A black and white photograph of a large industrial tank, possibly a storage or processing vessel, in an outdoor setting. In the foreground, a person wearing a hard hat and a dark jacket is looking towards the tank. The background shows several trees under a bright sky. The overall scene suggests an industrial or environmental site.

Interagency Task Force on Hazardous Wastes

*Hearing Officer's
Report*

October 1979

State of New York
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Hearings on:

INACTIVE HAZARDOUS WASTE DISPOSAL SITES AND
THE REPORT OF THE INTERAGENCY TASK FORCE ON
HAZARDOUS WASTES

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October 1979

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THE PROCEEDINGS

In August 1978 the problem of hazardous waste disposal sites was brought to the nation's attention by events which took place at the Love Canal in Niagara Falls. Toxic chemicals leaching into neighboring basements caused tragic physical consequences to the area's residents and resulted in the declaration of a health emergency by the Commissioner of Health. In response, the state took action to contain the wastes, evacuated families living in the immediate area, and purchased two hundred and thirty-nine homes. This immediate remedial action was taken by the Love Canal Task Force, an interagency group directed by the Commissioner of Transportation and made up of personnel from DOT (Department of Transportation), DOH (Department of Health) and DEC (Department of Environmental Conservation), as well as other state agencies.¹ In addition, the Interagency Task Force on Hazardous Wastes was created by the Commissioner of Environmental Conservation to study the problem of hazardous waste disposal and to make recommendations for remedial action. The order establishing the Interagency Task Force provided for public hearings. This report is based upon those hearings, which were held on May 1, 2 and 3, 1979 in Niagara Falls and Buffalo, New York.

The hearings were convened by the Commissioner of Environmental Conservation, pursuant to his powers under §3-0301(2)(h) of the Environmental Conservation Law.² A copy of the notices of hearing and a list of the newspapers in which they were published are annexed as Exhibit 2. The scope of the hearings included:

1. The Draft Report of the Interagency Task Force on Hazardous Wastes;
2. Hazardous waste disposal practices in Erie and Niagara Counties, New York;

3. Remedial actions that should be taken with respect to inactive hazardous waste disposal sites in Erie and Niagara Counties;
4. State and federal legislation that should be enacted concerning inactive hazardous waste disposal sites; and
5. The roles of private industry and federal, state, and local governments in efforts to deal with inactive hazardous waste disposal sites.

William R. Ginsberg, a professor of law at the Hofstra University School of Law, was appointed as Hearing Officer by the New York State Commissioner of Environmental Conservation, Robert F. Flacke. He presided over approximately twenty hours of hearings. Testimony was given or submitted by eighty-two people, including public officials, concerned private individuals, Love Canal homeowners, organizations, the waste disposal industry, and chemical companies.

On May 3, 1979, the public hearing was held in conjunction with the New York Senate Standing Committee on Conservation and Recreation, the Assembly Standing Committee on Environmental Conservation, the Senate Subcommittee on Toxic Substances and Chemical Waste, and the Assembly Environmental Conservation Committee Task Force on Toxic Substances. Legislators present at the hearing included: Senator John B. Daly, Chairman of the Senate Subcommittee on Toxic Substances and Chemical Waste; Assemblyman Alexander B. Grannis, Chairman of the Assembly Environmental Conservation Committee Task Force on Toxic Substances; Senators Ray Gallagher and Martin Solomon; and Assemblymen William Hoyt, Matthew Murphy, Joseph Pillittere, and John Zagame.

SUMMARY OF RECOMMENDATIONS AND CONCLUSIONS*

This report is one of a series of state sponsored studies and documents which followed the Love Canal tragedy and which deal with some aspect of inactive hazardous waste disposal sites. It is the only one based on public hearings and prepared outside a governmental agency. All of the studies and reports contain recommendations for action which are remarkably consistent. The state has taken steps to implement many of them, and this momentum must be maintained. A diagnosis of the hazardous waste disposal dilemma has been made repeatedly in these reports and elsewhere. If this industrially caused environmental disease is to be arrested, federal action must be taken to provide the necessary national guidance and funding.

While the focus of the hearings and the Task Force Report was on inactive hazardous waste disposal sites, it is difficult and perhaps impractical to consider such sites in isolation from those currently in use. Until the problem of the disposal of hazardous wastes is resolved, we will continue to create future inactive hazardous waste disposal sites.

I. The Identification of Sites and the Evaluation of Their Impacts

Funds: Additional funds must be provided to the Department of Environmental Conservation and the Department of Health for investigation and evaluation efforts. (pp.17 and 59)

Laboratory Facilities: Testing and analytic resources appear to be inadequate and must be expanded. Additional

* There is a danger of oversimplification when summarizing conclusions. The reader is therefore referred to the text for a fuller discussion of points emphasized in this section. Numbers in parenthesis are page references to the body of this report.

Department of Health laboratories should be established. One should be located in the western end of the state. (pp.17-18)

Allocation of Responsibility and Centralized Authority:

There is a need for clearer delineation of responsibility among state agencies. Steps to resolve this problem were taken by legislation passed in 1979. In addition, however, the delegation of authority to county agencies by both the Department of Health and the Department of Environmental Conservation must be more carefully controlled and monitored. Primary responsibility for the enforcement of environmental statutes rests with the state. Increased enforcement and supervisory capabilities should be provided in each DEC regional office in proportion to the volume of hazardous wastes generated in that region. Localities cannot contend with hazardous waste disposal problems. (p.19 and pp.22-25)

Land Use Records and Regulations: Legislation should be enacted to require that the location of hazardous waste disposal sites be part of the public land records and indexed against property within a 500 yard radius so that the existence of such sites would be revealed by routine title searches. In addition, state legislation should require localities to zone substantial buffer areas around any waste disposal site, to limit permissible land uses within such zones and to require special permits for any new construction in such areas. (pp.27, 28)

II. Remedial Action and Funding

Steps should be taken to reduce the vast quantities of toxic materials which are being generated. (p.30) The options available for remedial action at existing sites are extremely limited. Every site poses unique problems, and no single course of action will be suitable in every situation:

(a) On-Site containment

Containment may be, at present, the only financially and technically practicable remedial alternative at many inactive sites. However, a major drawback to containment is the continued presence of the waste and the corresponding threat that contaminants will escape the confines of the sites. In addition, sites which are contained will need long-term supervision and maintenance. (pp.33-36)

(b) Exhumation and reburial

Until hazardous wastes can be destroyed, landfills will continue to receive the major portion of industrial wastes generated in the state. It is extremely doubtful, however, that removal of hazardous materials from an inactive site for reburial in another location will present a desirable alternative to on-site containment, since the excavation process is highly dangerous, and it has become apparent that no landfill can be completely "secure." (pp.37-43)

(c) Excavation and incineration

In the future, the removal of wastes from inactive sites and their destruction by high temperature incineration may be justified as the major feasible alternative to on-site containment. (pp.43-48) However, even if the state commits itself to incineration and encourages its development, rotary kiln incinerators will take several years to become operational. The question is no longer whether high temperature incinerators should be built, but rather how quickly they can be built and who should build them. For reasons indicated in the text, (pp.48-49), public ownership and operation of hazardous waste disposal facilities would appear to be superior to private sector activity in this field.

The Human Factor: While considerable attention has been given to the techniques available for remedial action at inactive hazardous waste disposal sites, there has been too little emphasis on establishing policies to deal with the impact of such sites on nearby residents. Better criteria must be developed for evacuation of residential areas and the purchase and disposition of buildings which become unsafe due to contamination. (pp.50-52) The personal, emotional and economic consequences of exposure to toxic substances must be addressed.

The 1979 State Legislation: The legislation enacted in New York in 1979 providing for inventory, evaluation and remedial action at inactive hazardous waste disposal sites was a substantial step forward. Certain questions remain, however. The right of state agency employees or contractors retained by the state to enter on an inactive site or adjacent area for the purpose of taking remedial action should be clarified. The relationship between the Department of Health and the Department of Environmental Conservation, particularly concerning the approval of remedial programs should be made more explicit in order to avoid potential interagency conflict or misunderstanding. The definition of hazardous wastes should be expanded, and the funding available for emergency action should be increased. The legislation did not address the question of the Statute of Limitations as it applies to those responsible for inactive hazardous waste disposal sites. The Statute should be amended to provide that a cause of action arising as a result of hazardous waste disposal should accrue when injury to person or property is discovered or becomes discoverable. (pp.52-55 and 77-82)

Funding: The cost of cleaning up inactive waste disposal sites should be placed primarily on the industries generating the wastes so that the financial burden is distributed nationwide. This cost must be imposed by the federal government. It is impractical and inequitable to place a burden of this magnitude on individual states. Until federal funding becomes available, however, state funding of remedial programs is the only realistic solution where private liability cannot be established or enforced. (pp.56-60)

THE TASK FORCE REPORT

The Interagency Task Force on Hazardous Wastes (the Task Force) was created by the New York State Commissioner of Environmental Conservation in August 1978, as a response to the growing awareness of the danger of abandoned hazardous waste disposal sites in Erie and Niagara Counties. Specifically, the Task Force was charged with the responsibility for determining the source, nature, and location of hazardous waste disposed of in the two counties and for recommending necessary remedial, legal and legislative actions concerning such sites.

The Task Force focused its efforts on five subjects:

1. Private Generators of Industrial Wastes
2. Federal Government Activity
3. Private and Municipal Landfills
4. Waste Haulers
5. Power Plants and Facilities

The Task Force combined the interests and expertise of both state and federal agencies. It was composed of three representatives of the New York State Department of Environmental Conservation: Peter J. Millock, director and counsel, John E. Iannotti, and John S. Tygert; four representatives of the New York State Department of Health; David A. Dooley, Fredrik A. Muller, Judith S. Schreiber, and Peter J. Smith; and three representatives of the Region II office of the United States Environmental Protection Agency: William J. Librizzi, George Shanahan, and Richard Tisch.

The Task Force formulated a list of 90 private companies which are now operating or previously operated in Erie and Niagara Counties, and which generated a substantial amount of industrial waste. Each of the 90 companies was mailed a four page questionnaire requesting data on the company's history, personnel, products, wastes, waste haulers, location of waste disposal sites and the type, quantity and manner of

disposal of wastes at such sites.³ Responses of each company were checked against records of the Niagara County Health Department, the Erie County Department of Environment and Planning, DEC, EPA and the Corps of Engineers. Members of the Task Force spoke by telephone or in person with former company employees, present company representatives and private citizens and organizations. In addition, each major disposal site in the two counties was visited by the Task Force.

As a result of the study, 215 waste disposal sites in Erie and Niagara counties were identified.

The sites included:

1. 125 Industrial waste disposal sites owned by waste generators.
2. 84 municipal, state and private waste disposal sites.
3. Six disposal sites owned by the federal government.

The Task Force attempted to assess the potential impacts of these sites on public health and the environment and assigned a priority rating to each. Thirty-six sites were given a Priority I rating (definitely received large quantities of hazardous wastes). One hundred sixteen sites were classified as Priority II (may have received significant quantities of hazardous wastes). The remaining sixty-one sites were assigned a Priority III rating (unlikely to have received significant quantities of hazardous wastes).

"Hazardous wastes" as defined by the Task Force included radioactive materials.⁴

The disposal sites identified by the Task Force vary greatly in size, quantity and toxicity of the waste received and in their proximity to homes, public facilities, waterways, wells and places of work.

The Report of the Task Force stressed that much of the information on disposal sites is general and tentative.

Some of the data on wastes was derived from estimates of past activities and personal recollections. The disposal sites did not include incinerator sites (except where such sites were also used for disposal of other wastes) or water bodies (other than lagoons or settling ponds) which may have received hazardous wastes. Analysis of the information concerning haulers indicates that in many instances the haulers were unable to recall in which sites they dumped materials. In addition, they dumped materials in municipally owned landfills. Therefore, it cannot be assumed that materials in municipally owned landfills are limited to residential wastes. While the Task Force's questionnaire began with the year 1930, the report indicates that chemical dumping preceded that date.⁵ The Report makes clear that until very recently only limited records, if any, were kept with respect to waste disposal.

The Report urged that more precise information be gathered immediately about existing hazards at each Priority I and II site, and that an analysis be made of the threat each site poses to adjacent areas. Suggestions for short term control included closing access to hazardous sites and taking steps to reduce the generation and movement of leachate. Task Force recommendations for long term remedial action included containment where feasible, on-site treatment of wastes in small one waste dumps, possibly through chemical detoxification or microbial inoculations, and, in some instances, excavation of hazardous wastes, followed by transfer to secure land burial or incineration facilities.

The Task Force also noted that existing state laws were inadequate to deal with inactive hazardous waste disposal sites, and recommended state legislative action. The Report strongly supported enactment of federal legislation to provide federal funding for state remedial programs.

The Task Force's recommendations will be referred to further in this report.

SUMMARY OF THE HEARINGS

Much of the testimony given during the three days of hearings centered upon the need for further immediate action. Expansion of the Task Force study to include all areas of New York State,⁶ further study of Priority II sites,⁷ and intensive investigation of radioactive hazards⁸ were strongly urged. Immediate clean-up procedures financed initially by either the state⁹ or federal¹⁰ government were deemed essential. It was pointed out that the environmental dangers posed by the continued presence of untreated hazardous substances in populated areas require immediate action and cannot await the resolution of issues of legal liability, although costs might later be recouped through appropriate legal proceedings.¹¹ Concern was expressed over the capability of the state to deal with hazardous waste disposal sites, active and inactive. Several speakers noted that responsibility in the field was divided among state agencies and that the capacity of those agencies (personnel, funding and facilities) was inadequate.¹² Creation of a single agency responsible for control of state hazardous waste disposal¹³ or expansion of existing agency personnel¹⁴ and laboratory facilities¹⁵ were suggested.

Suggestions for methods of toxic waste disposal centered upon rotary kiln¹⁶ or other high temperature incineration techniques (gasification was also discussed).¹⁷ Much of the testimony urged the creation of regional facilities for the disposal of hazardous waste, operated and controlled by either the state or federal government.¹⁸ It was strongly felt that disposal facilities must be owned and operated by governmental agencies rather than private enterprise, as the desire to maximize corporate profits in the private sector might result in environmentally hazardous, but economically lucrative solutions to hazardous waste disposal problems.

Many of those who testified felt that the cost of remedial operations should be borne by federal funding,¹⁹ taxes on products creating hazardous waste,²⁰ or taxes on waste generators.²¹ Sentiment was expressed that the sale prices of products which create toxic wastes as by-products of their manufacture ought to reflect their environmental cost.²² Taxes placed directly on such products or taxes placed on waste generators and consequently passed through to consumers were considered appropriate means for accomplishing this goal. It was also suggested that waste generators²³ and waste disposal companies²⁴ be required to post a substantial bond (perhaps in connection with a state bonding aid program) to ensure that some portion of the funds needed to handle future hazardous waste emergencies will be readily available.

The Task Force Report indicated that statutory authority to obtain necessary information concerning production, transportation, and disposal of hazardous waste was inadequate.²⁵ Testimony at the hearings tended to support this view and in addition, emphasized the public's need for information on hazardous waste disposal.²⁶

Legislative action to require full disclosure of all corporate waste disposal activity was suggested.²⁷ Considerable concern was expressed regarding the reliability and completeness of present corporate disclosures and the tremendous potential hazard of nondisclosure. A waste disposal professional testified that fear of legal liability for past toxic waste disposal activities might lead to corporate omissions in data, absent legislative action requiring complete disclosure.²⁸

It was noted that homeowners and prospective purchasers of property on or adjacent to disposal sites may be unaware of the dangers that they face. To remedy this situation, it was suggested that public land records indicate the location of disposal sites so that this information could be ascertained by a title search.²⁹ Several speakers also recommended that

local zoning ordinances be passed restricting the use of such sites and surrounding areas.³⁰ Education programs to increase the public's awareness of waste disposal problems and issues were strongly urged as another means of avoiding future Love Canal situations.³¹

Legal issues discussed during the course of the hearings included the application of strict liability to hazardous waste cases,³² and the need for legislation clarifying the Statute of Limitations with respect to actions brought against waste generators or disposers.³³

The personal impact of the Love Canal tragedy was described by present and former Love Canal homeowners. Their testimony was a litany of miscarriages,³⁴ birth defects,³⁵ chronic physical illness,³⁶ nervous disorders,³⁷ attempted suicides,³⁸ and emotional stress.³⁹ A feeling of helplessness at being excluded from the decision-making process⁴⁰ and anxiety resulting from an inability to get information from public officials⁴¹ were vividly recounted. Homeowners objected to the complicated and lengthy health questionnaire which in some cases was left without explanation or opportunity for personal contact at doorsteps,⁴² and spoke of fear and frustration at having to wait as long as three months for health test results⁴³ which were often contradictory and confusing.⁴⁴

Residents whose homes have not been purchased by the state, and who fear for the health of their families,⁴⁵ expressed bitterness at the failure of the federal government to provide the funds necessary to completely evacuate the Love Canal area.⁴⁶ They noted with resentment the huge sums which are spent on foreign aid and national defense, while their plight is seemingly ignored.⁴⁷ They reported continued physical illness in their families⁴⁸ and fear of sickness and death even among their youngest children.⁴⁹ Parents protested the artificiality of the dividing line which

required evacuation of pregnant women and children under two years of age, but left three, four and five year olds behind.⁵⁰ They lamented the separation of families which resulted from what appeared to them as irrational selectivity.⁵¹ The testimony of a family who had been temporary evacuated told of a "ten day" hotel stay, while the state investigated their situation, which grew into a seven week wait before the final decision was made to return them to their home.⁵² The economic devastation of those who spent their entire savings to purchase homes in a once desirable neighborhood was described.⁵³

The homeowners, present and former, condemned local officials for their lack of meaningful response to complaints and inquiries which were submitted years before conditions at the Love Canal assumed emergency proportions.⁵⁴ Their loss of faith in the ability of government to protect them in a time of crisis,⁵⁵ along with their resentment of "guinea pig" status in a situation with which they felt the state was ill-prepared to deal,⁵⁶ were apparent. Finally, the residents voiced their concern not only for their own misfortunes, but also a desire to participate in preventing a recurrence of their experiences at other hazardous waste disposal sites.⁵⁷

PART I

THE IDENTIFICATION OF SITES AND
THE EVALUATION OF THEIR IMPACT

It is clear from the Task Force Report and the testimony at the hearings that the Love Canal should serve as a warning to the state and the entire nation. It is not a unique local problem. Hazardous waste disposal sites pose a substantial threat to the public health and safety, and require swift and decisive action from government.

Continued Investigation

It is obvious that the same information gathered by the Task Force in Erie and Niagara Counties must be compiled for inactive disposal sites throughout New York. Steps already have been taken to establish a statewide roster of currently active sites. From 1976 to 1978, DEC's Bureau of Hazardous Wastes sent out detailed questionnaires to industries throughout the state.⁵⁸ Unfortunately, the information requested did not deal with past generation of hazardous wastes or inactive sites. In May of this year, DEC published a catalog of known or suspected land disposal sites, both active and inactive, which was prepared by the joint DEC-DOH Task Force on In-Place Toxic Substances.⁵⁹ This report summarizes the latest DEC information as of April 1979 and represents an important inventory effort on the part of the state. However, as the report itself makes clear, "it is not the product of a thorough and exhaustive Statewide search" and does not obviate the need for further identification and investigation of inactive hazardous waste disposal sites.⁶⁰ This task has been started and must be completed promptly. If funds or personnel are necessary to supplement existing DEC regional forces, these must be provided. Efforts to locate dangerous sites and to analyze their potential impact cannot and must not await movement on the federal level. The risks of delay are too great.

Identification of chemical wastes, by means other than on-site investigation, will be extremely difficult at many sites. Past record keeping for the disposal of hazardous wastes has been inadequate, and in some instances, records have been completely destroyed. E.I. duPont's efforts to quantify and locate all former waste disposal areas since 1930 included collection of oral histories from present and former employees.⁶¹ Bruce D. Davis, President of the Industrial Chemicals Group of the Hooker Chemical Company noted in his testimony that prior to 1970, extensive records of chemicals disposed of in landfill sites were not kept. According to Mr. Davis, Hooker devoted many "man years" of time to reviewing past sales and production records and research reports, and interviewing former employees in order to develop information and estimated figures for the Task Force.⁶² There is reason to believe that similar difficulties will be encountered in the course of a statewide inventory.

As the Task Force suggests, once the location and general nature of each site is ascertained, more detailed information must be secured about existing site conditions before a determination can be made as to the urgency and need for remedial action.⁶³ Factors such as the proximity of residences and the risk of groundwater contamination in areas where groundwater is a major source of potable water supply will determine the timing of remedial action. A series of surface water and soil samples must be taken at sites believed to contain hazardous wastes. Hydrogeological studies using soil borings and on-site monitoring wells should be carried out to determine the depth of the water table, the direction of groundwater flow, and the presence or absence of hazardous materials. According to agency officials, DEC does not have the necessary equipment and personnel to take soil borings and dig monitoring wells and in the past has relied almost exclusively on private contractors, DOT or permit applicants to carry out these

procedures.⁶⁴ Therefore, adequate funds must be provided to the agency so that its in-depth investigation efforts will not be inhibited by financial restrictions.

Laboratory Facilities

While the Task Force Report does not refer to the problem, there is substantial indication that existing testing and analytic resources are inadequate and must be expanded. The analysis of soil and water samples is complex, expensive, and must be done accurately and quickly. To attempt to "cut corners" by relying on existing, overburdened personnel and facilities would be a grave error.

According to the testimony of Michael J. Cuddy, Coordinator of the Love Canal Task Force, DOH laboratories in Albany presently are unable to process the water, soil and air samples which are being submitted daily due to enormous backlogs. Contracting with private laboratories is difficult, as there is a nationwide scarcity of facilities equipped to perform the required analysis.⁶⁵ Those private laboratories which are qualified may be confronted with a conflict of interest when analyzing samples taken by DEC from sites owned by wastes generators or disposers who are already under contract with the same laboratories for their own work.⁶⁶

Other testimony corroborates the shortage of analytic resources. Hooker Chemical Company currently uses laboratories as far away as California to supplement local capabilities.⁶⁷ Waste disposal professionals testified that "continued use of the Department of Health laboratory with its current backlog cannot be tolerated in situations where quick, accurate analytical results can prevent an environmental disaster."⁶⁸

Because of possible conflicts of interest for privately owned independent laboratories, and because results obtained

from facilities operated by corporations themselves involved in the generation of hazardous wastes may be unreliable, it is important that the analysis of all DEC samples be conducted by a governmental agency. In order to achieve this end, new laboratory capacity must be created as rapidly as possible. Such capacity should exist at more than one location. It would appear desirable to establish at least one sizeable facility in the western end of the state, where the greatest concentration of the chemical industry lies, with smaller satellite units servicing the other regions. It has been suggested that the new laboratories be operated by DEC.⁶⁹ However, it would appear more efficient to continue this function under DOH auspices.

Inadequate testing facilities may extend to health and hospital laboratories, since there was considerable delay in analyzing the blood samples taken from Love Canal residents.⁷⁰ The situation should be reviewed to determine whether this was a temporary local problem, or whether there is a need for new or expanded medical laboratory capacity to test the large numbers of people involved in health emergency situations.

Allocation of Responsibility

As the governmental response to environmental problems has developed during the past two decades, specific roles have evolved for each level of government. On the federal level, national standards and goals have been established, and the funding has been provided, often on a matching basis, to assist states and municipalities in achieving national objectives. The planning and direction of particular environmental programs (and often participation in the allocation of federal funds) has been a state responsibility. State agencies, particularly DEC, have worked with localities to develop and approve projects and to enforce environmental laws. County and city health and conservation departments

and other local agencies have provided many of the personnel for investigation and enforcement efforts.

As might be surmised from the synopsis above, the role of the federal government in detecting and responding to the Love Canal situation has been relatively small. There is no federal EPA office in Erie or Niagara Counties; the nearest one being in Rochester, Monroe County. No federal program exists which deals specifically with inactive hazardous waste disposal sites. The funds expended at the Love Canal to date are mainly from state sources. The balance has been paid by the City of Niagara Falls. A federal funding commitment has been made which, when acted upon, will represent only twenty-five percent of total estimated costs.⁷¹ The governmental responsibility for reacting to the Love Canal tragedy, as it evolved, fell mainly on the state, with such participation by the locality as was available.

The state's initial response to the Love Canal situation involved a high degree of interagency cooperation among DEC, DOH and DOT. There was little evidence of the personal or bureaucratic competition and jealousy that can impair the quality of government action.⁷² In the long run, however, less commendable aspects of human nature may assert themselves. The extensive media coverage and national attention focused on the Love Canal will fade. Much of the remaining work will be tedious, routine and unrewarded by public recognition. In such circumstances, generous cooperation and smooth interaction cannot be assumed. Political rivalries, personality conflicts, and agency inertia may interfere once the emergency nature of the situation has diminished. In order to avoid this possibility, both at the Love Canal and at other hazardous waste disposal sites, the responsibilities of each agency must be clearly delineated.

The two major state agencies whose functions relate to the problems associated with hazardous waste disposal sites

are DEC and DOH. While their powers are to a degree duplicative, probably necessarily so, their responsibilities should not be. Duplication of responsibility may lead to each agency "deferring" to the other on the assumption that the task at issue is the other's burden.

Since the Task Force was an "interagency" group, it understandably resolved sensitive questions of conflicts of responsibility between DEC and DOH by silence. However, it is essential that a division of labor be established. DEC should be charged with the property related aspects of the hazardous waste disposal site problem (site investigation, monitoring, environmental impact analysis, and long term remedial measures). It is obvious, however, that any investigation of a site's impact must include an assessment of its effect on the people living nearby. DOH should be responsible for the human health aspects of the problem (epidemiological studies, including medical testing, determination of health hazards, declaration of health emergencies, and decisions directly related to the physical welfare of the population).

Clearly, the property and health aspects of the hazardous waste disposal site problem are interrelated and require the close cooperation of DEC and DOH. However, to the degree that these two components of the problem can be isolated, confusion and diffusion may be avoided, and services rendered more effectively.

The issue of agency responsibility has been addressed by legislation enacted in 1979, which will be discussed at greater length subsequently in this report. It resolves many (but not all) issues of agency responsibility.

Centralized Authority

The capacity of local governments to locate and assess inactive hazardous waste disposal sites within their boundaries varies considerably from township to township and

county to county. According to the 1970 census, villages in New York State range in population from 24 to over 40,000; towns from 47 to 800,000; cities from 3,000 to nearly eight million; and counties from under 5,000 to 1.4 million.⁷³ A rural county without charter government and with limited functions does not have the same ability to conduct an inventory of hazardous sites as an urban or suburban county. In many instances, units of local government, large or small, lack the expertise and manpower necessary to perform the task adequately.⁷⁴ A spokesman for the City of Buffalo testified that a few employees of the municipal Department of Development prepare environmental impact statements, but that the city has no separate department devoted to environmental work.⁷⁵ Because of the varying capabilities of local governments, the primary responsibility for gathering information should be borne by the state, and exercised through regional DEC offices.

Presently, many DEC and DOH functions are being performed by county conservation offices and health departments. The Erie County Department of Environment and Planning supervises local solid waste management activities, a task which includes responding to complaints, inspecting and monitoring facilities, and investigating and reporting statutory violations. The Erie County Department of Health performs a similar role in controlling air and water pollution.⁷⁶ The Niagara County Board of Health, by arrangement with DEC, is responsible for air pollution control. The Board inspects sources of emissions, conducts appropriate testing, notes violations, requests corrective action from polluters, and reviews applications for operating permits. According to DEC, this local program is "the arms, legs, ears and eyes of an interrelated NYSDEC and [Federal] EPA environmental program."⁷⁷ The county agencies receive state funding to support the performance of these functions.

It may not be feasible or desirable for state agencies to perform all of their mandated functions with their own personnel. There may be advantages of cost and efficiency resulting from delegation to the counties which justify substantial reliance on county agencies for the daily administration of state and federal programs. However, while delegation of particular tasks may be appropriate in many situations, relinquishment to the counties of responsibility for the implementation of environmental laws is not. The primary responsibility for enforcement of environmental statutes and regulations rests with the state. In recognition of the locus of this responsibility, the quality and extent of state and regional supervision of county activities should be improved. If additional funds or personnel are required to enable the state agencies to more closely oversee local enforcement efforts, these should be provided.⁷⁸

Submitted to the Task Force as part of the record, were documents which described a long and frustrating struggle by town officials and residents of Pendleton and Wheatfield, Niagara County, to curtail the operations of Frontier Chemical Waste Process, Inc. of Pendleton. Letters, newspaper articles, and town resolutions extending over twenty years illustrate unsatisfactory inspection and enforcement procedures on the part of the Niagara County Health Department and its inability or reluctance to act vigorously with regard to hazardous wastes.⁷⁹ At one point, the residents appealed to their state assemblyman and reiterated a statement made to them by Ernest R. Gedeon, Assistant Commissioner of the Niagara County Health Department, concerning Frontier's operating permit. "State health only goes through County health. I represent both. The Commissioner of Health will set up the rules to follow at my direction. Everything goes through me."⁸⁰ A highly questionable attitude was similarly demonstrated years earlier by a state health official, who

suggested that a hearing on the revocation of a permit to Industrial Waste Service, Inc. (predecessor of Frontier) be held in the state office building in Buffalo, "...rather than to encourage mass participation by having it in the vicinity of Lockport."⁸¹

The Love Canal tragedy also illustrates the unfortunate results of excessive state reliance on local solutions to hazardous waste disposal problems. At the Love Canal there are indications that difficulties stemming from the presence of toxic materials were brought to the attention of city authorities over a period of two decades before significant remedial measures were initiated.⁸² It is unclear whether information concerning the site was transmitted by the city (or others) to the County Health Department, DEC or DOH during this period. If the information was transmitted, the question arises why no action was taken at the state or county level prior to 1976. If the information was not transmitted, it indicates a critical breakdown of communications among responsible officials.

In September 1976, DEC engineers visited the Love Canal, and during the fall of that year, water samples were taken and discussions held with Hooker concerning the nature of the materials deposited at the site. Apparently at the insistence of DEC, the City of Niagara Falls hired outside consultants in January 1977 to conduct an investigation and develop a "conceptual" plan for abatement. This report was completed in August 1977 and reviewed by DEC. Based upon the information then available, DEC asked for federal assistance in October 1977 to conduct an expanded study of groundwater pollution.⁸³ If such a study was ever made, it is not referred to in any of the testimony or literature concerning the Love Canal. In February 1978, six months after the first consultant's report was completed, the City of Niagara Falls hired another consulting firm to develop an abatement plan.⁸⁴ This plan was submitted in May or June of

1978 and bore an estimated cost of \$850,000. Discussions were held as to how this cost would be funded, and Hooker Chemical Company agreed to pay \$250,000.⁸⁵

DOH and DEC began an intensive analysis of air, soil and groundwater in the early spring of 1978. The commissioners of both departments, along with local officials, inspected the site on April 19, 1978, and on August 2, 1978, the State Health Commissioner issued an order declaring a health emergency. Shortly thereafter, families were evacuated and remedial action was begun by the state.⁸⁶

The chronology recited above raises questions which suggest an inadequate state involvement at the Love Canal prior to 1978. What information was revealed by the water samples taken by DEC engineers in September 1976? Obviously the results were the cause of some concern or DEC would not have asked the City of Niagara Falls to investigate further. However, were the September 1976 test results discussed with the Department of Health? Why did they not immediately trigger the more intensive testing which the two state agencies later conducted in the spring of 1978? If the initial consultant's report of August 1977 revealed data that indicated a hazardous situation, why was further state investigation delayed until the spring of 1978, pending the commissioning of a further study by the city? DOH began a house to house survey of families immediately adjacent to the site on June 19, 1978. Why was such a study not begun a year and a half earlier? Finally, if the City of Niagara Falls was aware of problems at the Love Canal prior to 1976, why was action not taken sooner?

The adverse public health and environmental consequences which may result from inactive hazardous waste disposal sites are too serious to be dealt with on a "business as usual" basis. Once a problem is identified, it must be addressed promptly and effectively, and communications between state and local governmental officials must be open

and continuous. State agencies cannot rely upon localities which may be unable or unwilling to act effectively.

Private consultants may play a useful and important role in analysing a hazardous waste situation and planning remedial action. However, the capacity to gather information and act quickly must be present in state agencies.

"The locality has hired somebody to study the matter" is not a satisfactory answer. The responsibility for state functions with regard to hazardous waste disposal sites must be clearly fixed at the state level. Where specific duties are performed by units of local government, the state agencies must closely supervise these activities and promptly interpose their authority when necessary.

Legislation

The Task Force Report indicated that additional authority was necessary to enable DEC to carry on the identification and assessment process.⁸⁷ The agency had the power to enter private property to investigate actual or suspected sources of pollution or contamination (ECL §3-0301(2)(g)). However, the general power to investigate did not specifically permit the drilling of monitoring wells or taking of soil borings. Therefore, ECL §3-0301 required amendment to include specific reference to common testing methods for determining the extent and nature of wastes placed underground, and to provide DEC with explicit authority to enter, for purposes of investigation, not only suspect sites, but also nearby property.

This problem was addressed in a bill enacted by the State Legislature and signed by the Governor at the end of the 1979 legislative session. The bill (S.6326-A, A.8176-A), hereafter referred to as the 1979 legislation, provides that DEC employees "...may enter any inactive hazardous waste disposal site and areas near such site and inspect and take

samples...including, but not limited to, soil borings and monitoring wells" (ECL §27-1309(3)). The legislation also provides that if "substantial disturbance of the ground surface" is required, DEC must attempt to identify the owner of the property and, if the owner can be identified, must give ten days written notice of its intention to take samples (ECL §27-1309(4)).

Prior to 1979, ECL §27-0915 (which is part of the Industrial Hazardous Waste Management Act of 1978) required present generators, transporters, and disposers of hazardous wastes to furnish or provide access to relevant records. This section, however, did not apply to past activities, nor did DEC's powers under the Industrial Hazardous Waste Management Act apply to inactive sites.

The problem was resolved by the 1979 legislation which provides for access to records concerning past activities and authorizes the Commissioner of Environmental Conservation to issue subpoenas requiring the production of such records (ECL §27-1309(1) and (2)). The 1979 legislation mandates that reports be furnished to DEC, upon request, containing information on current and past waste disposal activities (ECL §27-1307(1)), so that the Department can render an annual report to the legislature and the governor identifying inactive hazardous waste disposal sites (ECL §27-1305(1)).

DOH appears to have sufficient statutory authority to carry out the investigation and assessment of the human health hazards posed by inactive sites. As pointed out by the Task Force, DOH has the power to "enter, examine and survey" all grounds and structures (PHL §206(2)), the power to make "examinations" related to nuisances of health questions when so requested by the Governor (PHL §1301(1)), and the power to take any reasonable and necessary actions in the case of imminent peril to public health from landfills (PHL §1388).⁸⁸ Local health offices are authorized to enter

onto private property for inspection purposes where nuisances or conditions dangerous to life and health are believed to exist (PHL §1303(1)). In addition, the 1979 legislation imposes specific responsibilities on the Department of Health by adding a new Title (XII-A) to Article 13 of the Public Health Law. These responsibilities include assessing the seriousness of health problems at or related to inactive hazardous waste disposal sites, issuing declarations if hazardous conditions exist, and in such circumstances, monitoring the sites and approving and coordinating remedial programs (PHL §1389-b(1) and (2)). The Health Commissioner's powers with respect to inactive sites which pose dangerous public health problems, including the power to order remedial action, supersede the powers of the Commissioner of Environmental Conservation to order remedial work, pursuant to ECL §27-1313(4) enacted by the new legislation.

Land Use Records and Regulation

When the residents of the Love Canal area purchased their homes, they had no way of knowing that they were moving next to a chemical waste disposal site. The only public record of the fact was in the cryptic statement contained in the deed from Hooker Chemical to the Niagara Falls Board of Education.⁸⁹ This warning was not in the chain of title of any of the homeowners. Legislation must be enacted to provide that once a hazardous waste disposal site has been identified (active or inactive), a recordable document be prepared by the regional office of DEC, recorded in the appropriate land records office, and indexed against the property in question and all other real property within a 500 yard radius. A former Love Canal homeowner testified, "...the realtor who sold me the home made no mention of a chemical waste dump site. If proper mention of the dump by local municipalities was given, surely no one would have

moved in the area. They knew of the dump, but they allowed residents to build thirty feet on the edge of the canal..."⁹⁰ Had legislation providing for public notice been in effect prior to the residential development of the Love Canal area, the ruinous health and economic problems of an entire community might have been avoided.

The 1979 legislation provides that a list of hazardous waste disposal sites be maintained for public inspection in regional DEC offices (ECL §27-1305(3)). This is inadequate, since it will not necessarily appear in the title search and is unlikely to come to the attention of the average home buyer.

During the hearings, it also became apparent that the problems inherent in waste disposal sites generally, private or municipal, are often not reflected in a community's land use planning.⁹¹ It is also clear that hazardous wastes may find their way into municipal disposal sites.⁹² Because of problems normally associated with municipal landfills (odors, vermin, noise, etc.), as well as those which may result from the disposal of hazardous wastes, legislation should be enacted requiring substantial "buffer zones" surrounding disposal areas, and limiting permissible land uses within such zones.⁹³ Since this obvious fact frequently appears to have escaped the attention of local planners and legislators, it should be mandated by state law. The extent to which nonresidential land uses are compatible with landfill sites requires careful consideration. No construction of any kind should take place within a buffer zone without a special permit from the county board of health or regional DEC office, so that proposals can be evaluated on a case by case basis.

PART II

REMEDIAL ACTION AND FUNDING

The Nature of the Problem

While the focus of the hearings and Task Force Report was on inactive hazardous waste disposal sites, it is difficult and perhaps impractical when discussing alternatives for remedial action to isolate completely such sites from those currently in use. Tomorrow's inactive site is today's active site, with extra dirt covering the top. It is estimated that 56 million metric tons of hazardous waste will be produced annually in the United States by 1980.⁹⁴ Until the problem of its disposal is resolved or its volume is appreciably reduced, we will continue to create future inactive hazardous waste disposal sites.

Historically man has buried what was no longer useful to him, and until relatively recent times, this has been a satisfactory method of disposal, particularly for materials that decompose relatively rapidly. With the advent of modern industrial technology, however, waste materials have grown increasingly more complex and more harmful to the environment and human health.⁹⁵ Their increased toxicity and long-term persistence, coupled with a tremendous growth in volume, has created a dangerous situation in areas where population density has also increased, bringing with it a greater demand for fresh water and placing a premium on safe, pleasant living space.

As will be discussed, it is questionable whether any landfills can remain "secure" for the hundreds or even thousands of years necessary for some hazardous substances to deteriorate to a harmless state. Such substances may "migrate" or be carried out of a landfill by percolating surface waters or groundwater, or escape to the atmosphere in the form of gases and vapors. Geologic, meteorological, human, and animal factors can threaten the integrity of the most carefully designed land burial site.

Yet, land burial remains the most common method for disposal of hazardous wastes in New York State.⁹⁶ The other historic disposal methods, discharge into a body of water and burning, as they were practiced in the past, resulted in severe water and air pollution problems and were addressed by federal statutes such as the Water Pollution Control Act of 1972⁹⁷ and the Clean Air Act of 1970.⁹⁸ A comprehensive national approach to the problems posed by land disposal has lagged behind.⁹⁹ Because it is inexpensive and has been relatively unregulated, burial of wastes continues to be the prevalent answer to the hazardous waste dilemma.¹⁰⁰

Reducing the Volume of Hazardous Wastes

In order to avoid paying the price which future inactive hazardous waste disposal sites will exact in terms of human health, comfort, and aesthetic pleasure, it is essential that steps be taken to dramatically reduce the vast quantities of toxic materials which are being generated. Ultimately, waste reduction is the best answer to the management of hazardous wastes. A DEC survey indicates that some industries currently are substituting less hazardous or nonhazardous materials in their manufacturing processes or, in some cases, are changing the processes themselves. Their efforts have resulted in smaller quantities of toxic wastes being produced.¹⁰¹ If such waste reduction techniques can be developed and used on a broad scale, some of the need for waste disposal facilities will be eliminated.

As was pointed out at the hearings, hazardous waste is not necessarily material which has been discarded because it no longer serves a useful purpose. In many industrial settings, matter becomes waste simply because it is uneconomical to reuse or recycle it.¹⁰² DEC reports indicate that the reuse, reclaiming and recycling of certain wastes is technically feasible.¹⁰³ Efforts should be made to make such procedures

commercially profitable in order to encourage their expanded use. To help achieve this end, DEC has advocated the creation of an "industrial waste clearinghouse" through which "one industry's waste can become another's raw material."¹⁰⁴ By cataloging wastes and establishing contact between interested parties, a clearinghouse would provide companies with the opportunity to sell their wastes to other organizations. Such an operation would keep significant quantities of waste out of the environment and at the same time provide industry with a cheaper source of raw materials.

Another means of reducing hazardous waste generation (and thereby reducing the need for landfills which may become, in time, problem inactive sites) is by decreasing the output of products which leave toxic substances as by-products of their manufacture. This would require a re-orientation of some of our industrial processes. Movement in this direction can be achieved by internalizing the cost of waste disposal in the price of products which generate hazardous wastes in the course of their manufacture, thereby creating an economic disincentive to the use of such products and encouraging the shift of market demand toward goods which do not produce such wastes.

While changes in manufacturing techniques and materials and the weaning away of the consumer from products whose manufacture leaves hazardous substances in their wake, are desirable, even necessary, they do not present an immediate solution to the hazardous waste disposal problem. At best, economic incentives and disincentives can effect only long term mitigation of the problem. Major changes in manufacturing processes and in patterns of product consumption will occur slowly. Unfortunately, inactive hazardous waste disposal sites now exist and are continually being created. Many require an immediate remedial response.

Options for Inactive Hazardous Waste Disposal Sites

There is no definitive answer on the remedial action to be taken with respect to inactive hazardous waste disposal sites. The Task Force Report describes the remedial measures that are available for dealing with the varying conditions which exist from site to site, and indicates some of the advantages and disadvantages of each procedure.¹⁰⁵ Every site poses unique problems, and no single course of action will be suitable in every situation. Nor will any approach lead to a completely satisfactory solution. In the final analysis, we face a critical conundrum. Action is often necessary, but none of the alternatives is free from difficulties and dangers.

The urgency of remedial action at a particular site will depend on the impact or potential impact of the site on groundwater supplies and the proximity of residential areas. The type of action to be taken will also be determined by the site's potential impact on important resources and the proximity of residences, as well as a variety of other factors: (1) the nature and quantity of the waste materials buried and the ability or inability to identify their precise location within the site; (2) the size and physical characteristics of the site itself; (3) the age and condition of the waste and of the containers in which it was placed; (4) the site's proximity to acceptable waste disposal facilities; (5) the nature of the area through which hazardous materials must be transported if excavation and disposal at another location are required.

Remedial action, when taken, will fall into one of four categories outlined by the Task Force:¹⁰⁶ on-site containment of the waste; on-site treatment of the waste; excavation and reburial in a secure landfill; or excavation and destruction through high temperature incineration. All of these approaches have serious drawbacks. The only consistent and foolproof

means of dealing with inactive hazardous waste disposal sites is not to create them in the first place.

1. On-Site Containment

Toxic substances from uncontrolled or abandoned hazardous waste dump sites may migrate from such sites in surface or groundwater, volatilize into the air, or be accessible for direct human contact. Containment is an attempt to isolate these substances from the environment while leaving the waste materials in place. The Task Force Report indicates that many inactive hazardous waste disposal sites can be effectively contained.¹⁰⁷ The use of containment techniques for dealing with many existing inactive sites was also advocated in the testimony of waste disposal professionals,¹⁰⁸ and environmental groups,¹⁰⁹ as well as in DEC technical reports.¹¹⁰ Testimony doubting the long-term success of containment efforts came largely from concerned citizens who, in the aftermath of the Love Canal tragedy, are vehemently opposed to the continuing presence of toxic substances, however well managed, in close proximity to their homes.¹¹¹ Their doubts have considerable validity (a discussion of the drawbacks of containment will follow). However, containment may be, at the present time, the only financially and technically practicable remedial alternative at many inactive sites.

At some locations, the techniques required to confine potential contaminants may be as simple and inexpensive as placing an impervious cover over the surface to stop gas volatilization, rain water infiltration, and direct contact with the waste. At others, complex and expensive construction may be necessary to remove and treat contaminated underground water and toxic gases. The amount of remedial work needed to confine hazardous substances will vary considerably from site to site, depending on the toxicity and degree of decomposition of the buried waste and the

geologic and hydrological characteristics of the site. Containment techniques include:

1. Placing an impervious "cap" over the site to prevent rain and surface waters from soaking in and reaching the waste materials. This cap should be graded to deflect the water into surface drainage channels constructed around the periphery of the site.
2. Digging a trench in the permeable soil surrounding the site; placing leachate collection pipes in the trench, bedded in gravel or sand; and backfilling the trench with permeable material. The leachate from the site is prevented from migrating because it is intercepted by this drainage system. It is then pumped to the surface, treated (preferably at the site), and discharged.
3. Digging a deep trench around the site until an impermeable geological layer is reached; filling this trench with an impervious material, such as bentonite, which forms an artificial physical barrier around the waste extending down to the natural geologic barrier. A variation of this procedure, known as grouting, involves the injection of binding or cementing agents into the soil around the site. However, both procedures require a natural underlying barrier in order to be effective. Provision must also be made for adequate surface drainage and removal and treatment of leachate.

Containment techniques similar to those described in 1 and 2, are being used at the Love Canal,¹¹² but not without some reservations on the part of public officials. Commissioner of Health, David Axelrod, M.D., expressed some doubt as to the adequacy of containment procedures at the Love

Canal in the Conclusions section of his Supplemental Order of February 1979. "If downward migration of toxic chemicals into the deep aquifer is occurring, the presently proposed remedial construction will not control this vertical migration."¹¹³ Dr. Axelrod's statement illustrates the difficulty of controlling the migration of leachate even where the hazardous wastes have been placed on a naturally impervious clay layer, as was the case at the Love Canal site, and appropriate provision has been made for the collection and treatment of contaminated effluents. The difficulty of preventing seepage through the base of a landfill is also noted in the Task Force Report.¹¹⁵ Since it is not feasible to seal off the bottom of an inactive site through artificial means, and since cracks and fissures are often present in natural barriers, complete containment of toxic substances may be impossible. Thus, a major drawback to containment is the continued presence of the waste and the corresponding threat that contaminants will escape the confines of the site, despite elaborate precautions.

Emphasis in this discussion has been placed on the migration of liquid contaminants. The containment of gases is more difficult in some respects and will be discussed in greater detail at p.40, infra.

Another major disadvantage of the containment procedures described above was pointed out by Michael J. Cuddy, Coordinator of the Love Canal Task Force, who testified, "At the Love Canal we are using this method because it is the quickest, most direct work that will intercept migrating chemical leachate. We will not be surprised if it is not a final solution. In fact, the method we are using is not ideal because it will require perpetual maintenance."¹¹⁶ As wastes buried in inactive sites may decompose slowly, in many cases taking several hundred years, leachate collection and treatment systems, as well as the site's "cap", will have to be kept in good repair long after the initial environmental or health hazard has been curtailed. In

addition, "continuous and perpetual" monitoring around the perimeters of the site will be required to insure that hazardous substances are not escaping.¹¹⁷ Long-term supervision is costly. Unfortunately, the harm which can ensue when such supervision is not continued is even more costly.

Of lesser, but still notable significance, is the fact that containment procedures themselves can give rise to certain hazards. Where information is incomplete as to the precise contents and boundaries of an inactive site, toxic substances may be accidentally released into the environment when subsurface drainage trenches are dug.¹¹⁸ Contaminated soils also may be exposed during remedial construction, and precautions must be taken to prevent their being dispersed by wind and rain. Hazards such as gas leaks, chemical spills, fires and toxic dust can threaten the lives and health of workmen and local residents. At the Love Canal an extensive safety plan has been developed to guard against such possibilities.¹¹⁹ A similar plan will have to be formulated at every inactive site requiring containment.

The Task Force Report indicates that the cost of containment is moderate when compared to the cost of removal and "secure" reburial or removal and final destruction through incineration.¹²⁰ The first phase of remedial work at the Love Canal, consisting of trenching, removal and treatment of leachate, and construction of an impervious cover, is expected to cost more than \$800,000 per acre.¹²¹ Rough estimates for excavation and reburial run considerably higher.¹²² Even when the cost of long-term maintenance and monitoring is added to the cost of immediate containment procedures, on-site confinement of hazardous wastes will probably be the more economical remedial alternative. At problem sites where large quantities of varied and extremely toxic materials have escaped their containers, it appears likely that containment will be the only practical course of action, however imperfect.

2. On-site Treatment

At inactive sites which are limited in size, and where the waste has been determined to be of a particular composition and is not in containers, it may be feasible to treat the buried materials by chemical detoxification or microbial inoculation. While these methods are referred to in the Task Force Report,¹¹³ they were not alluded to at the hearings. There appears to be little experience with or knowledge of these procedures, and they are probably of extremely limited potential.

3. Excavation and Reburial in "Secure" Landfills

Excavation and subsequent reburial in a "secure" landfill of toxic wastes from inactive sites presents a dual threat to the environment and human health. This subsection will be confined to a discussion of the hazards posed by the "secure" landfill. The dangers posed by excavation and physical transfer will be discussed in the following subsection. It is indicative of the substantial nature of these dangers that DEC has recommended exhumation of buried materials only where such special concerns as "direct effects on public health, uncontrollable seepage to an important aquifer or surface water resources, or a conflict with an important potential land use warrant the expense and hazard of excavation and removal."¹²⁴

Although the Task Force Report does not deal with the problems associated with such facilities, there was considerable testimony from public officials,¹²⁵ waste generators,¹²⁶ chemical engineers,¹²⁷ and concerned citizens¹²⁸ underscoring the undesirability of "secure" land burial sites as the final destination of currently generated wastes and materials exhumed from inactive sites. Their attitude is well represented by the statement of a chemical engineer with over forty years experience in the chemical industry. "There is

no such thing as a 'secure landfill'. The only materials that should be allowed in landfills are completely inert and insoluble solids..."¹²⁹

Public documents, such as DEC technical papers and reports, support the skepticism of those whose testimony challenged the long term security of land burial sites.¹³⁰ However, while this view appears to be gaining recognition, and an increasing awareness of the shortcomings of landfills has led to more stringent regulation,¹³¹ landfills remain the most common method of disposal, largely due to the lack of viable alternatives. Almost the only partisans of the use of landfills for hazardous substances are the commercial operators of such facilities. Louis Wagner, President of Newco Chemical Waste Systems, Inc., testified that with sound engineering and construction, land burial sites can be made secure. He maintained that through the use of synthetic and clay liners, "internal leachate", and monitoring wells, Newco's facilities can effectively prevent migration of leachate and contamination of resources surrounding sites for 1,500 years.¹³² The safety and desirability of Newco's facilities were sharply contested by a former Newco employee and local residents, as was Mr. Wagner's concept of a totally secure landfill.

Secure landfills, properly designed and managed, must be distinguished from the causal dump sites of the past which left such legacies as the Love Canal. According to a DEC study, secure facilities should be located in natural clay formations and have liners, leachate collection and treatment systems, impermeable covers, and provisions for ground and surface water monitoring."¹³⁴ However, even the best designed facilities cannot protect completely against the migration of leachate and the emission of gases.

Leachate: It is doubtful that any secure landfill can completely guard against the possibility of rain, surface water or ground water entering the site, leaching through

the waste material, and migrating to contaminate surface or groundwater. Capping with an impermeable material and grading and contouring the cover to deflect water away from the site can greatly reduce this possibility. However, such measures can only be taken when the landfill is completed. It is almost impossible to prevent the entry of water while the site is still active. In addition, floods, wind, rodents, neighborhood pets, and human intruders can all destroy the integrity of the cover. Maintenance of the site's surface and of a fence or similar deterrent to entry will be required almost indefinitely. (A fence or other means of blocking access to the facility may also be required to discourage illegal dumping.) Furthermore, despite the presence of liners and the relative impermeability of the soils in which secure landfills are built, both the migration of leachate out of the site and the seepage of groundwater into the site can occur through cracks and fissures caused by the normal settling of the fill, as well as by earthquakes, ground tremors, and explosions. Breakage or damage to leachate and gas collection systems can also result from settling or sudden traumas. While these possibilities may appear somewhat remote, the truly secure facility containing highly toxic wastes must be able to anticipate them.

Liners:¹³⁵ Most designs for secure landfills include a synthetic membrane barrier between the waste and the base and walls of the site to prevent leachate from entering the groundwater. It is doubtful, however, that any synthetic liner currently available can resist indefinitely the deteriorating effects of chemicals and acids present in leachate. Swelling due to water and leachate absorption can result in a significant increase in some liners' permeability after only relatively short periods of use. Other liner materials can become brittle when exposed to the high temperatures generated by the decomposition of waste within

landfills. Further, subsurface fires in landfills are not uncommon and may pose a serious threat to the integrity of some liner materials.

Synthetic liners can be snagged or torn by machinery during installation and punctured by sharp rocks or stones projecting from the walls and base of the site. Proper positioning is difficult, and realignment is frequently required to remove wrinkles or bulges which may impair the proper seaming of liner sections. Once a liner is in place, it must be covered as quickly as possible with a thick layer of sand or dirt to protect against possible vandalism and the effects of wind, rain water collection, and sharp falling objects. This covering is also required to prevent the liner from being torn or punctured by the first layer of waste material or its containers. The heavy equipment used to spread the covering over the liner must be operated with extreme care to avoid rips and snags. Due to such difficulties, reliance on synthetic liners to protect the groundwater from contamination is overly optimistic.

In addition to synthetic liners, a thick layer of compacted clay is frequently recommended for the walls and base of landfill sites as an impediment to the migration of underground leachate. While clay is highly impermeable and in theory should act as an effective barrier, the reality of constructing a clay wall or floor of uniform thickness and density, free from fissures and air pockets, is fraught with difficulties. Although landfills designed with a combination of clay and synthetic liners are impressive (and expensive), they are not the panacea that some waste disposal companies represent them to be.¹³⁶

Gases: A recent DEC publication indicates that while the air pollution aspect of underground disposal of hazardous wastes has received little attention, the quality of the ambient air surrounding a landfill site should be an important concern.¹³⁷ Air sampling and analysis adjacent to the Love

Canal revealed the presence of significant concentrations of toxic substances. Such data suggests that the truly "secure" landfill must provide safeguards against possible air pollution.

Decomposition of wastes in a landfill produces gases which are potentially hazardous. Where complex industrial wastes are involved, the gases generated may be particularly toxic. Explosions from landfill gases, although infrequent, have been reported.¹³⁸ More important, however, is the possibility that toxic gases will build up pressure beneath the surface of the site, break through cracks in the cover caused by plant roots or burrowing animals, and be released into the atmosphere. Although land burial sites can be constructed with a gas-tight design, there are indications that such construction will not contain the volume of gas production over a prolonged period of time. Thus, in order to avoid potential air pollution problems (and the soil contamination and water pollution which result from evaporation and eventual fallout), a gas collection and treatment system should be maintained at secure landfills. Provisions for monitoring landfill gases should also be present to insure that air quality around the site remains satisfactory. Such safety mechanisms are expensive, man-made structures which require long-term maintenance and supervision, since gases continue to be generated long after the landfill has ceased operation.

Long-Term Maintenance: Perhaps the most significant threat to the security of a land burial facility is that of abandonment. Many hazardous substances are very long-lived, and as has been previously indicated, arrangements for the "perpetual care" of leachate and gas collection and treatment systems and a site's impermeable cover must be made. Monitoring around the periphery of a site must continue for several hundred years to insure that hazardous substances are not migrating beyond its boundaries. These activities

require continuous funding and supervision. There is a great risk that a commercial facility will be operated responsibly only as long as it is profitable, and then will be abandoned to become another inactive hazardous waste disposal site like the Love Canal.¹³⁹

This critical problem is applicable to municipal as well as privately owned sites, and no legislation has been enacted which provides a satisfactory answer. The problem is twofold: (1) identifying a responsible entity with the financial ability to expend large sums for a prolonged period of time on the monitoring and supervision of a site, and to do so while the site is generating no income; and (2) assuming that such an entity can be identified, insuring over a long period that such monitoring and maintenance is in fact performed. Few private organizations could meet the financial demands which form the first segment of the problem. Certainly governmental action is required to resolve the second.

Conclusion: Although there are a variety of difficulties associated with secure land burial, at present, such sites represent the only means commercially available for the disposal of hazardous wastes. Until technology aimed at final destruction of toxic wastes becomes readily available, landfills will continue to receive the major portion of industrial waste generated in the state. It is doubtful that their use will ever be eliminated entirely. Residues from the incineration of organic wastes will require safe land burial, as will solid non-combustible or non-destructable inorganic materials.¹⁴⁰ However, while there may be a continuing need for secure landfills to handle that portion of current and future waste which cannot be disposed of in a safer manner, it is extremely doubtful that removal to a secure landfill will present an attractive alternative for the management of material from inactive sites. Rough cost estimates for excavation and redispisal in a secure land

burial facility range from five to ten million dollars per acre. Thus, if it were necessary to excavate all the toxic materials now known to be deposited underground in New York State for reburial at secure sites, the cost might be several billion dollars.¹⁴¹ In addition, the quantities of toxic wastes requiring removal and reburial would greatly exceed the current capacity of approved land disposal facilities. At the present time, there are only two firms which operate secure landfills within the state. Both are located in Niagara County.¹⁴² Consequently, wastes exhumed from sites in distant areas would have to travel hundreds of miles before reaching their final destination. In most foreseeable situations, the risks and costs involved in excavation and transporting large quantities of hazardous waste will be too great to justify their imposition for redisposal in a landfill.

4. Excavation and Destruction by Incineration

Excavation and transfer: Excavating a hazardous waste disposal site exposes the toxic materials and permits them to be reintroduced into the human environment. As has been noted previously,¹⁴³ records indicating the dates of burial and the nature and quantity of waste deposited in inactive sites have been grossly inadequate, even non-existent. It is reasonable to conclude that the present owners of many sites can only guess at the age and composition of their dangerous contents. At such sites, exhumation is a treacherous procedure. Partial decomposition of waste materials may have already occurred, and toxic gases produced by this process can be freed to enter the atmosphere or the lungs of excavation workers and near-by residents when the soil is disturbed. Wastes may have escaped deteriorated containers, subjecting workmen to the threat of direct physical contact with unidentified yet highly toxic substances, as well as the threat of injury from explosions or fires caused by

mixing of materials intended to remain isolated from one another. The health and safety hazards encountered by workers engaged in the manufacture of toxic chemicals and in the burial of their waste by-products were vividly described at the hearings by two former Hooker Chemical employees.¹⁴⁴ Their experience, however unfortunate, may prove mild when compared to the dangers confronting workers engaged in the excavation of toxic wastes. The manufacturing and disposal processes involve known materials, and precautions in the form of special clothing and breathing apparatus can be used to protect participants.¹⁴⁵ Such protective measures are of less value at inactive sites, where dangers to be guarded against are unknown, and where unpleasant "surprises" can occur.

In addition to the lack of information concerning the amount and nature of the buried materials, the location of buried wastes within the site or the precise boundaries of a site are often unknown. Contaminated leachate may have migrated beyond the original perimeters of the landfill onto adjacent property (as was the case at the Love Canal). Unless the extent of this movement has been pinpointed, excavation workers may be faced with an enormous "digging expedition" in their effort to rid the area of contaminated soils, as well as wastes. Owners of properties beyond the site, where excavation of contaminated soils is required, may be faced with escaping toxic fumes and possible contact with hazardous substances when the ground is disturbed.

Once toxic materials have been exhumed, they must be transported to a disposal facility. This may necessitate a lengthy journey through populated areas. If the mixed cargo of waste and soil contains highly volatile substances, a circumstance which may or may not be known, drivers, as well as unsuspecting citizens, will be exposed to the threat of explosion and fire.

Excavation and transportation which results in reburial in a "secure" landfill will not often warrant the risks enumerated, since the "secure" landfill presents a new set of potential dangers. However, exhumation for the purpose of destroying the wastes by high temperature incineration may be justified, since the only other alternative, containment, is often difficult and impractical.

High temperature incineration: As has already been indicated,¹⁴⁶ the disposal of hazardous substances by means of land burial poses risks under the best of circumstances. To the extent that the volume and toxicity of buried wastes can be reduced, the risks of in-ground disposal can also be mitigated. By burning waste materials at sufficiently high temperature for sufficient periods of time to destroy them completely or render them inert, incineration can achieve both of these objectives. In addition, the production of energy may be a valuable by-product of the process.¹⁴⁷ The need for landfills will not be eliminated, but through incineration technology, their use can be confined to non-flammable or inorganic wastes and the less dangerous residues of the incineration process.

Although several manufacturers of incineration equipment gave precise accounts of their particular systems at the hearings,¹⁴⁸ the details of incineration technology are not necessary for this discussion. The Task Force Report, in recommending that "careful consideration be given to the construction of rotary kiln incinerators to destroy wastes retrieved from the Priority I disposal sites",¹⁴⁹ differentiates between the rotary kiln and other incineration techniques because the former burns both liquid and solid wastes, and therefore is better able to handle materials from inactive sites than systems which burn only liquids. Apparently, there are several different technologies which can be employed to destroy both liquid and solid materials

(rotary kiln gasification was one method discussed at the hearings).¹⁵⁰ The term "incineration" is used here without distinguishing among them, but most of the hearing testimony focused on high temperature, rotary kiln incineration. The important point is that the ability to destroy hazardous organic wastes does exist, and that those individuals who spoke in behalf of organizations which design and construct incineration equipment,¹⁵¹ as well as those who spoke in behalf of environmental groups,¹⁵² consulting firms,¹⁵³ and as private citizens,¹⁵⁴ believe incineration to be the best solution to New York State's hazardous waste disposal problem.

High temperature incineration technology is currently being used in Europe and in several parts of the United States. In both Denmark and Sweden, a single national facility is able to destroy sixty to eighty percent of all wastes produced.¹⁵⁵ Despite the successful European experience, at the present time there are no commercial high temperature incinerators available in New York. Several large industrial firms have constructed high temperature incinerators (not necessarily rotary kiln) for their own use (Hooker Chemical, Dow Chemical, Eastman Kodak, General Electric).¹⁵⁶ Bruce Davis, President of Hooker Chemical, testified as to his company's satisfaction with the results obtained from its two facilities. "From 1969 to 1978, we've incinerated more than two hundred thousand tons of liquid chemical wastes that otherwise might have gone to landfill areas. Today, essentially all of Hooker's organic liquid chemical residues are burned."¹⁵⁷

While DEC studies¹⁵⁸ and many government officials¹⁵⁹ agree with waste disposal experts, and the interested public that high temperature incinerators are the best means of dealing with currently generated hazardous wastes, in all probability, such facilities will not have a significant impact on the state's disposal practices for several years.

Rotary kilns are expensive. Construction costs can range anywhere from twelve to one hundred million dollars, depending on the size and design of the facility and the siting difficulties which are encountered.¹⁶⁰ Operation costs may be high. Estimates at the Nyborg facility in Denmark place them at eighty-five to one hundred dollars per ton.¹⁶¹ It is unlikely that many private companies will be willing to make the capital investment required to enter the hazardous waste incineration business, unless they are assured of a continuous and abundant supply of waste materials. Since user fees will undoubtedly be high, and many waste generators will seek less costly disposal methods, legislation must mandate the use of such facilities.

At its 1979 session, the New York State Legislature added a new section (1285-f) to the Public Authorities Law, authorizing the Environmental Facilities Corporation to make a study "in preparation for a comprehensive program for the disposal of hazardous wastes."¹⁶² This legislation, signed by the governor, includes an appropriation of \$300,000 and requires a report on or before March 1, 1980. While one might assume that the siting and financing of high temperature incineration facilities would be the major focus of such an effort, neither the preamble nor the statute itself makes any reference to incineration.

Even if the state commits itself to incineration technology and encourages its development within the private sector, new facilities will be slow in coming. Rotary kiln incinerators take approximately one and one half to three years to complete the transition from drawing board to operational readiness.¹⁶³ Government regulations will be required to ensure proper siting, safety precautions, and air pollution controls. Until such regulations are in existence, it is doubtful that many organizations will undertake the construction of commercial facilities out of fear that major alterations later will be required to meet

government standards.¹⁶⁴ Since government customarily moves slowly, it is possible that new facilities will not be completed for substantially longer than three years. Thus, the major issue is no longer whether high temperature incinerators should be built, but has become how quickly can government provide the proper climate for promoting their construction, assuming that ownership is to be private. The question of ownership, however, cannot be so easily resolved.

The complete hazardous waste disposal complex should include chemical neutralization and reclamation capability, as well as high temperature incineration capability and a secure land burial area.¹⁶⁵ There are obvious disadvantages to relying on private organizations to provide such facilities. First, they may not be built because of a business judgment that the substantial capital required and the risks involved will not be adequately compensated for by the potential profit. Second, such facilities may not be built in sufficient numbers or in all of the areas in which they are needed. Third, the siting of hazardous waste disposal facilities is extremely difficult because of potential dangers, unpleasant odors, and the need for particular water and soil conditions. Suitable sites may be hard to find. Ideally, they should be in or proximate to existing industrial areas, so that wastes need not be transported long distances. Such sites may not be available to private purchasers. The public, however, can exercise the power of eminent domain in order to acquire them. Fourth, once a hazardous waste disposal complex is in operation, it will need to continue for a long period of time. When operations are discontinued, the site will have to be monitored and maintained for many years. It is unlikely that private enterprise can provide the long-term financial and operational responsibility that is necessary. Fifth, the destruction of hazardous wastes, whenever feasible, should be a requirement of solid waste management. In that case, the owners of disposal facilities

will have a business whose use is mandated by law. Since it is unlikely that more than one disposal complex will be built in a given area, the opportunities for profiteering will present a difficult temptation to resist, and regulation of charges, as with public utilities, will be necessary. If serious problems with respect to the regulation of waste disposal appear likely, it might be desirable to avoid them through public ownership of waste disposal facilities. Sixth, and perhaps most important, private complexes would have to be monitored on a continuing basis by the public sector. Whenever a profit making enterprise is conducted, there is an incentive to increase profits by cutting costs. In the hazardous waste disposal business, cutting costs can be dangerous and may impose, in the long run, substantial costs on society as a whole. It was an unfortunate attempt to minimize the costs of waste disposal that led to the current critical state of affairs. The need for continuous surveillance of private facilities by public agencies and the danger that such surveillance will not be effective may be the strongest argument in favor of public ownership and operation.

Incineration of wastes from inactive sites: Although there was considerable testimony urging that wastes be exhumed from inactive sites and destroyed through high temperature incineration¹⁶⁶ and although the Task Force advocates excavation and incineration at Priority I locations,¹⁶⁷ it is doubtful that such a course of action can be undertaken on a broad scale. In order to safely incinerate toxic substances, it is necessary to identify their components and to isolate certain materials from others before burning.¹⁶⁸ While this poses little difficulty for currently generated wastes, it will be a major problem at those inactive sites where records are vague, and the buried materials are of an unknown nature or have been mixed together (either at burial, or through decomposition of their containers). The

possibility of testing and categorizing unidentified wastes at the incineration site was alluded to at the hearings.¹⁶⁹ The president of one waste disposal company, currently considering construction of a rotary kiln, claimed that through the use of sophisticated equipment, virtually no substance is beyond identification.¹⁷⁰ Most of the expert testimony generally conceded, however, that the feasibility of exhuming unknown substances, transporting them to the incineration facility, and then hoping that they can be identified as suitable for burning is doubtful.¹⁷¹ The possibility of separating mixed wastes at the incineration site was not discussed in any detail.

It is also unclear whether rotary kiln incinerators are equipped to deal with the large quantities of contaminated earth which will accompany wastes from many inactive sites. Until these issues are satisfactorily resolved, it is impossible to foresee the widespread use of high temperature incineration at inactive hazardous waste disposal sites. Perhaps those locations which are limited in size and contain known quantities of identified and isolated materials can use the incineration alternative. Such sites will be few. Certainly their numbers will not be sufficiently great to warrant the expense and time involved in the construction of incineration facilities. Thus, only if such facilities already exist to destroy currently generated wastes, will incineration represent a realistic remedial alternative to containment.

Remedial Action - The Human Element

A state policy must be developed to guide agency actions in future situations where hazardous waste disposal sites threaten the safety of local residents. No such policy appears to exist at the present time. Decisions at the Love Canal were necessarily made on an ad hoc basis. In dealing with that site, it could have been concluded that

governmental responsibility ends when the danger is ascertained and residents are instructed to leave. However, such a callous approach was not taken; nor is it likely to be taken in future emergency situations. In the event that homes near other hazardous waste disposal sites are found to be so affected that the health of their occupants may be endangered, agency officials must have a set of pre-established guidelines to govern their actions.

Such a policy must provide answers to those questions which were confronted for the first time at the Love Canal: (1) What are the criteria for evacuation of residential areas? The testimony of homeowners who remain in the Love Canal area despite low levels of chemical contamination in their homes, indicates that they perceive the state's decision to evacuate only the first "two rings" as ill-considered, even arbitrary.¹⁷² The state should arrive at some standard for affixing the label "contaminated" to a group of residences. (2) Who is to be evacuated? Breaking up families, as was done at the Love Canal, would appear to be a tragic error. The emotional stress which people feel when they have been exposed to toxic substances which may at some uncertain time cause serious disease or death is hardly mitigated by separating husbands from wives and parents from children. (3) How should relocation, when necessary, take place? A procedure should be developed which is not unduly disruptive to the employment or education of those who are relocated. (4) What shall be the state's policy with respect to the ownership and disposition of residences which become unsafe due to contamination? The state must decide whether the financial risk is to be borne solely by the homeowners, who may be left to an uncertain and expensive remedy in the courts, or whether the state will assume all or some portion of the losses. If homes are purchased with public funds, as they were at the Love Canal,¹⁷³ the point at which the line will be drawn should be based on specific criteria. When

dealing with property values, perhaps it is neither possible nor desirable to differentiate between homes which are heavily contaminated and those which are moderately affected. As a practical matter, any residence which is considered within the endangered area will be greatly diminished in market value, if not rendered worthless.¹⁷⁴ Existing homeowners' insurance policies do not cover the risk. Even if a fund is created to compensate residents of a contaminated area for their property losses, the definition of "contaminated area" will have to be refined.

The 1979 Legislation

As indicated,¹⁷⁵ the New York State Legislature acted in the summer of 1979 to amend the Environmental Conservation Law, the Public Health Law, and the Public Authorities Law to provide, inter alia, for remedial action at inactive hazardous waste disposal sites (ECL §27-1313 and PHL §1389-b). That legislation establishes a procedure for instituting remedial action. Once a finding has been made that an inactive site "constitutes a significant threat to the environment," the Commissioner of Environmental Conservation may order the owner of the site (or any other person responsible) to develop and implement a remedial program within a given time limit (ECL §27-1313(3)). If the person to whom the order was issued fails to remedy the situation within the time specified, DEC may develop and implement its own remedial program and charge the costs involved to the person to whom the order was issued (ECL §27-1313(5)(a)). If the Commissioner is unable to determine who may be responsible for the hazardous conditions or is unable to locate the responsible person, DEC may develop and implement a remedial plan at public expense (ECL §27-1313(5)(b)).

The responsibility for remedial action shifts if the Commissioner of Health finds that an inactive hazardous waste disposal site has created "a condition dangerous to

life and health" (PHL §1389-b(2)). (emphasis supplied)¹⁷⁶
In such a situation, the Commissioner of Health shall issue a declaration to that effect, and subsequently DOH shall be responsible for monitoring the site and approving and coordinating a remedial program. Such a declaration specifically supersedes any order which may have been issued by the Commissioner of Environmental Conservation (PHL §1389-b(3)). The Health Commissioner may order the owner of the site (or any persons responsible for the presence of hazardous wastes) to develop and implement a remedial program within specified time limits. If the order is not carried out within such time limits, DEC shall develop and implement a remedial program, pursuant to a memorandum of understanding between DEC and DOH (PHL §1389-b(5)(a)). The expense of doing so shall be paid by the person to whom the order was issued. Again, if a responsible person cannot be found or identified, the remedial program shall take place at the public's expense (PHL §1389-b(5)(b)). The legislation also increased the Governmental Emergency Fund from four million five hundred thousand dollars (\$4,500,000) to nine million five hundred thousand dollars (\$9,500,000).

It may be somewhat premature to criticize legislation which is as yet untried. There are, however, certain obvious issues which should be addressed: (1) The legislation, as already indicated, grants DEC employees the right to enter upon an inactive hazardous waste disposal site and surrounding areas to take air, water and soil samples. It does not, however, specifically grant agency employees or contractors retained by the state any right to enter upon an inactive site or adjacent area for the purpose of taking remedial action. While such authority might be assumed, as a necessary concomitant of the department's mandate to implement remedial programs, it might be desirable to provide explicitly such authority; (2) the Department of Health is given the responsibility for approving remedial

programs developed by site owners or waste generators when the site is creating a condition dangerous to life and health. Since personnel at DEC probably have greater familiarity with such remedial programs, it would be desirable to provide for that department's review and approval. This oversight could be remedied by interagency agreement, but might be more effectively corrected by legislative amendment. It is also unclear whether, if DEC develops and implements a remedial program pursuant to §1389-b(5)(a) of the Public Health Law, DOH would have the right to disapprove such a program. A potential interagency conflict could arise in such a circumstance which could delay emergency action pending resolution of the "squabble". The interdepartmental "memorandum of understanding" referred to in §1389-b(5)(a) may address and resolve this issue, but again, legislative amendment might better lay potential conflicts to rest; (3) The definition of "hazardous waste" provided for in the legislation may lead to difficulties. In the future, the term will be defined according to a list to be promulgated, pursuant to ECL §27-0903, by the Commissioner of Environmental Conservation. Until such a list is available, the term will continue to be defined by ECL §27-0901(3), which was enacted in 1978 as part of the Industrial Hazardous Waste Management Act. That section states:

"Hazardous waste" means a waste or combination of wastes, which because of its quality, concentration, or physical, chemical or infectious characteristics may:

a. Cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness, or

b. Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed or otherwise managed.

Assuming that lists, whatever their subject matter and however exhaustive, are rarely complete, and assuming that a list of hazardous wastes will require continuous expansion as experience and research uncover new or previously unlisted toxic substances, it appears likely that the DEC list of hazardous wastes will lag behind the realities of the hazardous waste disposal situation. If the definition used in ECL 627-0901(3) were to be retained as a supplement to the DEC list, newly discovered materials (or materials which have not yet made their way through the administrative process) which pose human health or environmental hazards would be subject automatically to the 1979 legislation. In such instances, the burden would be on the state to show that the substance in question falls within the statutory definition; (4) It is estimated that over twenty-five million dollars will be spent for remedial construction and relief measures at the Love Canal alone.¹⁷⁷ Therefore, it is apparent that the five million dollar increase in the Governmental Emergency Fund provided for in the legislation will be grossly inadequate should a need arise for immediate and extensive remedial action at a sizeable inactive hazardous waste disposal site; and (5) Very substantial issues have been left open by ECL §27-1313(4) and PHL §1389-b(4) which state that the persons who shall be responsible for carrying out and financing remedial programs shall be determined by the respective commissioners "according to applicable principles of statutory or common law liability". To say that such a determination of responsibility will be difficult is to understate the obvious. The applicable principles of statutory or common law liability are far from clear. Even the most minimal discussion of the problems involved is, however, far beyond the scope of this report. In this respect, it should be noted that the Task Force recommended a clarification in the applicable Statute of Limitations,¹⁷⁸ a recommendation which appears to have been ignored by the

Legislature. Subsequent to the Task Force Report, the New York Court of Appeals rendered its opinion in Thornton v. Roosevelt Hospital,¹⁷⁹ making the need for action in this area even more pressing. A discussion of the Roosevelt Hospital decision and its relationship to "applicable principles of statutory or common law liability" is in Appendix A.

FUNDING

The potential costs of identifying, investigating, monitoring and taking remedial action at inactive hazardous waste disposal sites are tremendous. The EPA estimates that as many as 1,200 to 2,000 dump sites around the country may contain wastes that could develop into imminent health hazards.¹⁸⁰ Many of these sites are "abandoned", in that the owner or original dumper either cannot be found or cannot be charged with the cost of clean-up. According to the EPA, the minimum cost of treating these "abandoned" sites could be as high as 4.3 billion dollars.¹⁸¹ The outlook for New York State is equally bleak. A DEC study indicates that approximately 520 hazardous waste disposal sites exist in the state and that many of them are "abandoned" and pose threats to human health.¹⁸² The Task Force found a total of thirty-five sites in Erie and Niagara Counties alone which definitely received large quantities of hazardous wastes and where remedial action may be necessary.¹⁸³ Remedial measures at the Love Canal will have cost in excess of twenty-five million dollars by the time they are completed.¹⁸⁴ Based upon the Love Canal experience, the magnitude of New York's problem, in fiscal terms, is apparent.

A National Problem

Hazardous wastes are largely the by-products of the manufacture of chemicals and plastics, and of certain other industrial processes particularly related to heavy industry, such as steel, rubber and petroleum. As a highly industrialized society, we have for many years enjoyed and sought after the products of these industries. As consumers, we were attracted to many of these products because of their low cost, as well as their other attributes. Corporate competition for sales and profits was a powerful incentive to the manufacturers of these products to minimize their production costs

in order to maintain seductively low prices. We now find that we have all participated in a form of economic delusion. Certain costs, such as those related to safe waste disposal, were avoided through inexpensive, but hazardous, disposal practices. Now the piper must be paid. There is a growing realization that many of the benefits of our sophisticated technology carry with them an inherent, unrecognized burden. It is clear that this burden should not fall solely on the inhabitants of the communities in which the manufacturing plants are located or on the states in which those communities are located. It is true that these communities and states have benefitted from the jobs that industry has provided and from the taxes that industry has paid. The producer corporations themselves, however, are often national or international in character. Stockholders scattered across the nation and abroad participated in their profits. Consumers, across the nation and abroad, purchased (directly or indirectly) and enjoyed their products. The benefits of the "deferred costs" which resulted in environmental degradation were national in scope.

Testimony at the hearing was virtually unanimous that the companies which generated the waste as a consequence of their industrial activity must pay the costs of remedial action at inactive hazardous waste disposal sites.¹⁸⁵ Such costs can then be incorporated in the price of their products, and the financial burden of clean-up at inactive sites will be distributed throughout the country. The consumer will buy at a price which more realistically reflects true production costs, and the residents of a particular state or locality will not be forced to absorb, through increased taxes, a financial burden which is not primarily theirs.

The Federal Role

There has been recognition on the federal level of the need for a national approach to the funding of remedial

programs at inactive hazardous waste disposal sites. Legislation has been introduced by Senator Moynihan and Congressman LaFalce of New York to establish a fund for this purpose.¹⁸⁶ There is also an Administration proposal of a similar nature.¹⁸⁷ The Administration proposal would establish a tax on materials which produce toxic wastes as by-products of the manufacturing process. The proceeds from this tax (constituting an "ultrafund") would be used to underwrite clean-up costs. While these proposals for legislation are encouraging, they are hardly a cause for great optimism. Federal action on the storage and disposal of currently generated hazardous wastes has been characterized by delay and confusion. It is likely that action on funding remedial work at inactive hazardous waste disposal sites will also move slowly. A brief history of the passage and implementation of the Resource Conservation and Recovery Act (RCRA) illustrates the point.

The Resource Recovery Act of 1970 (P.L.91-512) provided that the Federal Environmental Protection Agency (EPA) was to prepare a report to Congress on hazardous waste storage and disposal. That report, submitted on June 30, 1973, concluded that:

- management of the Nation's hazardous residues is generally inadequate
- numerous case studies have shown that public health and welfare are threatened unnecessarily by uncontrolled waste discharges into the environment, and
- hazardous waste disposal on the land is increasing.¹⁸⁸

Notwithstanding the conclusion of the report, the Resource Conservation and Recovery Act (RCRA) was not enacted until 1976. RCRA itself provided an eighteen month period after enactment (by April 21, 1978) for the EPA to issue regulations governing the disposal of hazardous

wastes. The regulations were not issued. Litigation was initiated in September 1978 in order to force the Agency to issue the regulations required by the Act.¹⁸⁹ In January 1979, the court ordered an implementation schedule with a December 1979 deadline.¹⁹⁰ It is not clear now whether even that deadline will be met.

Thus, almost a decade has elapsed since Congress identified hazardous waste storage and disposal as a problem of grave national concern. The federal government can hardly be accused of having acted precipitously on the issue. Given RCRA's history, it is possible that the passage and implementation of "ultrafund" legislation will suffer from the same neglect. Every effort should be made to enact and implement federal legislation to fund remedial work at inactive sites and compensate those who are injured. It is impractical and inequitable to place this burden on the states.

The State Role

Pending concrete federal action establishing a national fund for remedial programs, the state must go forward on its own. An intensive inspection and assessment program is required, coordinated with the expansion of state testing facilities already discussed. It has been estimated that a three-year program at a cost of 4.5 millions dollars per year is required to evaluate public health and environmental hazards resulting from inactive hazardous waste disposal sites.¹⁹¹ For the current fiscal year, DEC requested 2.5 million dollars for such an effort. In response \$300,000 was provided in the '79-80 supplemental budget. It is clear that the fiscal response to the problem is inadequate. Increased appropriations in the '80-81 budget must be a high priority.

The 1979 legislation provides that the cost of remedial action will be paid by the "owner of [the] site and/or any

person responsible for the disposal of hazardous wastes at [the] site,"¹⁹² The responsible persons shall be determined "according to applicable principles of statutory or common law liability."¹⁹³ However, the legislation implicitly recognizes that liability may be unproveable or unenforceable.¹⁹⁴ In such situations, the state, as a practical matter, must assume the cost of clean-up. The health and safety of its citizens may be at stake, and a denial of responsibility by the state would be considered socially irresponsible (as well as politically impracticable). Although state funding of remedial programs at inactive hazardous waste disposal sites is neither a desirable nor equitable solution to a national problem, until federal funding becomes available, it is the only realistic solution where private liability cannot be established or enforced.

FOOTNOTES*

*References to the hearing transcript are by date and page. The transcript is in five volumes, each individually paginated. These volumes are referred to as 5/1A, 5/1B, 5/2A, 5/2B and 5/3. The Report of the Interagency Task Force on Hazardous Wastes is referred to as the Task Force Report.

SUMMARY OF PROCEEDINGS

1. A detailed description of the Love Canal situation and the activities of the Love Canal Task Force can be found in the testimony of Michael J. Cuddy, Coordinator of the Task Force on 5/3 at 128-131 and in Mr. Cuddy's written submission of May 3, 1979 to the Hearing Officer for incorporation in the record at 1-4. Also, see LOVE CANAL, PUBLIC HEALTH TIME BOMB, A Special Report to the Governor and the Legislature, prepared by DOH's Office of Public Health (September 1978). This publication will hereafter be referred to as TIME BOMB.
2. A copy of the order of the Commissioner of Environmental Conservation, dated November 20, 1978, is annexed hereto as Exhibit 1.

SUMMARY OF TASK FORCE REPORT

3. A copy of the Task Force questionnaire is annexed hereto as Exhibit 3.
4. The definition of hazardous waste used by the Task Force was that set forth in §27-0901(3) of the Environmental Conservation Law (ECL).
5. The Task Force Report at Section II-59 shows that dumping began at the Necco Park site in 1911.

SUMMARY OF THE HEARINGS

6. 5/1A at 23; 5/1A at 133H; 5/2B at 32; 5/2B at 53-57; 5/3 at 35.
7. 5/1A at 23; 5/1A at 128, 129.
8. 5/1A at 68; 5/2A at 61; 5/2B at 62.
9. 5/2A at 87; 5/2B at 89.
10. 5/1A at 30, 33; 5/2B at 39-41.

11. 5/2A at 87.
12. 5/2A at 98; 5/3 at 131, 132, 152; 5/1A at 133L; 5/1A at 34; 5/1B at 43, 44; 5/3 at 325B.
13. 5/2A at 88.
14. 5/1A at 133L; 5/1B at 44.
15. 5/1A at 133L; 5/3 at 39-40; 5/3 at 151, 152.
16. 5/1A at 43-64; 5/1A at 123-127; 5/1B at 28; 5/2A at 93, 94; 5/2B at 20; 5/2B at 33, 34; 5/3 at 42-46.
17. 5/2A at 37-60; 5/2A at 114-130.
18. 5/1A at 72; 5/1B at 20; 5/1B at 28; 5/1B at 43, 44; 5/3 at 268-272.
19. 5/1B at 16; 5/1B at 43, 44; 5/2A at 143; 5/2B at 89.
20. 5/2A at 131, 132.
21. 5/1B at 16; 5/2A at 94; 5/2B at 21; 5/2B at 39-41.
22. 5/2B at 35.
23. 5/2A at 95; 5/2B at 58.
24. 5/1A at 141-143; 5/2B at 21; 5/2B at 58; 5/3 at 278.
25. The Task Force Report at Section V-I.
26. 5/1B at 17, 18; 5/2B at 53; 5/2B at 89-94.
27. 5/2A at 133, 134; 5/3 at 133.
28. 5/1A at 133I, 138.
29. 5/2A at 22; 5/2A at 133; 5/3 at 383.
30. 5/2A at 16, 17, 20; 5/2B at 60, 61.
31. 5/1A at 133K.
32. 5/2A at 96, 104.
33. 5/2A at 96, 107, 108; 5/3 at 280.
34. 5/3 at 185, 393, 399; 5/3 at 425.

35. 5/3 at 184; 5/3 at 376; 5/3 at 394; 5/3 at 425.
36. 5/3 at 392, 393; 5/3 at 411, 412; 5/3 at 424-427.
37. 5/3 at 393.
38. 5/3 at 393; 5/3 at 425.
39. 5/3 at 419.
40. "...[N]either the residents or their representatives were invited to meetings held by state officials during which decisions affecting our future were being decided. We were often told that we were not 'professionals' and that we would disrupt the ability of people to speak freely. These closed-door meetings fostered mistrust...." 5/3 at 177. Also, see, 5/3 at 387.
41. 5/3 at 177; 5/3 at 374, 375; 5/3 at 413.
42. "...[W]hen the Health Department did their survey they threw the questionnaires off at the door. Nobody cared about the survey, twenty-two pages; it was very detailed. Some of the words I didn't understand." 5/3 at 187. Also, see, 5/3 at 373; 5/3 at 386, 387.
43. 5/3 at 416.
44. 5/3 at 374; 5/3 at 416.
45. "We will worry of things such as leukemia, cancer, lung damage, allergies, asthma, liver and kidney disorders, epilepsy, nervous breakdowns, heart problems and genetic problems until our children are grown and then some. That's not a pleasant future of fears to have to face." 5/3 at 416. Also, see, 5/3 at 424.
46. 5/3 at 180, 184; 5/3 at 262.
47. "...[I]f I appear a little bitter, it's because I am a lot bitter. Bitter, because my government, one which is so powerful and great to achieve peace in other countries, help needy people across seas, bring home dead bodies from South America, and so forth, hasn't the time nor money to help its own people...." 5/3 at 420. Also, see, 5/3 at 263; 5/3 at 390; 5/3 at 399; 5/3 at 428.
48. 5/3 at 413-413.
49. "...[M]y three year old talks of death continuously, even in her sleep." 5/3 at 419. Also, see, 5/3 at 398.

50. "What makes a child of two and a half or ten or sixteen any less precious? Surely if it is unsafe for a fetus or two year olds, it is unsafe for any age." 5/3 at 418. Also, see, 5/3 at 398.
51. 5/3 at 404.
52. 5/3 at 414.
53. 5/3 at 421.
54. "In 1976, Calspan was brought in to do a study to follow up the complaints of the residents of the city. Our dear Mayor was given the results of their studies, at which time absolutely nothing was done so far as a resident citizen could see or hear about." 5/3 at 384, 385. Also, see, 5/3 at 193-195; 5/3 at 420.
55. 5/3 at 398, 399; 5/3 at 407; 5/3 at 419, 420.
56. 5/3 at 174, 175; 5/3 at 389; 5/3 at 395; 5/3 at 420.
57. 5/3 at 170; 5/3 at 262.

PART I - IDENTIFICATION AND EVALUATION

Continued Investigation

58. The information obtained from these questionnaires can be found in DEC Technical Report, Industrial Hazardous Waste Generation in New York State, An Inventory (June 1979). This report was prepared under the direction of Charles N. Goddard, Director of DEC's Bureau of Hazardous Wastes, and will be referred to hereinafter as the Goddard Report.
59. DEC Technical Report, Toxic Substances in New York's Environment, An Interim Report (May 1979). This report was prepared under the direction of Thomas Quinn as Director of DEC's Office of Toxic Substances, and hereinafter will be referred to as the Quinn Report.
60. Id. at 5.
61. 5/1A at 92.
62. 5/3 at 71, 72, 89, 90.
63. Task Force Report, Section V-1.

64. Conversation of June 13, 1979 with Peter J. Millock, Assistant Counsel, DEC. Conversations in June 1979 with Paul Keller, Regional Director, DEC Region 3.
65. 5/3 at 151-153.
66. The difficulties posed by such a conflict were pointed out by waste disposal professionals at 5/1A at 145.
67. 5/3 at 39.
68. 5/1A at 133L.
69. Id.
70. A Love Canal homeowner testified, "Our blood tests returned after three long months, thankfully all right." 5/3 at 416. Other homeowners commented similarly on the confusion and delay which accompanied receipt of test results. 5/3 at 374, 375. A state official also indicated the existence of problems. 5/3 at 151-153. In addition, there was testimony indicating that the personnel and equipment needed for taking blood samples were inadequate to handle the large numbers of people involved in this health emergency. One Love Canal resident said, "The first blood testing was taken the 1st of June. I was fourth in line, so I personally didn't have to stand in 90 degree weather four hours to have my test done and finding they ran out of needles when I had gotten to the front..." 5/3 at 386.

Allocation of Responsibility

71. Current estimates of total state costs for remedial action at the Love Canal are over twenty million dollars:

Remedial construction-Northern and Central Zones	\$4,650,000
Temporary relocation	883,000
Permanent relocation, including acquisition of homes in Rings 1 & 2	9,216,000
Health and environmental testing	2,725,000
Human Services Grant	200,000
Standby bus service	550,000
State Aid for property tax relief	1,000,000
Other	800,000
	<hr/>
Total	\$20,024,000

In addition, the City of Niagara Falls has spent approximately five million dollars. The Federal Disaster Assistance Administration has committed two million dollars toward these costs. See, the written submission to the hearing officer of Michael J. Cuddy, Coordinator of the Love Canal Task Force at 5. Richard Tisch, testifying at the hearing in behalf of Eckhardt C. Beck, Regional Administrator of Region II of the United States Environmental Protection Agency, stated that another four million dollars would be forthcoming, in the form of a demonstration grant to DEC. See, 5/1A at 31.

72. 5/3 at 130, 131.
73. A comprehensive discussion of the size, structure and capability of local governments in New York State is in Report of the Temporary State Commission on the Powers of Local Governments, Strengthening Local Government in New York, at 15-27 (March 1973).
74. This fact is often recognized and acknowledged by local officials. See, 5/2B at 60-63.
75. 5/2A at 148.
76. See, "AGREEMENT BETWEEN THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION AND THE COUNTY OF ERIE FOR ENVIRONMENTAL PROGRAMS" covering the period through March 31, 1980. The agreement is on file in DEC Region 9 headquarters.
77. "APPLICATION FOR STATE AID BASED ON ESTIMATED EXPENDITURES FOR ENVIRONMENTAL CONSERVATION PROGRAMS BY COUNTY AND CITY HEALTH DEPARTMENTS" for the year 1979 at 11. This application, concerning Niagara County, is on file in DEC Region 9 headquarters.
78. John Spagnoli, Regional Director of DEC's Region 9, testified that only three people in Region 9 presently devote all of their time to hazardous waste problems. 5/1A at 27. Yet, DEC has compiled information which indicates that more than 44% of the 1.2 million tons of hazardous waste generated in New York is produced in Erie and Niagara Counties, which are served by Region 9. See, the Goddard Report at Section II-1. It would appear desirable to increase the enforcement and supervisory capabilities of each DEC region in direct proportion to the volume of hazardous waste which is generated within its boundaries. Table 11 of the

Goddard Report at Section VII-34 lists the amounts of hazardous waste generated in each DEC region and its corresponding percentage of the state total.

79. These materials were sent by seven North Tonawanda residents to the Task Force for incorporation in the record, and were accompanied by a cover letter dated May 10, 1979. The materials were received in the Office of Counsel of DEC on May 16, 1979 and include copies of correspondence with elected and appointed government officials, as well as newspaper articles.
80. See, note 79, supra. Among the documents submitted is a letter to the Hon. Matthew Murphy dated May 22, 1976 which recounts the Gideon remark.
81. See, note 79, supra. Also included in the documents submitted is a letter dated July 31, 1959 from Eugene F. Seebald, Lockport District Office, New York State Department of Health, which contains the words quoted.
82. There was testimony indicating that as early as 1958 complaints about chemical seepage from the Love Canal were registered with the City of Niagara Falls. See, 5/3 at 194-195. A Love Canal resident noted that even in 1953 the city was aware of a potentially harmful situation. "...[T]hey had to know the severity of the problem when they began building the school and had to stop and vote on moving the school over 60 feet because of noxious fumes and chemicals surfacing and jeopardizing the health of the construction workers.... Complaints on this matter were continually brought to the attention of our city fathers about children burning their hands and feet." 5/3 at 384. There is confusion on this point, however. Michael J. Cuddy, Coordinator of the Love Canal Task Force, testified that problems at the Love Canal were first brought to the attention of local officials in the mid-1970s. See, 5/3 at 128. It appears that Mr. Cuddy's information on this issue may be incomplete.
83. A history of the state's involvement at the Love Canal can be found in TIME BOMB, supra, note 1, at 19.
84. Id.
85. See, testimony of Bruce D. Davis, President of the Industrial Chemicals Group of the Hooker Chemical Co. on 5/3 at 62, 63 72.
86. See, TIME BOMB, note 1, supra, at 6.

Legislation

87. Task Force Report at Section VI-2.

88. Id.

Land Use Records and Regulations

89. Deed from Hooker Electrochemical Co. to the Board of Education of the School District of the City of Niagara Falls, New York, dated April 28, 1953; recorded in the Niagara County Clerk's office on July 6, 1953 in Liber 1106 at 467. The pertinent portion of the caveat reads, "...[T]he premises... have been filled, in whole or in part, to the present grade level thereof, with waste products resulting from the manufacturing of chemicals by the grantor at its plant in the City of Niagara Falls, New York, and the grantee assumes all risk and liability incident to the use thereof. It is, therefore, understood and agreed that, as part of the consideration for this conveyance and as a condition thereof, no claim, suit, action or demand of any nature whatsoever shall ever be made...against...the grantor... for injury to a person or persons, including death resulting therefrom or loss of or damage to property caused by, in connection with or by reason of the presence of said industrial waste."

90. 5/3 at 383.

91. When asked, "Does your zoning law at the present time...adequately restrict further development of residences near hazardous waste sites or wastes sites of any kind?", a representative of the Town of Niagara answered, "No, Sir, at this time I would say it does not." 5/3 at 216. However, a spokesman for the Town of Tonawanda stated that zoning ordinances in his township prohibit residential development near waste disposal facilities. 5/2B at 60, 61.

92. Section II-2 of the Task Force Report lists eighteen municipal sites in Erie and Niagara Counties which have been assigned Priority I or II ratings. Furthermore, information compiled by the Task Force concerning waste haulers indicates that hazardous substances have been disposed of in municipal landfills. Task Force Report Section IV. The Long Island towns of Old Bethpage, Syosset, and Brentwood recently discovered that the Hooker Chemical Corporation had been illegally dumping toxic waste materials in town landfills for several

years. See, Newsday, June 2, 1979, at 3, col. 1, and The New York Times, September 1, 1979, at 21, Col. 5.

93. Present state regulations (6 NYCRR 360) require a fifty foot strip at a landfill site between the waste material and the border of the site. Homes or other structures may be (and often are) built immediately adjacent to the site. The fifty foot setback is, of course, completely inadequate.

The Nature of the Problem

94. Report to the Congress of the United States by the Comptroller General (CED-79-14), at 5 (January 23, 1979). (Hereinafter referred to as the Comptroller General's Report)
95. Waste disposal experts testified that many of the industrial wastes currently being generated present so complex a blend of chemical components that until recently many laboratories have been unable to analyze them, 5/1A at 133A. The Quinn Report, supra, note 59, at 2 indicated that industrial wastes have become increasingly toxic and resistant to natural breakdown.
96. See, the Goddard Report, note 58, supra, at Section II-1, paragraph 7.
97. Pub.L. 92-500, as amended by the Clean Water Act of 1977, Pub.L. 95-217.
98. Pub.L. 91-604, 42 U.S.C. §§7401, et seq., as amended in 1977 by Pub.L. 95-95 and recodified as 42 U.S.C. §§7401-7462.
99. See the discussion of the difficulties attendant to the implementation of the Federal Resource Conservation and Recovery Act of 1976 (RCRA), Pub.L. 94-580, 90 Stat. 2803 and 2815, 42 U.S.C. §§6907(a)(3) and 6944(a), at pp.58-59, infra.
100. A brief account of the development of current hazardous waste disposal practices can be found at 5/1A at 133B, 133C.

Reducing the Volume of Hazardous Waste

101. The Goddard Report, supra, note 58, at Section VI-1. Bruce Davis, President of the Industrial Chemicals Group of the Hooker Chemical, testified that his company is attempting to redesign its chemical processes to produce less waste, but contended that such a solution is not always technically feasible. See, 5/3 at 41.

102. See, 5/1A at 133A.

103. The Goddard Report, supra, note 58, at Section III-1.

104. Id.

Options for Inactive Sites

105. The Task Force Report at V-2 through V-4.

106. Id.

On-Site Containment

107. Id. at V-3.

108. See, 5/1A at 139, 140.

109. See, 5/1B at 19.

110. See, the Quinn Report, note 59, supra, at 13, where confinement of toxic materials is suggested as the best management alternative at sites where contaminants have not yet migrated into valuable resources.

111. "If your head is in a guillotine, the way to avoid having your head chopped off is not to make the ropes holding the guillotine blades more secure, but to remove the blades." Testimony of Richard Lippes, Esq., Counsel for the Love Canal Homeowners Association, 5/2A at 93. Also, see, 5/1 at 75-77; 5/1A at 88; 5/1B at 29; 5/1B at 40; 5/1B at 42, 43; 5/2 at 81,82.

112. For a more detailed description of techniques in use at that site, see, TIME BOMB, note 1, supra, at 19.

113. New York State Department of Health SUPPLEMENTAL ORDER dated February 1979 at 11, paragraph 4.

114. The soil strata underlying the buried wastes at the Love Canal is described in the Findings of Fact section of the New York State Department of Health ORDER issued by Robert P. Whalen, M.D., then Commissioner of Health, on August 2, 1978 at 4, paragraph 14.

115. Task Force Report at V-3.

116. 5/3 at 133, 134.

117. Task Force Report at V-3.

118. To avoid this possibility at the Love Canal, drainage trenches are being dug in the backyards of homes surrounding the site, rather than in the landfill itself. See, TIME BOMB, note 1, supra, at 19.
119. Id. at 21.
120. Task Force Report at V-3.
121. The Quinn Report, supra, note 59, at 14.
122. See, p.43, infra, for estimates on the cost of excavation and reburial at a secure landfill.

On-Site Treatment

123. Task Force Report at V-3.

Excavation and Reburial in Secure Landfills

124. The Quinn Report, supra, note 59, at 16.
125. Michael Cuddy, Coordinator of the Love Canal Task Force, testified, "The search must continue for more effective techniques than inground storage with drainage systems and capping." 5/3 at 133.
126. Bruce Davis, President of the Industrial Chemicals Group of Hooker Chemical, stated that "burial of wastes is not the ideal method of disposal". 5/3 at 41. However, Mr. Davis pointed out that even if incineration technology is developed to its optimum, the need for secure landfill disposal cannot be entirely avoided. 5/3 at 46.
127. C.N. Richardson testified that artificial liners used in the construction of secure landfill sites can be punctured by the dropping of drums and heavy objects and that the supposedly impermeable soils which form the walls and base of a site may have fissures and cracks. See, 5/3 at 351, 352.
128. The need for perpetual maintenance of landburial sites was considered a major drawback to the use of such facilities as more than a temporary depository for toxic wastes. See, 5/2B at 20; 5/2B at 33; 5/3 at 325B, 325C; 5/1B at 49.
129. 5/3 at 352.

130. See, Shen and Tofflemire, DEC Technical Paper No. 59, AIR POLLUTION ASPECTS OF LAND DISPOSAL OF TOXIC WASTE (March 1979) (hereinafter cited as Shen and Tofflemire). Also, see, the Quinn Report, note 59, supra, and the Goddard Report, note 58, supra.
131. Article 27, Title 5 of the ECL authorizes DEC to regulate the design, construction and operation of all landfill facilities and authorizes the promulgation of rules and regulations which are contained in 6 NYCRR 360. Part 360 sets out specific requirements for secure land burial sites and provides for permits only upon a showing that the facility can be constructed and operated according to those requirements. In many cases, public hearings must also be held before a permit can be issued. Title 9 of the Industrial Hazardous Waste Management Act of 1978, which amends Article 27, pertains to hazardous waste management and provides DEC with additional authority to regulate hazardous waste storage, transportation, treatment and disposal.
132. See, 5/1A at 108.
133. A former Newco employee gave a dramatically different account of the company's waste disposal practices. See, 5/3 at 317-320. Also, see, 5/1B at 36, 37 for a further description of Newco's "good engineering practices."
134. See, the Goddard Report, note 58, supra, at VI-4 where the necessary components of the secure landfill are enumerated. One component which is included is a synthetic liner. As is discussed in the text, the long term integrity of such liners is questionable.
135. Much of the information on liners is taken from the Hearing Officer's Report, In the Matter of the Adjudicatory Hearing Re: TOWN OF OYSTER BAY SOLID WASTE MANAGEMENT FACILITY, PLAINVIEW, NEW YORK at 25-32 (November 30, 1977). See, also, testimony of 5/3 at 351, 352.
136. Mr. Wagner of Newco described the ultimate liner as a sandwich consisting of two feet of "supercompact" clay, a polyethylene membrane, and another two feet of "supercompact" clay. See, 5/1A at 112, 113.
137. See, Shen and Tofflemire, note 130, supra, at 1. Much of the information on landfill gases is taken from their report.

138. Id. at 12.
139. The problem is hardly hypothetical. Several examples of such situations have recently come to light. See, e.g., The Palladium Times (Oswego, N.Y.), May 8, 1979 at 1, col. 6; the New York Times Magazine, January 21, 1979 at 23.
140. See, 5/1A at 108; 5/3 at 46; 5/1A at 51. Also, see the Quinn Report, note 59, supra, at 40.
141. The Quinn Report, supra, note 59, at 15.
142. The Goddard Report, supra, note 58, at VI-4.

Excavation and Destruction by Incineration

143. See, p.16, supra.
144. See, 5/3 at 282-309. Also see, 5/3 at 310-317.
145. Id. Unfortunately, adequate protection of this kind was not made available to the two former Hooker workers who testified.
146. See, pp.37-42, supra.
147. 5/1A at 45, 46, 59.
148. 5/1A at 43-64; 5/2A at 37-60; 5/2A at 114-130.
149. Task Force Report at Section V-4.
150. A representative of the Wright-Malta Corp. described his company's gasification equipment and testified that gasification is more efficient than incineration. See, 5/2A at 37-60. Also, see, the testimony of Mr. Andrew Negrón of ANDCO on 5/2A at 114-30.
151. See, note 148, supra, for the testimony of manufacturers and suppliers.
152. 5/1B at 20; 5/1B at 45; 5/2B at 20; 5/2B at 33, 34; 5/3 at 339.
153. 5/1A at 133K.
154. 5/1B at 28; 5/2A at 93, 94.
155. See, 5/1A at 45.
156. The Quinn Report, supra, note 59, at 47.

157. 5/3 at 43, 44.
158. The Quinn Report, supra, note 59, at 45 considers high temperature incineration the most desirable method of toxic waste disposal. The Goddard Report, supra, note 58, at III-2 recommends construction of incineration facilities to destroy all wastes which are highly toxic.
159. A statement made in behalf of the Mayor of the City of Buffalo advocated the construction of rotary kiln incinerators to service the Niagara Frontier. See, 5/2A at 142. Also, see testimony of Michael J. Cuddy, Coordinator of the Love Canal Task Force, on 5/3 at 134 which supports destruction of wastes through high temperature incineration and testimony in behalf of the City of Lockport on 5/3 at 218, 219.
160. The representative of the firm which constructed the Denmark incineration facility placed the cost of that facility at approximately eighteen million dollars. See, 5/1A at 53. Louis Wagner of Newco estimated that the cost of his company's proposed facility would be twelve to twenty-four million dollars. See, 5/1A at 111. Bruce Davis of Hooker Chemical stated that construction costs at a large facility could be as high one hundred million dollars. See, 5/3 at 44, 45.
161. 5/1A at 62.
162. S.6366, A.8269.
163. See, 5/1A at 124; 5/1A at 56.
164. Mr. Thomas Rinker of the Environmental Elements Facilities Corporation, a firm which supplies incineration equipment, stated, "It's difficult right now for someone even who has the capital available, who has the skill to operate one, to move ahead. He simply doesn't know exactly what the regulations are going to be even six months from now...." 5/1A at 62. Louis Wagner of Newco claimed, however, that his company's designs for a rotary kiln incinerator will be complete by July, and Newco intends to proceed with construction as soon as DEC and the EPA approve the plans. See, 5/1A at 123, 124.
165. See, 5/1A at 133F, 133K; 5/1A at 47, 48.
166. See, 5/2A at 93, 94; 5/1B at 29; 5/1B at 43; 5/2B at 34.

167. See, note 149, supra.
168. 5/1A at 50, 51, 63, 64.
169. See, 5/1A at 55; 5/1A at 126, 127.
170. 5/1A at 126, 127.
171. 5/1A at 54, 55, 56, 63, 64.

Remedial Action - The Human Element

172. 5/3 at 420, 421; 5/3 at 414; 5/3 at 264, 265.
173. As of April 2, 1979, \$9,216,000 had been spent to purchase 235 homes and permanently relocate their occupants. See, written submission of Michael J. Cuddy, note 1, supra, at 5.
174. The entire Love Canal neighborhood includes over 700 homes, but only approximately one-third have been found sufficiently contaminated to warrant purchase by the state. See, written submission of Michael J. Cuddy, note 1, supra, at 1.

Remedial Action - The 1979 Legislation

175. See, discussion at pp.25, 26, supra.
176. One might assume that any condition dangerous to life is also per se dangerous to health and that the conjunctive is either unnecessary or should be a disjunctive.
177. See, note 71, supra.
178. Task Force Report at VI-10, VI-11.
179. 47 NY2d 780 (May 10, 1979).

Funding

180. Statement by Environmental Protection Agency Deputy Administrator Barbara Blum at a news conference on hazardous waste enforcement; Denver, Colorado, Monday, April 30, 1979.
181. Reference to the EPA study which developed this figure can be found in the May 4, 1979 memorandum issued by James S. Mattson to all members of the National Advisory Committee on Oceans and Atmosphere. The memorandum discusses the administration's "Ultrafund" bill.

182. The Quinn Report, supra, note 59, at v.
183. Task Force Report at II-2.
184. See, note 71, supra.
185. See, e.g., 5/2B at 70; 5/2B at 73; 5/2B at 98; 5/2B at 103.
186. Toxic Wastes and Tort Act, H.R. 3797 (Introduced April 29, 1979).
187. The Administration's bill is referred to as the "Ultrafund" Bill. It is currently in draft form and is being reviewed by various administrative agencies before being formally introduced. The Bill was drafted by the EPA.
188. As reproduced in the Comptroller General's Report, supra, note 94, at 2.
189. Environmental Defense Fund v. Plehn, No. 78-1715 (D.D.C., filed September 13, 1978); State of Illinois v. Costle, No. 78-1689 (D.D.C. 1978).
190. See, 12 Envir. Rep. (BNA)(ERC) 1597 (D.D.C., Jan. 3, 1979).
191. The Quinn Report, supra, note 59, at vi.
192. ECL §27-1313(3); PHL §1389-b(3).
193. ECL §27-1313(4); PHL §1389-b(4). There are several variations with regard to ownership of inactive hazardous waste disposal sites which could affect "applicable principles of statutory or common law liability." A site may be owned by the waste generator or by a municipal or private disposal agency or firm. A site may be "orphaned" in that the owner cannot be located or is financially unsound. A site may belong to someone unconnected with waste generation or disposal, who acquired the site without knowing of its former use. Finally, a site may be owned by someone unconnected with waste generation or disposal, who acquired the site with notice of its former use.
194. ECL §27-1313(5)(b) and PHL §1389-b(5)(b).

APPENDIX A

STATUTE OF LIMITATIONS

The 1979 legislation (S.6326-A, A.8176-A), which was enacted to provide for remedial action at inactive hazardous waste disposal sites, states that the person (or entity) who shall be responsible for financing remedial programs will be determined "according to applicable principles of statutory or common law liability" (ECL §27-1313(4), PHL 1389-b(4)). The language of the legislation immediately raises the question, what are the applicable principles? Creative legal minds will undoubtedly develop theories of liability based on doctrines such as common law nuisance, trespass and negligence depending on the characteristics of the particular situation. Whatever the merits of such theories, the liability, if any, arising from past disposal of hazardous wastes often will be predetermined by the Statute of Limitations.

This appendix does not pretend to be an exhaustive or complete exploration of the statute or of the various "modifications" which have been carved out of a seemingly simple set of words by judicial interpretation. It seeks only to illustrate that the existing Statute of Limitations, as it may be applied in hazardous waste disposal cases where government seeks reimbursement for clean-up costs or where private parties seek compensation for personal injury or property damage, may pose an obstacle to recovery.

CPLR §203(a) states that "[t]he time within which an action must be commenced...shall be computed from the time the cause of action accrued to the time the claim is interposed." It would appear that a three year statute is applicable in situations where hazardous wastes have caused personal injury or property damage (CPLR §214(4) and (5)). The crucial issue is when the three years begins to run. According to noted CPLR commentator Dean Joseph McLaughlin,

"[t]he term 'cause of action' is perhaps the most plastic concept in the entire common law; and courts often shape it to suit their own predilections with consequent confusion in the law."^A The courts of this state appear to have taken three distinct approaches to the question of when the "cause of action" accrues.

In tort law, the general New York rule, with a few exceptions, is that the cause of action accrues when the wrong is committed, regardless of when the resultant injury is discovered or becomes discoverable. In the 1963 negligence case of Schwartz v. Heyden Newport Chemical Corp.,^B when a chemical injected into the plaintiff's sinuses during World War II was discovered in 1957 to have caused cancer, the Court of Appeals held that the cause of action accrued at the time of injection, despite the plaintiff's inability to know that he had been harmed until the disease manifested itself many years later. The Schwartz decision has been criticized by Dean McLaughlin, who believes that its value should be "questioned in a society where there is often a significant gap between injury and cognizable damage." However, while the Court's strict adherence to the general rule in Schwartz may appear contrary to logic in view of modern scientific knowledge, any hope that the Court would act to modify or limit the rule at a later date was dashed with the May 10, 1979 decision in Thornton v. Roosevelt Hospital.^D

Similar in fact to Schwartz, although based on strict products liability rather than negligence, Thornton presented the Court with an opportunity to align New York with other jurisdictions which have adopted the discovery rule (the cause of action accrues at the time when the injury is discovered or is reasonably discoverable) in situations where there is a considerable time lapse between exposure to a product and ascertainable injury.^E The Court's response was disappointing. "It is well established in this State

that when chemical compounds are injected into a person's body, the injury occurs upon the drug's introduction, not when the alleged deleterious effects of its component chemicals become apparent."^F The Court went on to state, "We decline the invitation to extend judicially the discovery rule to strict products liability actions. Such matter is best reserved for the Legislature, and not the Courts."^G

Alone in his dissent, Judge Jacob D. Fuchsberg pointed out the injustice of barring a cause of action before the prospective plaintiff is in the position to know that a tort has been committed:

Drugs with a latent or slowly evolving potential for harm are no longer unique. The bewildering broad spectrum of such products grows greater all the time. More and more, they compel their users to place blind reliance on the care with which they are designed, tested, fabricated, marketed and administered. Characteristically, the dangers they carry are hidden; as often as not, the earliest indication of harm may not turn up until a point remote in time, the adverse effect meanwhile being unknown and perhaps even nonexistent. Good sense and good law therefore require, it seems to me (and apparently to many courts), that the injured user not be foreclosed from having his day in court before he even has knowledge of the injury and certainly not before any injury has occurred.^H

Judge Fuchsberg's comments on products which, after ingestion, remain latent in the body and reveal their injurious effect at a much later time might well have been directed toward hazardous wastes buried underground. At inactive hazardous waste disposal sites, the wrongful act may take place when the wastes are buried, or it may occur when contaminated substances migrate out of the site into neighboring property, when they are released into the atmosphere, or when they enter the ground or drinking water. In all cases, the injury caused by the toxic materials may not occur or be

detectable for many years, as many of these materials act insidiously and are odorless and tasteless (the effects of radiation exposure are just one example). It is clear that if the general rule which was reaffirmed in Thornton is applied in inactive hazardous waste disposal site cases, both the public and the state may often be time barred from recouping their losses and expenses.

There are, however, exceptions to the general "time of exposure" rule which may provide access to the courts in some hazardous waste controversies. Certain wrongs are considered to be continuing wrongs. In such instances, the Statute of Limitations does not begin to run until the last in a series of tortious acts has been committed. In the realm of medical malpractice, where the patient is under a doctor's care for an extended period, the cause of action accrues not when the physician performs the wrongful act, but when the course of treatment is concluded. Nuisance and certain forms of trespass (particularly where the trespass is hidden) are also considered continuing wrongs. In a 1964 case, 509 Sixth Ave. Corp. v. New York City Transit Authority,^I the Court of Appeals held that a subway constructed beneath the plaintiff's property twenty-one years before discovery of its presence was not a single, permanent trespass, but a continuing trespass and therefore actionable. At inactive sites where injury has been caused by the movement of toxic fumes or leachate onto private property, continuing trespass may be an appropriate legal theory and one which will overcome Statute of Limitations difficulties. At the Love Canal site, for instance, the chemical wastes were buried between 1942 and 1952.^J It is reasonable to assume that the toxic substances did not begin to migrate immediately and that an extended period of time passed before contaminants entered the groundwater and made their way into neighboring homes and yards. This migration of hazardous substances was not, however, a single event, but took place over a number

of years until levels of contamination became so high as to affect human health and render homes uninhabitable. The Love Canal situation, however, may present difficult problems of proof for prospective litigants seeking to circumvent the Statute of Limitations by relying on the continuous harm exception. A plaintiff will have to show that the contaminants were present until three years prior to the initiation of the lawsuit.

Questions of proof aside, the continuing wrong exception to the general rule will not resolve Statute of Limitations difficulties for all victims of inactive hazardous waste disposal sites. A homeowner who has moved away from his contaminated residence and lived elsewhere for a period exceeding three years, will be barred from pursuing his cause of action when he discovers an illness or birth defect stemming from past exposure to toxic substances. Similarly, the homeowner who discontinues use of a contaminated well and discovers after the statutory period has run that the well water has caused serious disease will be without recourse, regardless of the merit of his claim.

The discovery rule, as it had been applied in actions for fraud, was extended by the Court of Appeals in the 1969 case of Flanagan v. Mount Eden General Hospital^K to medical malpractice cases involving foreign substances left in patients' bodies. The rule permits the Statute of Limitations to begin running at the point in time when the plaintiff knew or reasonably could have known about the wrong. Its application would solve the time bar problem in most hazardous waste disposal cases. However, the Court of Appeals' decision in Thornton indicates it is not prepared to further extend the discovery rule to tort actions not involving the foreign object situation. Therefore, the Legislature should amend CPLR §203(a) to provide a discovery rule for causes of action for injury to person or property occurring as a result of hazardous waste disposal.

Since it is ludicrous to require that a suit be brought for injury caused by a wrongful act before the plaintiff knows or can reasonably be aware that he has been injured, the only possible rationale for such a policy is a desire to protect the generator from harm, rather than the injured party. It would appear, particularly in the hazardous waste situation, that public policy would best be served by placing responsibility on the person or entity which introduced the hazardous substances into the human environment, often in the course of profitable endeavor. (The 1979 legislation in fact indicates that such is the state policy.) Such an approach would place the financial burden in most instances on the party best able to bear it, by internalizing the cost, and encourage a higher standard of care in the disposal of hazardous wastes.

FOOTNOTES - STATUTE OF LIMITATIONS
APPENDIX A

- A. McLaughlin, Practice Commentaries, McKinney's CPLR 203:1.
- B. 12 N.Y.2d 212, 237 N.Y.S. 714, 188 N.E.2d 142, modified 12 N.Y.2d 1073, 239 N.Y.S.2d 896, certiorari denied 274 U.S. 808.
- C. McLaughlin, Practice Commentaries, McKinney's CPLR 203:1.
- D. 47 N.Y.2d 780.
- E. See, e.g., Vrie v. Thompson, 337 U.S. 163 (1949); Goodman v. Meade Johnson & Co., 534 F.2d 566 (3d Cir. 1976); Roman v. A.H. Robins, 518 F.2d 970 (5th Cir. 1975); Karjala v. Johns Mansville Prod. Corp., 523 F.2d 135 (8th Cir. 1975); Raymond v. Eli Lilly & Co., 371 A.2d 170 (N. Hamp. 1977); Gilbert v. Jones, 523 S.W.2d 211 (Tenn. 1974).
- F. 47 N.Y.2d at 781.
- G. Id. at 781, 782.
- H. Id. at 783, 784.
- I. 15 N.Y.2d 48, 255 N.Y.S.2d 89, 203 N.E.2d 486.
- J. See, Task Force Report at II-28.
- K. 24 N.Y.2d 427, 301 N.Y.S.2d 23, 248 N.E.2d 871.

STATE OF NEW YORK : COMMISSIONER OF ENVIRONMENTAL CONSERVATION

IN THE MATTER OF an investigation of
industrial waste disposal sites and
practices in Erie and Niagara Counties
pursuant to Environmental Conservation
Law §§3-0301 and 27-0703

ORDER

WHEREAS, past industrial waste disposal practices at the Love Canal in Niagara Falls, Niagara County, New York have been determined to constitute a present threat to the environment and health of the people of this State;

WHEREAS, a substantial portion of the hazardous waste in New York State is and has been generated in Erie and Niagara Counties, the disposal of which at locations in Erie and Niagara Counties may pose a present threat to the environment and health of the people of this State;

WHEREAS, existing New York State and federal regulatory programs are not specifically designed to regulate hazardous waste disposal facilities which are no longer in use; and

WHEREAS, an inter-disciplinary cooperative investigation by the State and Federal agencies responsible for the environment and health of the people of this State should be initiated to determine the location, nature, extent and origins of industrial waste disposed of at facilities no longer in use or not permitted under applicable law in Erie and Niagara Counties, New York.

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NOW, THEREFORE, it is hereby ORDERED pursuant to my powers and responsibilities set forth in Sections 3-0301 and 27-0703 of the New York Environmental Conservation Law, THAT an Interagency Task Force on Hazardous Waste be established in cooperation with the New York State Department of Health and the United States Environmental Protection Agency, to:

Determine the location of all facilities, sites or locations at which hazardous industrial wastes have been disposed of in Erie and Niagara Counties which are not currently in operation and, to the extent possible, the exact identity, generator and transporter (if any) of wastes disposed of at such facilities, sites or locations;

Ascertain, to the extent possible, all information relevant to determining whether any hazardous industrial wastes disposed of at such facilities, sites or locations pose a present or imminent threat to the health or welfare of the people of the State of New York;

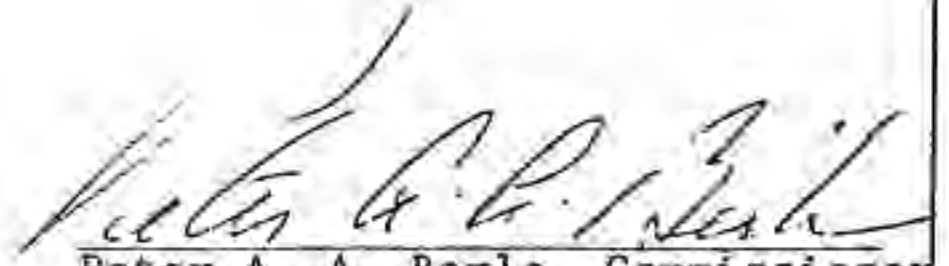
Recommend remedial measures determined to be necessary to prevent injury to public health and/or welfare;

Determine whether and the extent to which persons or entities which have contributed to any hazardous waste problems created by past hazardous waste practices may be liable for the costs of any necessary remedial measures and recommend legal or other action to be taken to ascertain such liability and recover such

costs; and

Present its findings, recommendations and such witnesses as it deems appropriate to the undersigned (through a duly designated representative) at a public hearing.

DATED: Albany, New York
November 20, 1978



Peter A. A. Berle, Commissioner
New York State Department of
Environmental Conservation

MEMBERS OF THE INTERAGENCY TASK FORCE ON HAZARDOUS WASTE

By the New York State Department of Environmental Conservation

Peter J. Millock
John E. Iannotti
John S. Tygert

By the New York State Department of Health:

Peter J. Smith
Frederick A. Muller
Judith S. Schreiber
David A. Dooley

By the United States Environmental Protection Agency:

Richard Tisch, Esq.
George Shanahan, Esq.
William Librizzi

State of New York
 DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Interagency Task Force on Hazardous
 Wastes

Public Hearing Notice

Notice is hereby given that, pursuant to Section 3-0301(2)(h) of the Environmental Conservation Law, the New York State Department of Environmental Conservation and the Interagency Task Force on Hazardous Wastes will hold public hearings at the times and places specified below:

Niagara Falls International Convention Center Greek Theater 305 Fourth Street Niagara Falls, New York	May 1, 1979 1:00 p.m. 7:00 p.m.
Kleinhans Music Hall Livingston Hall Porter & Richmond Streets Buffalo, New York	May 2, 1979 1:00 p.m. 7:00 p.m.
Niagara Falls International Convention Center Greek Theater 305 Fourth Street Niagara Falls, New York	May 3, 1979 10:00 a.m.

The purpose of the public hearing is to hear the views of all persons, corporations or civil divisions of the State of New York who appear with respect to the following subjects:

1. The Draft Report of the Interagency Task Force on Hazardous Wastes;
2. Hazardous waste disposal practices in Erie and Niagara Counties, New York;
3. Remedial actions that should be taken with respect to inactive hazardous waste disposal sites in Erie and Niagara Counties;
4. State and federal legislation that should be enacted concerning inactive hazardous waste disposal sites; and
5. The roles of private industry and federal, state and local governments in efforts to deal with inactive hazardous waste disposal sites.

The Interagency Task Force on Hazardous Wastes was created by the New York State Commissioner of Environmental Conservation in August 1978 to help provide detailed information on the extent of the hazardous waste disposal practices in Erie and Niagara Counties. Specifically, the Interagency Task Force was charged with the responsibility for determining the source, nature and location of hazardous waste disposed of in the two counties and for recommending necessary remedial, legal and legislative actions concerning such sites. The Interagency Task Force is composed of representatives of the Department of Environmental Conservation, the

(over)

New York State Department of Health and the Region II office of the United States Environmental Protection Agency. The Draft Report of the Interagency Task Force is a compilation of the information gathered by and recommendations of the Task Force.

An opportunity to be heard regarding the above five subjects will be given the public at the hearings. Persons need only attend one of the hearing sessions. Each hearing session will continue until all persons wishing to be heard have been heard. Written statements received prior to or at the hearing sessions and oral statements presented at the hearing sessions will be considered part of the official record. In the interest of saving time, it is requested that statements be submitted in writing.

Persons presenting statements at the public hearing will not be asked to testify under oath but may be asked questions by the Hearing Officer and/or by members of the Interagency Task Force.

Copies of the Draft Report on Hazardous Waste Disposal in Erie and Niagara Counties, New York, are available for inspection at the Region 9 Headquarters of the Department of Environmental Conservation, 584 Delaware Avenue, Buffalo, New York, and the Department of Environmental Conservation's Headquarters, 50 Wolf Road, Albany, New York. A copy of the Draft Report may be obtained by writing to: Interagency Task Force on Hazardous Wastes, Room 608, 50 Wolf Road, Albany, New York 12233.

The record of the hearing will remain open until May 16, 1979, for the receipt of additional statements. All statements should be submitted to INTERAGENCY TASK FORCE ON HAZARDOUS WASTES, Room 608, 50 WOLF ROAD, ALBANY, NEW YORK 12233.

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Edwin L. Vopelak
Chief Hearing Officer

Dated: April 3, 1979
Albany, New York

(Newspapers in which public hearing notice was published.)

1. Buffalo Courier-Express
787 Main Street
Buffalo, New York 14240
2. Buffalo News
One News Plaza
Buffalo, New York 14240
3. Niagara Falls Gazette
310 Niagara Street
Niagara Falls, New York 14302
4. Lockport Union-Sun and Journal
459-491 South Transit Street
Lockport, New York 14094
5. Tonawanda News
435 River Road
North Tonawanda, New York 14120

REVISED

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SENATE STANDING COMMITTEE ON CONSERVATION AND RECREATION

ASSEMBLY STANDING COMMITTEE ON ENVIRONMENTAL CONSERVATION

SENATE SUBCOMMITTEE ON TOXIC SUBSTANCES & CHEMICAL WASTE

ASSEMBLY ENVIRONMENTAL CONSERVATION COMMITTEE TASK FORCE ON TOXIC SUBSTANCES

NOTICE OF PUBLIC HEARING

The New York State Senate Standing Committee on Conservation and Recreation, Assembly Standing Committee on Environmental Conservation, Senate Subcommittee on Toxic Substances and Chemical Waste and the Assembly Environmental Conservation Committee Task Force on Toxic Substances will jointly sponsor a series of statewide public hearings on the status of hazardous waste dump sites and toxic substance regulation in New York State.

The proliferation of chemical waste in New York State's environment has imperiled the public health and threatened our natural resources. The discovery of dangerous levels of PCB's in the Hudson River, Mirex in Lake Ontario and the identification of the Love Canal chemical dump site are symptomatic of a larger statewide problem. The Committees are holding these hearings to determine the magnitude and severity of the problem and to guide the legislature in formulating the proper governmental action.

Senator Fred Eckert, Assemblyman Maurice D. Hinchey, Senator John B. Daly and Assemblyman Alexander B. Grannis, respective chairmen of the Committees announced that the hearings will be held in the following locations:

NIAGARA FALLS

MAY 3, 1979 (rescheduled from April 5)
Niagara Falls International Convention Ctr.
Greek Theater
305 Fourth Street
10:00 A.M.

SYRACUSE

APRIL 27, 1979
(rescheduled from April 6)
State University of N.Y.
College of Environmental
Science & Forestry
Marshal Hall
Marshal Auditorium
2:00 P.M.

NOTE: (Niagara Falls Hearing): Joint Hearing with Department of Environmental Conservation Interagency Task Force on Hazardous Waste.

ALBANY

APRIL 26, 1979
Legislative Office Bldg.
Hamilton Room (Hearing Room B)
2nd Floor, 22 Market Street
10:00 A.M.

POUGHKEEPSIE

MAY 10, 1979
Dutchess Co. Office Bldg.
Legislative Chambers
22 Market Street
10:00 A.M.

MINEOLA

MAY 11, 1979
County Executive Building
Board of Supervisors Meeting Room
5th Floor, 11th Floor
1 West Street
10:00 A.M.

NEW YORK CITY

MAY 17, 1979
State Office Building
Assembly Hearing Room
11th Floor
270 Broadway
10:00 A.M.

In order to facilitate their task the Committees respectively request witnesses to address the following issues in their testimony:

- Adequacy of present local, state and federal government response to hazardous waste emergencies;
- The identification and classification of hazardous waste dump sites;
- Liability and cost of clean-up of hazardous waste dump-sites (i.e. who should pay?);
- Available technology and proven methods to handle hazardous waste (i.e. what alternatives are there to capping hazardous waste sites, is this a satisfactory solution?);

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- Methods of funding clean-up and reclamation of hazardous waste dump sites (i.e. should a tax or fee be imposed on generator's of hazardous waste?);
- Expansion of powers of the State Commissioners of Health and Environmental Conservation to deal with hazardous waste situations;
- Long-term strategy for dealing hazardous waste dump sites as they are discovered in the future;
- What can be done to prevent future occurrences such as Love Canal.

HEARING REPLY FORM

Persons wishing to present testimony at any of the public hearings are requested to complete this reply form as soon as possible and mail it to:

Weslie Hope Rosen
Assembly Task Force Coordinator
c/o Assemblyman Alexander Grannis
Legislative Office Bldg., Rm. 417
Albany, New York 12248
Phone: (518) 472-3033

*NOTE: The members of the Committees will visit hazardous waste dump sites in Niagara and Oswego on the dates of the respective hearings.

Please check appropriate blanks and return this form as soon as possible prior to the scheduled hearing. Complete information is essential so that persons may be notified in event of emergency postponement or cancellation.

I plan to attend the following hearing on Hazardous Wastes and Toxic Substances to be conducted on:

May 3, 1979 (rescheduled from April 5)
Niagara Falls

April 27, 1979
Syracuse
(rescheduled from April 6)

April 26, 1979
Albany

May 10, 1979
Poughkeepsie

May 11, 1979
Mineola

May 17, 1979
New York City

I plan to make a public statement at the hearing. My statement will be limited to 10 minutes, and I will answer any questions which may arise. I will provide 15 copies of my prepared statement.

NAME: _____

ORGANIZATION: _____

ADDRESS: _____

TELEPHONE: _____

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 INTERAGENCY TASK FORCE ON HAZARDOUS WASTES
 P.O. Box 561
 Niagara Falls, New York 14302
 (716) 285-3057

I. General Information

1. Company Name _____

Mailing Address _____
 Street City State Zip

Present Plant Location Same as Above

Street City State Zip

2. If Subsidiary or Division, Name of Parent Company _____

3. Person Responsible for Present Plant Operations _____

Name _____

Title Telephone _____

4. Person Answering this Questionnaire _____

Name _____

Title Telephone _____

II. Company History

1. Date Company Founded _____

Date and State of Incorporation _____

Date Company Began Operations in Erie or Niagara County _____

2. Other Company Names since 1930 (specify time periods) _____

3. Other Plant Locations in Erie or Niagara County since 1930 (specify locations and time periods) _____

4. Names of Companies Acquired which have Operated Plants in Erie or Niagara County since 1930 (specify name of company, date of acquisition, location of plant, and periods of operation). _____

5. Identify all Treatment or Disposal Sites in Erie or Niagara County used since 1930 (use separate sheet for each site).

a. Name of Site _____

b. Location _____

c. Owner or Operator _____

d. Time Period Site was Used _____

e. Describe Waste Types Treated or Disposed at this Site	Physical State	Total Quantity	Type of Container, if Any
(1) _____	_____	_____	_____
(2) _____	_____	_____	_____
(3) _____	_____	_____	_____
(4) _____	_____	_____	_____
(5) _____	_____	_____	_____

f. Wastes Were land disposed incinerated reclaimed
 treated other (specify) _____

g. Names of waste haulers including your company transporting such wastes to this site, if a disposal site.

Name _____ Telephone _____

Street _____ City _____ State _____

Time Periods such Hauler Transported to this Site _____

Name _____ Telephone _____

Street _____ City _____ State _____

Time Periods such Hauler Transported to this Site _____

h. List Names and Addresses of other Companies using this Site, if a disposal site.

Name of Company _____

Street _____ City _____ State _____

Time Periods such Other Company Used this Site _____

V. Sources of Information

Please indicate the sources of all information set forth in response to Questions IV. 4 and IV. 5 above. (Specify names of individuals and sources).

