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PRESS★

*FINAL REPORT BY THE GOVERNOR'S TASK FORCE ON
SOLID WASTE MANAGEMENT*

January 1970

I. INTRODUCTION-THE PROBLEM

The greatest asset possessed by the State of California is its environment. By virtue of its unparalleled natural beauty and diversity, California has prospered until today it is the richest, most populous, most technologically advanced State in the Union. It is paradoxical, therefore, that as the State aspires to even greater eminence, these aesthetic qualities which contributed to the State's growth are now in jeopardy as a result of its success. The State's population explosion, urbanization, and technological expansion are all harbingers of suffocating influences to the environment. To its credit, California has recognized the magnitude, complexity and urgency of the various factors that are adversely affecting its natural environment, and concern for their effective solution has been prompt. The Governor, Executive Branch, Legislature and the appropriate agencies of the State have publicly dedicated themselves to preserving, restoring, and promoting the highest environmental quality attainable.

As an example: the Comprehensive Health Planning Act of 1966, Public Law 89-749, states as a policy goal the achievement of "an environment which contributes positively to health." The legislation establishing the Environmental Quality Study Council of 1968 stated "improvement of the quality of California's physical environment consistent with the maximum benefit to the people of the State is a matter of State-wide, regional, and local concern calling for coordinated public and private action in the interest of health, safety, and welfare of present and future generations." This concern has manifested itself in the establishment of specific legislation and standards by State councils and ancillary organizations in an attempt to protect the environment. In these efforts to date, the principal emphasis has been placed upon air and water pollution. Unfortunately, a third pollutant, equally important and an intrinsically interrelated despoiler of the environment, remains to be adequately addressed and controlled: *solid waste*.

The extent of the solid waste management problem is, unfortunately, not as obvious to the average citizen as air and water pollution. In actual fact, solid waste will soon reach unmanageable proportions if serious action is not taken to change the management pattern on a State-wide basis. The problem might be better visualized by recourse to some startling statistics generated in 1967:

- The municipalities, industry, and agriculture of California generated an estimated 70.5 million tons of solid waste, the equivalent of a pile 100 feet wide, 30 feet high, and as long as the entire state! Viewed on a per capita basis, this averages about 20 pounds per resident per day.
- There were 716 general-use solid waste disposal sites in the State and less than 10 percent of them were considered sanitary landfills; i.e., 90 percent were dumps of various sorts harboring rats, flies, odors, etc.
- Thirty-three disposal sites were found to be discharging solid wastes directly into surface water.
- Open burning dumps were allowed in the majority of the counties of the State.
- Agricultural waste was the largest source of solid waste in the State, over 50 percent, and it was not even accepted for disposal by landfill operators nor were there any regulations or provisions for its management.

The foregoing data were published by the California Department of Public Health in 1968 in an in-depth appraisal of the status of solid waste management in the State of California. The report verified that the status of solid waste management is inadequate to permit the preservation of the quality of the land, air and water resources at acceptable levels, and a resultant encroachment on the health and well-being of the people of the State is occurring. The overall deficiencies, viewed on a State-wide basis, include:

- Fragmented authority
- Inadequate planning

- Nonexistent or inadequate standards
- Primitive technology
- Inadequate financing

In view of the urgency and complexity of the problem, Governor Reagan, on April 10, 1969, established the *Task Force on Solid Waste Management* to evaluate the problems of solid waste in California and to recommend a course of action for the State. The Task Force was drawn from a cross section of public-spirited citizens representing business, industry, the professions, government and academic sectors. More specifically, there were owners and operators of refuse collection, salvage and disposal companies, a banker, an economist, an architect, lawyers, aerospace technologists, a commissary owner, a surgeon, public officials, etc. Significantly, the Task Force had access to a wide range of viewpoints and expert knowledge, but all were quite dedicated in a common interest to help solve the waste management problems of the State.

The Task Force was urged to work closely with other units of State government having solid waste interests, and to complete its review by January 1970. In order to respond to the specific charge of the Governor and because of the wide scope of the contributing problems, the Task Force was organized into six Working Groups:

- Generation and Production
- Storage Collection and Transportation
- Disposal and Land Use
- Governmental Relations
- Technology
- Hazardous Wastes

The Working Groups operated in parallel in an effort to delve as deeply as possible into each of the foregoing segments of solid waste management. They obtained and assimilated representative literature in the field, conducted interviews with trade associations and consultants, and attended seminars and conferences. The groups met and exchanged pertinent results on a regular basis. The following sections of the report describe the conclusions reached by the Task Force and define a series of recommendations which, in the opinion of the Task Force, *must be implemented* in the near future if the State hopes to gain control of the solid waste problem. Finally, a summary review is presented of the detailed findings of each of the foregoing six Working Groups.

II. CONCLUSIONS AND RECOMMENDATIONS

It is the conclusion of the Task Force that present practices of solid waste management within the State of California are inadequate — i.e., there is a real problem and it is getting worse. Further, it was concluded that assurance of proper solid waste management is the responsibility of the State itself. Lesser governmental bodies and private industry by themselves cannot effect an adequate solution to the State-wide problem. Finally, the Task Force wishes to emphasize that action is needed now.

In concert with the foregoing conclusions, the Task Force offers as its basic recommendation that *the State acknowledge that the overall leadership for the management of solid wastes within the State is in fact a State government responsibility; and that in discharging this responsibility a comprehensive State-wide program of solid waste management*

be undertaken. The basic objectives of the State-wide program should be to protect the health, welfare and well-being of the public, and prevent degradation of the quality of the environment by controlling location and regulating operational practices of collection, handling, and disposal of solid waste. In addition, the program should strive to lessen the rising economic burden of solid wastes and should seek means of conserving the natural resources inherent in solid wastes. Further, the program, to be successful and responsive to the people, must include roles for State, regional, and local government bodies as well as private industry. Elements of the State program should include: policy; planning; standards; technology; public education; enforcement; monitoring and surveillance; and financing. The Task Force recommends that *primary responsibility be assigned to a single State agency.* At this point in time that agency should be the Department of Public Health. At some future time a Department of Environment, covering all aspects of land, air, and water resources, should be established.

It is the opinion of the Task Force that lack of proper management of solid waste in the State has assumed such proportions that suitable legislation is imperative. *It is strongly recommended that initial legislation be enacted in 1970.*

The Task Force further makes the following recommendations relative to the solid waste management organizational requirements, policies and specific responsibilities of the designated State agency.

- 1) A broadly based Advisory Board should be appointed to assist in guiding the designated State agency in discharging its duties.
- 2) It should be State policy to assure that all personnel and organizations involved in the solid waste management process within the State demonstrate technical capability and financial responsibility.
- 3) It should be State policy to assure provision of a "minimum" level of collection service to all persons in the State.
- 4) It should be State policy to require the development of master plans for solid waste management facilities for county or multi-county regional authority.
- 5) It should be State policy to assure the provision of adequate disposal service to the population and industry of the State. The counties should be responsible for implementation of these efforts.
- 6) The State should encourage a continuing, comprehensive program of public information, education, and training regarding solid waste management. The designated State agency should develop and conduct such a program.
- 7) The State should encourage and finance solid waste research and development studies. The designated State agency should conduct studies and coordinate projects in the State.

- 8) State and local government should encourage reclamation, recycling, research and development and demonstration projects directed toward developing additional recycling methods.
- 9) The designated State agency should:
 - a) Serve as the focal point for policy development and planning.
 - b) Develop and maintain an adequate bank of information and data.
 - c) Develop and issue standards, and develop mechanisms to assure their enforcement.
 - d) Develop methods of monitoring and control to assure an adequate level of compliance with standards.
 - e) Perform detailed studies of the problems associated with hazardous wastes and to develop, review and update, as appropriate, standards of design and/or operation of all phases of hazardous solid waste management.
 - f) Explore means of reducing the generation of wastes at the source and/or improving materials and processes to simplify disposal problems.
- 10) Agricultural wastes should be the subject of a special study leading to a comprehensive State-wide program.

These recommendations are discussed in greater detail in subsequent sections of this Task Force report.

III. GUIDELINES FOR THE STATE PROGRAM

The Task Force has defined a series of guiding principles upon which the basic recommendation, that of the State undertaking a comprehensive solid waste management program, should be structured. It was the opinion of the Task Force that for the program to be successful, it must take into account the following principles, policies, and division of responsibility:

- 1) It is essential that a coordinated State-local government-private industry program be developed. It is impossible in California for any one level of government to implement all of the responsibilities for a comprehensive approach to solid waste management. Each governmental level, however, must assume its proper share of the responsibilities of solid waste management, avoiding duplication

and conflicts where possible and cooperating with other agencies to the maximum degree feasible.

- 2) The coordinated program should strive to lessen the rising economic burden of solid wastes and should seek ways and means of conserving the natural resources inherent in solid wastes.
- 3) It must be understood that clear lines of division are impossible and, in many cases, both State and local governments find themselves involved in certain elements. This fact stresses the need for cooperation and flexible interaction between State and local governments. The underlying philosophy should be, however, that the State should concern itself with those aspects of solid waste management that are of State-wide interest, leaving matters of purely local concern to local agencies.

For the purpose of this report, "local governments" refers to incorporated cities, counties, and special purpose districts that are empowered to become involved in solid waste management. While the regional approach to solid waste management is highly desirable and should be encouraged, and since there is no form of this type of government in existence at the present time, the Task Force believes that the county is the lowest level of government to accomplish comprehensive planning. This should not prevent local agencies, however, from seeking regional solutions through cooperative action.

- 4) In addition to governmental action, the capabilities of private enterprises should be fully utilized to meet the objectives of this program. This should be encouraged in all areas — system operation, equipment and hardware development, technical research, disposal site and land end use planning, salvage and reclamation.
- 5) The Task Force recommends that responsibility for solid waste management be divided between State and local government as follows:

- State Responsibilities

The program at the State level should centralize policy formulation, provide overall direction and guidance, coordinate State and local efforts, emphasize conservation of resources, develop environmental objectives and standards, and stimulate improved technology.

- Local Responsibilities

The solid waste program responsibilities at the local level (city, county, district) should be consistent with the policies and standards of the State and should basically include localized policy establishment and administration, detailed planning, operation and control, and financing of local solid waste programs and systems.

IV. DISCUSSION OF SPECIFIC PROGRAM ELEMENTS

As previously indicated in Section II of this report, the Task Force, in its study of the problems of solid waste management in California, identified a series of aspects of the current practice that were clearly inadequate. It is the opinion of the Task Force that for a comprehensive program to be successful, it must address itself to the following:

- Policy
- Planning
- Standards
- Technology
- Public Education

- Enforcement
- Monitoring and Surveillance
- Financing

A. POLICY

Better solid waste management has only recently been recognized as a major need, and policy in this regard is greatly lacking. Conflicting restrictions are frequently placed upon solid waste management by a single-purpose decision which unintentionally imposes a disproportionate burden on another area of environment. An example of this variance is the attempt to curtail the use of incinerators for disposal of infectious wastes which might contribute a minimum to air pollution, forcing use of solutions which would create greater hazards to public health. Any policy that is developed must recognize the total environmental outlook and emphasize the overall needs of California and its population. An intrinsic part of a new policy should be education of the public to encourage and gain support for improved waste management facilities.

B. PLANNING

Planning for solid waste management must obviously be done to avoid inadequate and short-lived solutions to the problems at hand. If the planning is performed cognizant of the guiding philosophies set forth in Section III of this report, the existing haphazard and crisis approach to facility and system design can be overcome and blended into a long-range effective scheme for management of solid wastes in California. Overall guiding policy and direction is needed at the State level to provide leadership in solid waste planning. The State Department of Public Health has been directed to investigate the needs of the State in this field through the Environmental Quality Study Act of 1968. The recommendations and guidelines of the Task Force and the results of the Department's solid waste planning study should help provide a foundation for a development of State policy.

Broad general plans must be developed by each county or groups of counties working together for solution of their area's solid waste management needs. Provisions should be included in these plans for the needs of the incorporated cities within the respective jurisdictions. As part of these plans, the disposal and collection aspects should be coordinated to provide for the most effective system. To aid the local agencies in developing effective plans, guidelines should be developed at the State level. The local plans should be compatible with the county general land-use planning and also with the overall goals and objectives necessary to conserve the resources and environmental qualities of the State.

In addition to the general planning, detailed plans must be developed for each disposal facility. These plans should be prepared by qualified individuals and provide for the effective and nuisance-free operation of the facility as well as provide ultimate compatibility with the

surrounding land uses. Where land disposal facilities are utilized, particular attention should also be given to the future reuse of the land including provision for open space development when disposal operations are completed.

The development of a general plan should be a condition for the receipt of any future financial assistance in the form of loans or grants.

C. STANDARDS

Minimum standards must be developed to rid the State of the existing poor solid waste management practices which contribute health nuisances, fire hazards, and overall environmental pollution. Present regulation at the State level is limited to the water pollution aspects of disposal, fire protection near dump sites, and selected controls to avoid damage to agricultural products. Conspicuously lacking are comprehensive regulations designed to protect the health and well-being of the people, and measures offering broad protection of the environment. More comprehensive standards must be developed by the State to reinforce present regulations and to act in the absence of local controls. State regulations should provide for the varied conditions found throughout the State and recognize the variety of wastes and their varied characteristics. State standards should also provide the latitude for more reasonable, restrictive, and detailed standards established by local jurisdictions to meet their particular needs. Basic State laws are necessary so that minimum regulations may be enforced within all local jurisdictions and not be hindered, as is the case now, where county ordinances do not apply in cities or the converse. Minimum standards at the State level should focus on all aspects of solid waste management.

D. TECHNOLOGY

The present management system for solid wastes does not encourage anything but the least cost operation; consequently, there has been little emphasis on the development of technology beyond the refinement of the existing techniques. Deficiencies in technology are of two principal types: (1) those requiring further research, and (2) those calling for demonstration of the applicability of known techniques.

The advent of Federal grants has created a great impetus to develop and demonstrate technology throughout the nation. Emphasis is needed on solutions that are applicable to California's conditions, and reliance should not be solely upon Federal programs and monies in this area. It is necessary for the State to support research and demonstration in certain areas in order to cope with the problems in California. Coordination of all research should be accomplished at the State level for the dissemination of information to researchers and local agencies. In this manner, projects could be stimulated in the areas of need, and the duplication of identical investigations would be prevented.

E. PUBLIC EDUCATION

Basic to the solution of any problem is a thorough understanding of the problem and solution by those people involved. A program to continue to make the general public and decision makers aware of solid waste problems is needed to improve our management methods. Technical training is also necessary for those individuals charged with the responsibility of design and operation of the necessary facilities. The State should provide information through reports, training sessions, and speaking engagements. Special training programs and training aids also need to be developed for those areas where waste management programs are to be improved from the crude state that now exists. It will be necessary for the State program to have the prerequisite technical resources available to provide consultation to local agencies and individuals requesting technical information in waste management. State program personnel should continue to keep abreast of the latest developments coming from the research and development projects being carried on, and should seek the cooperation of the waste management industry and industrial complex for the guidance of State programs and priorities.

There is an almost total lack of formal instruction through college and university courses in the field of solid waste management. The State program should provide the necessary resource material and technical personnel to aid in the establishment of formalized instruction in this field.

F. ENFORCEMENT

Axiomatic to the effective accomplishment of any program involving improvement of existing conditions through planning and standards will be a strong program to meet and enforce the desired objectives. Routine inspections and enforcement might be best carried on by the local agencies because of their proximity and acute awareness of local needs and conditions. The State should take action where the local agencies do not act, or where these agencies would be in a position of enforcing regulations upon themselves.

G. MONITORING AND SURVEILLANCE

In conjunction with appropriate agencies, the State should routinely evaluate solid waste programs and facilities to determine their adequacy and efficacy to meet required goals and objectives. An adequate base of information should be maintained to develop and formulate sound policies, identify areas of needs, and evaluate solid waste management in California. The basic data should be compiled and coordinated through the State program and be available as a source of information for local agencies and interested persons. Data should also be maintained on existing programs and facilities as well as those proposed.

Special studies or surveys should be conducted to evaluate actual or potential problems, and to investigate new proposals to provide the information necessary to guide the decision-making process.

H. FINANCING

Financial considerations relate to all of the problems already mentioned. It is obvious that small units of government do not have large sums of money for research and for effective planning for managing solid wastes. Adoption of new and advanced technology will also probably be hampered by the limited funds available. Frequently, solutions are developed only on the basis of the immediate costs, and stimulation is necessary to encourage recognition of the indirect and overall costs associated with a particular solution. Some form of financial incentive or direct loans or grants to local government may well be necessary in order to bring about acceptable solid waste management practices. In a similar manner, consideration should also be given to development of the private enterprise sector involved in the solid waste management field.

V. SUMMARY OF THE FINDINGS OF THE TASK FORCE BY PROBLEM AREA

The following paragraphs of this section are summaries of the findings of the Task Force by problem areas, and consist specifically of identification of the problems and applicable recommendations.

A. PRODUCTION AND GENERATION

Problems Identified

- 1) Accurate data on quantities and characteristics of solid waste produced are generally unavailable and when available are sometimes unreliable. This is particularly true for industrial, agricultural, and other nonresidential wastes.
- 2) The volume of solid waste generated is increasing at a greater rate than population growth. The types and varieties of waste are continually changing. Consumer goods from reusable to disposable, limited-use items resulting from new manufacturing processes, materials and packaging, and new, difficult-to-manage wastes are continually being injected into the waste stream. Present management methods are inadequate to cope with increasing volumes and types of solid waste.
- 3) Most levels of government have failed to recognize and assume their public responsibility in dealing with special, hard-to-control, solid wastes. This is especially true of industrial and agricultural wastes.
- 4) The responsibility of the producer of a product that eventually will become solid or otherwise waste, as well as the responsibility of the user of that product, have not been defined.
- 5) General awareness of the problems of solid waste production and its effect on the environment is lacking in almost all segments of society.
- 6) The problem of natural resources in short supply is coming into sharper focus each year and must be considered in waste management planning.
- 7) Impending legislation and controls imposed by air pollution and water pollution control regions may make methods of disposal which have been utilized heretofore unacceptable in the future due to the interaction with other pollution sources. This may impose sharp increases in waste quantities to be disposed through acceptable public use disposal sites.

Recommendations

The following broad objectives were defined as vital to a recommended program on the production and generation aspects of solid waste management.

- 1) To create an awareness of the problems of solid waste and generate acceptance of responsibility for proper management of *all* solid waste by government, industry, and the public.

- 2) To minimize the adverse effects on public health and the environment caused by the generation of all types of solid waste.
- 3) To encourage maximum reutilization and recycling of waste material in order to conserve our natural resources, and to reduce the amount of waste to be disposed.
- 4) To encourage the development of improved methods and techniques of producing consumer products, which would create less waste material, or which would improve their disposability.
- 5) To improve our knowledge of waste quantities and characteristics and develop improved technology regarding materials, handling, reclamation and salvage, and solid waste disposal.
- 6) To evaluate the waste management problems on a State-wide basis so that waste materials which may have negative value in some areas might be transported to areas where they might have positive worth.
- 7) To encourage development of new products from waste materials.
- 8) To rigidly control the management of materials which can become health hazards in their disposal.

Generally the mechanisms for achieving the objectives are: establishment of a responsible agency, regulation, creation of incentives, imposition of taxes, establishment of research and development efforts, and education efforts.

It is mandatory that an organization be established at the State level and charged with the responsibility of solid waste management. The State agency should probably be assigned total environmental responsibility with solid waste management as a primary department and production and generation as a branch of that department.

A comprehensive educational program must be established to make all segments of society aware of the solid waste management problems to include:

- Consumer programs
- School programs
- Industry programs
- Solid wastes information center

Research and development efforts can be performed by existing state institutions such as the Department of Public Health for health-related problems; universities or state colleges in fundamental research; and the private sector, which should be encouraged and financially supported if necessary. Maximum use should be made of Federal grants which could supply financial amplification to the State financial contributions.

One of the most fruitful areas where research should be directed is in the development of automatic materials separation techniques to improve the economics of salvage and reclamation.

While the secondary materials industry of California — scrap metals, forest products, paper goods, etc. — are engaged in the recycling of resources, industry in general should be further encouraged to engage in research and development of recycling resources. The mechanism for such encouragement could be State and Federal grants. In addition, emphasis should be directed toward design of packaging with materials that can be reclaimed and recycled.

B. STORAGE, COLLECTION AND TRANSPORTATION

Problems Identified

- 1) In general, collection service is provided in the metropolitan and in many suburban areas of the State. In most of these areas, government actively concerns itself with the level of collection service by specifying "minimum" levels of service. In the unincorporated and sparsely populated areas of the State, collection service is generally inadequate, and in some of these areas collection service is nonexistent.
- 2) While most "owner-occupied" residential properties in the State subscribe to a regularly scheduled refuse collection service, many rented individual units and multiple dwelling units in various parts of the State are not currently receiving adequate refuse collection service.
- 3) As population increases, land available for sanitary landfill operations is becoming scarcer. As existing disposal sites adjacent to the larger metropolitan areas are exhausted, the use of disposal sites farther removed from the source will become more prevalent. This will result in the need for large and expensive "transfer" facilities and equipment. These expenses, coupled with the expenses resulting from more stringent requirements and operational standards, will make disposal costs for many smaller communities almost prohibitive on an individual basis.

Recommendations

- 1) For health and aesthetic reasons, it is highly desirable for all persons in the State to be provided with a minimum level of service by a regulated refuse collection service. Thus, it is recommended that, in order to assure the provision of a

“minimum” level of collection service to all persons in the State, a State-wide standard should be issued which requires every individual dwelling unit in the State to have at least once-a-week refuse collection service. (This standard is similar to the requirements presently being enforced in some of the larger cities.) It is further recommended that owners of rental property be required to provide adequate facilities and services for refuse collection and that the owner of the property should be financially responsible for the provision of collection services.

- 2) Responsibility for the enforcement of this minimum standard should be delegated to the counties. Collection service requirements vary from area to area and county to county depending on specific area characteristics such as temperature ranges, weather problems, types and volumes of wastes created, population densities, seasonal population changes, road networks, etc. Additional service standards and regulations, tailored to local problems, should be developed by the counties, or by the cities, or by both in combination. These standards would apply to additional service frequency above the State minimum, type of services to be provided, type of containers, etc.
- 3) It does not appear possible to provide a minimum level of collection service to the rural and sparsely populated areas of the State at a reasonable service fee (due to the long distances that must be driven between collection stops). Thus, to achieve an adequate level of service for residents in these areas, some form of subsidy may be required.
- 4) Refuse collection agencies should be subject to minimum State-wide standards for refuse collection operations. These standards may be supplemented at the county level, if required. For example, vehicle safety standards should be set at a State level. Minimum standards for workers’ safety and sanitation could also be established at the State level, and improved (if required) by the county or city. Rate setting and actual enforcement of collection standards and regulations should be at the county or local governmental jurisdiction where the collection service is operating.
- 5) Any contractor desiring to offer his services to a community should be able to prove responsible ownership, financial capability, experience, adequate equipment, and all other factors deemed necessary to provide the service required by the community. Contractors meeting these standards should be licensed by the county or possibly by the State.
- 6) “Open competition” for refuse collection is, in a sense, an American tradition. However, should open competition continue to prevail, it will be almost impossible to enforce standards and to provide an adequate level of service at minimum cost. In order to provide adequate, regulated service at minimum cost

(with effective enforcement), franchises and contracts might be put out to bid for geographic areas on the basis of providing "total collection service." To attract qualified contractors and to encourage investments in improved capital equipment, facilities and technological development contracts should be of long-term duration (possibly 10 years).

- 7) Some counties will have to seek regional solutions for refuse disposal, not only for its obvious economic advantages but out of pure inability to afford the costs. Therefore, it is recommended that the counties should publicly endorse the development of "regional" concepts. The county's role should also include assistance in the acquisition of sites for transfer stations and landfills, financial assistance if required, and public endorsements of all the steps necessary to assure their residents are provided with adequate, economical collection service.

C. DISPOSAL AND LAND USE

Problems Identified

- 1) Comprehensive legislation for solid waste is inadequate, and authority and responsibility for disposal practices are fragmented. Minimum regulatory and operating standards for many parts of the State have not been formulated. Thus, city, county, and private practices lack coordination and in many instances are in direct contradiction.
- 2) Awareness is lacking on the part of both the public at large and local governmental agencies of the extent to which present disposal practices are degrading the environment, threatening public health, and destroying ecological balance. (In the absence of a clear understanding of the problem by governmental agencies and the public at large, resistance to standards which will increase disposal costs can be anticipated.)
- 3) Further research into the technology of solid waste disposal is needed.
- 4) Relationships between the privately and governmentally owned sectors of the disposal industry need to be structured to encourage the investment of risk capital for technological innovation, land acquisition and planning, and improved services by the private sector of the industry.

Recommendations

The Task Force is particularly concerned with the existing fragmented authority of State and local agencies and is of the opinion that there is urgent need for the development of a comprehensive solid waste management program.

- 1) The State should, insofar as possible, centralize authority for controlling all aspects of solid waste management in a single unit of State government in order to avoid fragmentation and duplication. The minimum level of local planning, inspection, and supervision should exist at the county level, and preferably at the regional level.
- 2) The designated State agency should be empowered to develop and establish minimum standards for the disposal of all solid wastes. These standards should cover the handling of wastes, location and operation of facilities, and design and planning criteria. These standards should be related to urban and rural population density variations and should be "open ended" to allow continued review and revision as necessary. Special standards for the handling and disposal of agricultural and certain industrial wastes should be included.
- 3) A continual inventory of disposal facilities should be maintained. In addition to gathering information on geographic locations, restrictions, operating practices, physical conditions of site, etc., the State should determine the specific identity of the persons responsible for compliance with regulations and standards for each site.
- 4) An advisory group should be appointed by the Governor to assist in the formulation and revision of minimum State-wide disposal and operating standards. The composition of such an advisory group should include informed citizens, State and local officials, professionals from such fields as sanitary engineering, ecology, economics, public health, municipal planning, land use, disposal system operation, etc., along with representatives from affected public and private concerns.
- 5) Any disposal operating or planning standards that involve any portion of waste disposal into the atmosphere should be reviewed and approved by the appropriate agency responsible for air quality of the State. Any waste disposal operating or planning standards that involve the underground, surface, or coastal waters of the State should be similarly reviewed by the appropriate State agencies concerned with protecting the water resources of the State. In those areas where consideration of air and water pollution are involved, serious priority should be given to the long-range ecological effects to the State's environment rather than short-term economic dislocations which might be involved. (If necessary, economic subsidy might be considered where environmental quality control creates serious economic losses.)
- 6) Legislation is recommended that will require every county or multi-county regional authority to develop a master plan for adequate solid waste disposal

facilities. All local master plans should be reviewed and approved by the designated State agency. Criteria for approval or disapproval of plans should include:

- a) Conformity with minimum State standards
- b) Consideration of all forms of solid waste generated within the area
- c) Provision for future disposal facilities which are consistent with projected population growth and industrial expansion
- d) Compatibility of the proposed master plan with those of adjacent local jurisdictions
- e) Integration of the solid waste disposal plans with the area's overall master plan for land uses, circulation, and public services.

Particularly for high density urban areas where disposal sites are becoming scarce, special plans which consider regional transfer stations that efficiently utilize truck and rail transportation systems, technological innovations that result in increased capacity of disposal sites, and a rational salvage and reclamation program should be formulated.

- 7) Land use planning for disposal landfills, disposal transfer stations, or processing facilities should be consistent with sound planning standards for harmonious land uses. Consideration should be given to factors such as sufficient buffering or screening between noncompatible land uses, adequate circulation requirements, and a reasonable end-use of disposal sites which have been filled.
- 8) Where a potential disposal site is considered by local agencies to be the most desirable, and where such a site is in conformity with State and local standards, the local agency should be vested with the power of eminent domain to acquire such a site and either resell or lease such a site to private disposal operators on the basis of competitive bidding by individuals or firms qualified by experience and financial resources.
- 9) Inasmuch as sound planning requires reliable data on the rate of disposal generation, uniform and reliable measurements of waste material are needed. Such data should be considered public information to assist all levels of public and private planning and to provide the quality of data which will encourage "risk capital."
- 10) The designated State agency should develop a comprehensive public education program which will alert the public to the hazards of inadequate disposal systems and to the need for solid waste disposal systems which will not endanger their health and environment.

- 11) Improved technology and standards will require a higher degree of skill in operation of facilities and programs. The State should provide technical training programs for operators, program managers, and solid waste officials.

D. GOVERNMENT RELATIONS

Problems Identified

- 1) Only 16 of 58 counties have developed some form of master plan. Many of these are deficient or incomplete, some have not been implemented, and none have considered all of the types of wastes produced. Cooperative planning is greatly lacking between cities and/or counties, and no mechanism exists to encourage or require cooperation.
- 2) Solid waste management appears to be a regional problem, and no centralized authority exists at the State level to stimulate regional approaches or encourage cooperation.
- 3) Improved solid waste handling and disposal systems will require greater direct costs. While the larger systems can generally absorb these costs, many smaller programs find it financially difficult to absorb the capital costs of improved systems. The initial cost-hurdle of land and equipment acquisition appears to be a major problem. While it appears that the State should require counties to prepare master plans for solid waste management, there is no financial planning grant or loan programs for solid waste in existence to aid in developing these plans.
- 4) No comprehensive standards for solid waste management exist at the State level and no agency has authority for setting such standards. Relatively few counties have adopted standards for solid waste disposal, and some of these are not enforced uniformly or not enforced at all.
- 5) Fragmentation of authority has made it difficult to provide uniformity in establishing regulations. Enforcement has also been difficult. Cooperation is frequently lacking between local jurisdictions. No State agency has primary responsibility for solid waste management. The result has been an uncoordinated, piecemeal set of laws and policies established by individual agencies, and applicable only to their own narrow field of interest.
- 6) A large number of local jurisdictions have failed to assume or recognize any responsibility in planning for or assuring sanitary and efficient management of solid wastes.

- 7) Lack of public awareness of the problems and needs of solid waste management has seriously hampered solid waste program efforts. Information regarding solid waste management is vital to planning and program efforts. No mechanism exists at the present time for periodic inventory, surveillance, and gathering of this information.

Recommendations

It is recommended that responsibility for solid waste management be divided between State and local government as follows:

The program at the State level should centralize policy formulation; provide overall direction and guidance; coordinate State and local efforts; emphasize conservation of resources; develop environmental objectives and standards, and stimulate improved technology. Specifically, the State should:

- 1) Serve as the focal point for developing basic policies regarding solid waste management and its relationship to public interest, health, welfare, and the environment.
- 2) Develop solid waste planning guidelines; review and approve county plans for consistency with State policies, and coordinate county plans into regional or State-wide, long-range solid waste management plans.
- 3) Develop and adopt minimum State standards for the storage, collection, transportation, processing, disposal, and utilization of solid wastes, and establish an effective means of enforcement.
- 4) Provide technical assistance and consultation on solid waste management for the benefit of local, public and private agencies within the State requesting such assistance.
- 5) Conduct studies related to solid waste management in both the public and private sectors. These studies may be conducted by the State independently, or jointly with another agency, or by contract, and may utilize State, Federal, or contract funds for this purpose.
- 6) Encourage, coordinate, and finance solid waste research and technological development studies and projects in the State; evaluate new or improved methods of solid waste management, and serve as a source for exchange of information regarding these efforts.
- 7) Establish a continuing program of surveillance and monitoring regarding solid waste management practices in the State, and maintain a current inventory of solid waste generation facilities and practices. This inventory will be a source of information for all interested agencies and persons.

- 8) Establish and maintain liaison with Federal solid waste programs, including coordination and administration of research and planning, as well as administration of solid waste loan or grant programs.
- 9) Carry on a continuing program of training and public education regarding solid waste management.

The solid waste program responsibilities at the local level (city, county, district) should be consistent with the policies and standards of the State and should basically include localized policy establishment and administration, detailed planning, operation and control, and financing of local solid waste programs and systems. Specifically, within their jurisdictions, these agencies should be responsible for:

- 1) Assuring that all solid waste systems comply with all applicable State and local standards and ordinances, and providing necessary inspection services therefor.
- 2) Determining the methods of disposal to be utilized, as well as the locations of disposal facilities, provided these do not conflict with the policies and standards established by the State.
- 3) Developing detailed, long-range plans for solid waste disposal within the boundaries of their respective jurisdictions. These plans may be made jointly or individually; however, the county should have the responsibility for developing an overall, coordinated plan (which should include plans of applicable cities or districts) for the entire county. The plan should be submitted to the State for review and approval.
- 4) Developing, adopting, and enforcing local ordinances governing storage, collection, transportation, and disposal of solid wastes. These ordinances shall not be in conflict with the minimum standards established by the State, but may be more restrictive and comprehensive if desired, as long as they are not unreasonable or discriminatory.
- 5) Assuring adequate operation of collection, transportation, and disposal systems either directly, by private firms or by agreement with another jurisdiction. This may include the regulation of collection agencies; establishment of collection areas; establishing the type and level of service, permits and franchises, and other administrative functions.
- 6) Assuring ways and means of adequately financing local solid waste management programs.

It is further recommended that:

- 1) The State develop a loan or grant program to aid counties in the preparation of solid waste master plans and to stimulate cooperative regional approaches.

- 2) A uniform permit system for solid waste disposal facilities be developed and administered by the assigned State agency or its authorized representatives.
- 3) The State develop a comprehensive program of public information, education, and training.
- 4) An advisory group representing the public and all solid waste interests should be appointed to assist the State agency in carrying out its duties.
- 5) State and local government should encourage the reclamation and recycling of solid waste in order to conserve our natural resources, and reduce the cost of solid waste disposal.

It is recognized that agricultural wastes create serious problems; however, we make no specific recommendations. It is suggested that agricultural wastes be the subject of a special study by appropriate State agencies, and that as soon as possible, a comprehensive State-wide program be established to alleviate the health hazards and environmental quality problems caused by agricultural wastes.

E. TECHNOLOGY

Problems Identified

- 1) Existing technology for solid waste management is clearly inadequate to the changing needs, and lags that of other pollution sources such as water or air by many years. Changes that have occurred have been small steps and have come about only by virtue of extreme pressures which were required to keep the system from breaking down. Some specific aspects of the problem are listed below:
 - a) Although landfill is used to a predominant degree in California, the ever increasing demand for land and skyrocketing value mean that new techniques for disposal or more efficient use of landfill must be developed.
 - b) An accurate assessment and projection of waste production and disposal is generally unavailable. Making such information available will provide a basis for defining the research and development needs and will provide lead time for technological advances.
 - c) We are facing natural resource shortages in the future which define a need for recycling or reclamation of the waste materials. Considerable effort must be devoted to research on wastes prevention and wastes utilization.

- d) Advances in the use of more automated collection equipment are needed to make significant economies in the costliest of the solid waste management functions.
 - e) The primary methods of solid waste disposal have been variations of burying or burning but significant improvements in these methods have not been made.
 - f) Development of new equipment for compaction or particle size reduction will increase efficiency of collection equipment and landfill requirements.
 - g) Little attention has been given to the agricultural waste problem.
- 2) To successfully mount a large-scale program to overcome technological gaps requires an intensive coordinated and comprehensive effort involving Federal and State governments, local and regional public agencies, universities and research organizations, and private industry groups. There appears to be a deficiency in coordination in relation to overall planning of national and State research, development and planning of solid waste programs, university grants, matching city grants, and industrial activity. In California, there is no State agency currently given responsibility for this coordination.
 - 3) Lack of basic data on current aspects of technology has hindered research and planning. There is no central data bank so that what information is available is not properly disseminated. This creates a gap between researcher and user.
 - 4) There is a gross lack of education throughout the field. Solid waste management has suffered from lack of prestige as an occupation and has therefore had difficulty in attracting qualified professionals to the field. Inadequate information on the solid waste problems and ill-defined goals for a plan have resulted in public unawareness or apathy; therefore, politicians have lacked the impetus to expend funds on technology.
 - 5) The interaction of the technological problems of the pollution areas of air, water, and solid waste are becoming better understood but are generally treated independently.
 - 6) A major cause of the difficulty of getting acceptance for a research and development program is that there is no direct way of assessing the intrinsic value or cost of waste pollution. Since waste generally has no direct economic value, the logic for expenditure of funds for technological advancement is not purely economic. The reasons may be subjective and relate to such things as reduction in land insult, aesthetics, disease, odors, etc.

Recommendations

- 1) In many cases, collection and transportation are handled by small operators who cannot invest in research to improve the efficiency of their activities. There is no real motivation for the private investor to do more than meet minimum specifications. While many new ideas and concepts may have potential merit, local governments with limited budgets for solid waste management cannot risk expenditures of public money to test out unproven concepts. Demonstration and development of these techniques, therefore, must be financed by private interests or by some means of financial assistance through a public grant program. Some form of incentive to stimulate high risk achievements would attract private sector funding.
- 2) The conclusions derived from the current state of the art indicate that there are specific technology projects which should receive initial emphasis:
 - a) Recycling or reclamation of resources
 - b) Reduction of waste at the source
 - c) Reduction of total volume of waste by means of efficient compaction or particle reduction methods.
 - d) Highly automated salvage systems
 - e) Reduction in labor requirements by automation of collection systems
 - f) Improved methods of incineration
 - g) Advances in economics of utilization of agricultural wastes
- 3) A central data bank is needed for solid generation data, operational practices, techniques, methods, experience, etc. Most logically, this would appear to be a State function. In the near term, the Public Health Department would appear to be the most appropriate state unit. In the longer term, perhaps a State Environmental Department would be more logical.
- 4) Although the Federal government spends a great deal of money each year, the State should finance research that is unique to California's problems. The research efforts should be guided by a steering committee of State and private parties.
- 5) State standards pertaining to all aspects of solid waste management should be continually upgraded to produce improved environmental conditions. This would provide an impetus for technological advances.
- 6) There has been a general apathy by the public which has only recently begun to change. Although specific local issues often generate a considerable amount of

political interest, there has been no large State-wide political movements on solid waste management. Thus, generally, the only items that are controlled are those that have become crucial local problems. A comprehensive State-wide educational program should be established to make all segments of society aware of solid waste management problems. The program should encompass all segments of the society and include consumer programs, school programs, industry programs, and a solid waste management information center.

F. HAZARDOUS WASTES

Problems Identified

- 1) Rapid acceleration of industrial technology has resulted in the introduction of new and exotic materials into man's environment at an increasingly rapid rate. Little or nothing is known about the effects on humans or the environment of many of these compounds, individually or in combination.
- 2) Surveillance necessary to prevent deleterious concentrations of potentially toxic compounds at disposal sites and unauthorized disposal of toxic or hazardous industrial wastes is lacking; and chemical substances which could cause long-lasting damage to the environment must be identified and neutralized.
- 3) Additional research is required to develop information on such factors as: leaching, movements of pesticides through the soil, carcinogenic substances and other compounds, chemical reactions of materials, ultimate fate and nature of materials, etc.
- 4) Information is incomplete in the following areas:
 - a) Hazards of human exposure to carcinogenic substances
 - b) Interaction of pesticides with solid wastes
 - c) Trace element chemical pollutants
 - d) Migration of disease organisms through soil
 - e) Pathogen detection and treatment
- 5) Additional information is required before employing widespread use of ocean disposal methods. Research is needed to gain an understanding of the long-term ecological effects of ocean disposal.

Recommendations

- 1) It is recommended that the designated State agency institute and maintain an accurate inventory and appropriate projections of hazardous solid waste generation. Detailed information should include:
 - a) Generation of wastes by location of point of generation
 - b) Amount of waste generated by type and degree of hazard
 - c) Identification of company ownership and specific identification of the official responsible for disposal
 - d) Description of the current means of disposal and identification of the points of disposal or discharge.

Special attention should be directed to the early completion of detailed field surveys of the following specific problem areas:

- a) Chemical and petroleum industry wastes
 - b) Drug industry wastes, including discarded drugs and containers
 - c) Syringes and other contaminated or single-use medical supplies as used by physicians, hospitals, clinics and similar health care facilities
 - d) Radioactive wastes
 - e) Sewage treatment sludges
 - f) Federal and military wastes
- 2) A vested right cannot be acquired to generate or to dispose of waste into the environment, or to continue to generate or dispose of waste at any particular level of quality, once initiated. Periodic revision and upgrading of requirements will be necessary to adapt to changing conditions. It is therefore recommended that for each class of hazardous wastes, the designated State agency be directed to develop special standards of design and/or operation for collection, storage, transport and/or for disposal sites receiving hazardous wastes and to periodically review and update these standards.
- 3) Since current monitoring and surveillance programs are inadequate and enforcement will be a greater and more difficult problem in the future, it is recommended that the designated State agency be directed to develop methods of audit and control to assure an adequate level of compliance with the standards.

- 4) It is recommended that an advisory group composed of informed citizens in the areas of sanitary engineering, ecology, economics, public health, municipal planning, land use, disposal system operation, etc., along with representatives from other affected public and private concerns, should be appointed to work with the responsible agency of the State in formulating the guidelines and/or standards.
- 5) The designated State agency should conduct a formal reexamination of current radioactive wastes management practices in California to assure that they are adequate in meeting the needs of the State.
- 6) The designated State agency should study changes in ecology of all the shallow coastal waters off the populated areas of California brought about by the treatment and disposal of sewage sludge.
- 7) The designated State agency shall conduct surveys of Federal and military waste practices, establish standards, procedures and regulations for possible incorporation in Federal legislation, and request the support of California's congressional representation in the preparation of legislation to prevent further pollution.
- 8) In addition to identifying hazardous waste generators and personnel of responsibility in the waste generation process, to assure the adequate and open development of public policy and fair, impartial and adequate enforcement of standards and regulations, it is necessary to identify all persons of responsibility within the entire solid waste management process. Therefore, it is recommended that as a minimum, licensing and inspection requirements should include the requirement for complete disclosure of all parties engaged in the collection, transfer, transport or disposal of waste material destined for introduction to the land or water environment of California.

As noted, various classes of hazardous wastes were examined by the Task Force in some detail. Detailed recommendations for these problem areas are contained in "Selected Problems of Hazardous Waste Management in California," and are incorporated by reference in this Task Force report.

VI. TASK FORCE ORGANIZATION AND RESPONSIBILITIES

In view of the high priority assigned to the problems of solid waste management, Governor Reagan established a Task Force to undertake a broad review of this area and recommend approaches to short- and long-term solutions with respect to the various classifications of solid wastes. On April 10, 1969, in his charge to the Task Force, the Governor stated:

" . . . in view of the urgency and complexity of the problem, I have asked a group of public spirited citizens who are knowledgeable and interested in the subject to serve on a Governor's Task Force on Solid Waste. I am asking the Task Force to undertake a broad review of California's solid waste problems and to recommend approaches that could lead to solutions. I am also asking the Task Force to work closely with

the Environmental Quality Study Council, the State Department of Public Health, and other units of State government that have solid waste concerns. I expect the Task Force to complete its review by January 1970.

"The Task Force may examine into any aspect of the solid waste problems, but I should like particular attention to be directed to the following questions:

- "1) How much solid waste is being generated in California, of what types, and where? What are the projections for the next 25 years?
- "2) What kinds of problems are associated with the collection and transportation of solid wastes?
- "3) What kind of problems are associated with the disposal of solid wastes?
- "4) What kinds of problems are associated with solid wastes that are not "collected and disposed of" in the usual sense; e.g., agricultural wastes?
- "5) Are there legal or administrative barriers to effective and efficient solid waste management? Technological barriers?
- "6) Can we afford indefinitely to "bury" solid waste that can be reclaimed and reused in the interest of resource conservation?
- "7) What should the State's role be in solid waste management? Regional or local government? Private enterprise?
- "8) What are the recommended short term and long term solutions with respect to the various classifications of solid wastes?"

The members of the Task Force were drawn from business and industry, the professions and government so that a wide range of viewpoints and many areas of expertise were available to the Task Force. However, the scope of problems is so wide, and the variety of the possible impacts of these problems is so large that no task force (of manageable size) could include all the required areas of expertise, nor could any task force fully represent all the possible viewpoints of concern. Thus, it should be emphasized that each member of this Task Force was serving as an individual, rather than as a representative of a group and that each member was responsible for adequately representing the broad interests of the citizens of California.

The Task Force organized itself into working groups to respond to the specifics of the Governor's charge, as well as to the general problems presented by the charge. Since its establishment, the deliberations of the Task Force have been a continuous process. There has been full and active interchange of information among the members: about half of the members served on two working groups; members from Government Relations and from Technology also served on each of the functional working groups; the chairmen of each of the working groups distributed minutes of the meetings to the group members and to each

of the other chairmen; the Executive Board reviewed the progress of the working groups. In its explorations, the Task Force interfaced with the Environmental Quality Study Council, the State Department of Public Health, other units of state and local government, interested associations and private industry. Membership of the Task Force, and the organization of the Task Force and responsibilities are shown on the following tables.

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ON
SOLID WASTE MANAGEMENT

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