public education programs.

The importance of good management in an environmental

health agency cannot be overemphasized. The success of environmental programs is determined by the skills of agency staff members, the allocation of resources available to the agency, the communications within the agency and with other governmental bodies, and other factors which reflect the quality of the management.

Interviews with Albuquerque Department of Environmental Health personnel revealed that the agency conducts programs in almost all of the environmental health program areas listed in the literature. Other city or state agencies have programs in all but one area not covered by the DEH. Only consumer protection does not receive sufficient attention from any government agency. The DEH Director hopes to establish comprehensive consumer protection programs in the near future.

The DEH is organized into six divisions according to the major program areas: Air Management, Food and Institutional, General Environmental Services, Milk Sanitation, Occupational Health, and Animal Control. Five of the six divisions are primarily concerned with health protection. Only one, the Air Management Division, is primarily concerned with environmental quality. The emphasis on health

rather than environmental quality may be due to the orientation of management personnel toward public health. Most of the managers were sanitarians with the Public Health Department before the creation of the Department of Environmental Health in 1967. Virtually all of the programs now administered by the DEH were programs of the Public Health Department prior to 1967.

I feel that consolidating the present six divisions of the DEH into three divisions would give greater emphasis to environmental quality. The present organizational structure makes a comprehensive environmental protection effort difficult since air pollution is handled by the Air Management Division, water quality by the General Environmental Services Division, and noise abatement by the Occupational Health Division. The proposed new divisions and their programs are:

- General Sanitation Division: vector control, nuisance abatement, housing sanitation, animal control, weed control, and ambulance inspections.
- Environmental Protection Division: air pollution, occupational health, noise, land use, and water quality.
- Consumer Protection Division: food sanitation,

milk sanitation, institutional sanitation, hazardous substances and product safety, and weights, measures and label checks.

Environmental protection efforts have suffered because the DEH Director does not act as an environmental advocate. The City Manager has not relied on the Director to examine city government programs for possible environmental damage. The suggested reorganization of the DEH would help correct this deficiency since the staff of the proposed environmental protection division could provide the expertise to evaluate the environmental impact of government programs. However, before the DEH Director can become an effective environmental advocate, the City Manager will have to be made more aware of the importance of environmental control efforts.

Chronic manpower shortages have hampered both health and environmental quality programs. Due to a budget deficit, all hiring by the city government was suspended for several months last autumn. Although this caused a hardship in several DEH divisions, manpower shortages have existed for several years. These shortages are manifested by the decreasing frequency of many health inspections, and by

the apparent inability of the Animal Control Center to catch stray dogs because of too few animal control officers.

Manpower shortages can be alleviated by better utilization of existing personnel authorizations, and by seeking additional authorizations from the City Commission. I believe that all DEH personnel are not fully utilized. Many professional sanitarians are assigned to routine sanitary inspection and sampling duties which could be performed by subprofessional inspectors or technicians at a saving to the city. Some divisions, such as the Air Management Division and the Occupational Health Division, need additional personnel authorizations to add experts to the staff.

Another solution to the manpower crisis is to eliminate programs that are of marginal value. The DEH Director has compiled a list of programs that he would like to eliminate or transfer to other agencies. Many of the programs, such as weed control and housing sanitation, have little environmental health or quality significance and should be eliminated.

The quality of DEH management was judged to be high. The DEH Director, Assistant Director, Administrative

Assistant, and each division head all have extensive experience in environmental health activities. Many innovations were observed in DEH programs to increase the value of the Department's services to the public. Members of management seem to work well together. Communications, both within the DEH and with other agencies, are informal but effective. All members of management seem to be dedicated to achieving the DEH's goals of health and environmental protection.

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