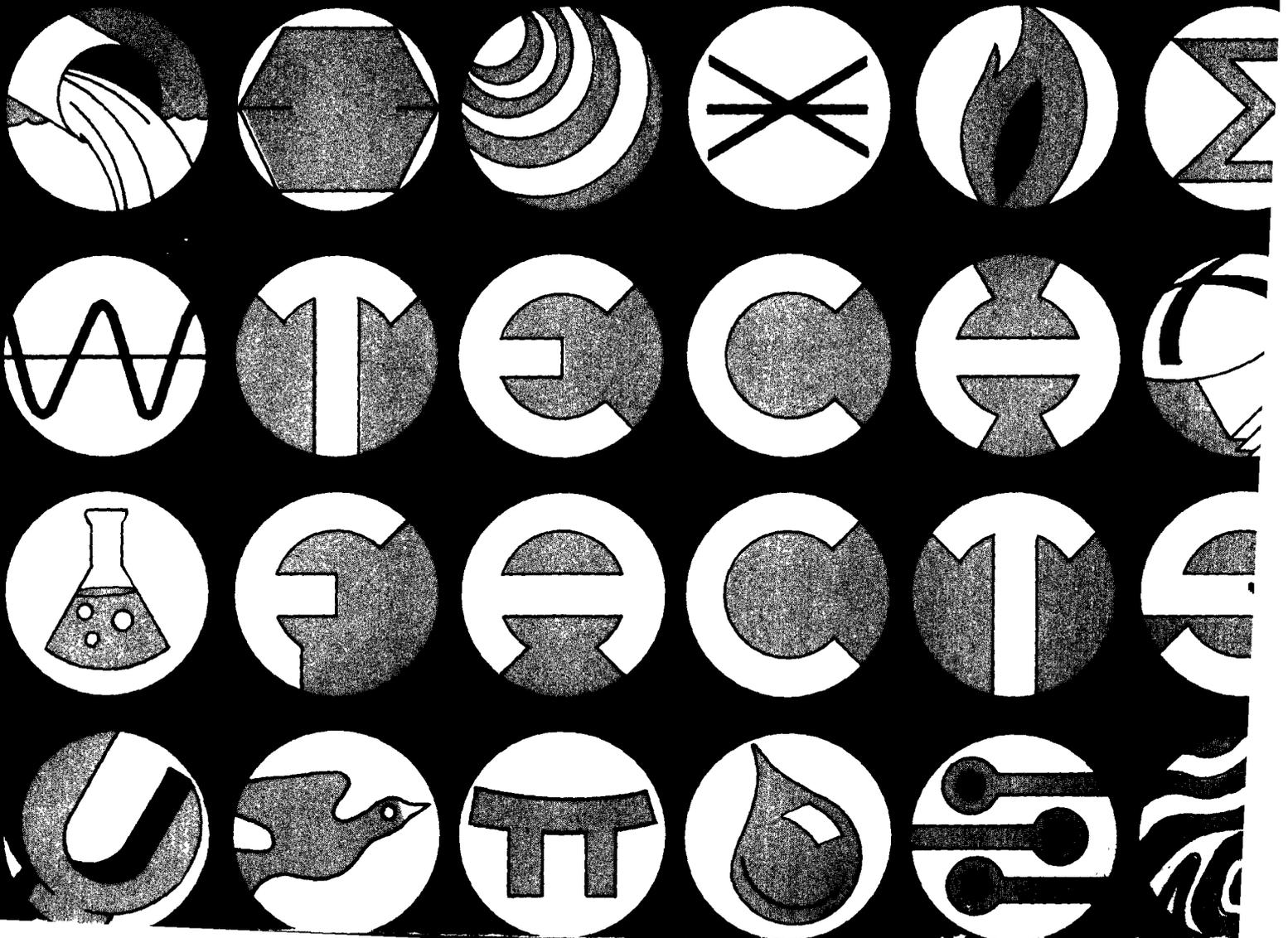


Solid Waste



Siting of Hazardous Waste Management Facilities and Public Opposition



ENSCO Case Study Update

1. The test burn of PCBs (referenced on page 285, paragraph 2 and line 9 to insure the effective and safe destruction of these wastes by the ENSCO facility was conducted in October of 1979. The results of the tests indicated a satisfactory destruction of the PCB wastes.

2. The following is a clarification of the ENSCO corporate structure:

In April of 1974 Graco Properties, Inc. leased the property on which the facility is now located. Graco Properties then changed its name to GRACO. The owner of GRACO was issued stock in Pollution Control, Inc. in exchange for the Graco Properties stock. In the summer of 1977 Pollution Control, Inc. replaced the name GRACO with ENSCO. The corporate management of ENSCO and its parent organization Pollution Control, Inc. is staffed by native residents of Arkansas.

3. In reference to the accidental spill discussed on page 284, paragraph 1, and line 2: Pollution Control, Inc. (PCI) suffered an addidental spill while transporting a chemical waste to the EL Lorado facility from Missouri. Based on what GRACO had been told and what was in previous loads, no immediate alarm was sounded over the spill. However, the load had been mislabeled by the customer and a fishkill resulted when the spill took place.

SITING OF HAZARDOUS WASTE MANAGEMENT
FACILITIES AND PUBLIC OPPOSITION

Final Report

This report (SW-809) was prepared under
contract for the Office of Solid Waste

U.S. ENVIRONMENTAL PROTECTION AGENCY
1979

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This report was prepared by Centaur Associates, Inc., Washington, D.C., under contract number 68-01-5012.

Publication does not signify that the contents reflect the views and policies of the U.S. Environmental Protection Agency but are solely the responsibility of the contractor. It is also noted that inclusion of specific sites or facilities does not represent endorsement by either the contractor or U.S. Environmental Protection Agency of those establishments or the technologies employed. Mention of commercial products does not constitute endorsement by the U.S. Government.

An environmental protection publication (SW-809) in the solid waste management series.

ACKNOWLEDGEMENTS

Each siting attempt or operating facility described in this project was included with the approval of the appropriate facility sponsor or operator. Thus special thanks are due to the industry and public agency officials responsible for these siting attempts or facilities who agreed to participate in this project. Scores of state and federal regulators, state and local elected and appointed officials, representatives of local organizations and private citizens provided valuable information for the case studies, and their cooperation is particularly appreciated.

In addition, a large number of EPA regional, state regulatory, and industry officials were contacted in the process of identifying and selecting a sample of cases. These officials provided a significant amount of general information and insights into siting and more general hazardous waste problems.

Clark-McGlennon Associates assisted in the development of the framework for collecting data and played a particularly useful role in outlining issues to be addressed and considered.

Finally, the helpful assistance of the EPA project office is gratefully acknowledged.

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EXECUTIVE SUMMARY

The major conclusion of this study is that public opposition to the siting of hazardous waste management facilities, particularly landfills, is a critical problem. It is the most critical problem in developing new facilities, in the opinion of most government and industry officials interviewed for this project. Once a facility is sited, problems with public opposition are not over. Local communities can and have forced operating facilities to close.

Opposition is rooted in fears of major and long-term risks posed by facilities to the health and welfare of the surrounding community. It reflects a loss of faith by local residents in the ability of government and private industry to solve environmental problems and at the same time to consider and protect local interests.

If problems with public opposition cannot be solved, the implications may be enormous. The implementation of RCRA will lead to the closing of facilities now receiving hazardous waste and to much greater demand for proper disposal sites. Recent efforts to clean up abandoned sites, including the superfund proposal, will produce even more hazardous waste that must be disposed of properly. If public opposition continues to frustrate siting attempts, there may be no place to put all this hazardous waste, and the national effort to regulate hazardous waste may collapse.

The sensitivity of the problem was demonstrated early in this project. It was decided that each site visit would be made only with the approval of industry and key regulatory officials. While over 80 sites appeared to be suitable for the study, only 21 sites were visited. Many industry and some regulatory officials thought interviews with opponents would only increase opposition to sites and that participating in this project presented risks to sites and did not offer corresponding benefits. They thought public opposition needed to be studied, but were opposed, sometimes strongly, to having facilities they operated or regulated studied. These officials preferred to "let sleeping dogs lie."

Public opposition involves a wide range of people, often amassing considerable resources. Those who have raised concerns or voiced opposition in cases studied for this project have included grandmothers and U.S. Congressmen, factory workers and university scientists, those who never graduated from high school and those with doctorates in ecology and physical sciences. What unites these people is their concern and opposition to facilities in their communities. Opponents have sometimes shown remarkable skill in political organizing (sometimes drawing on the public opposition experiences of the anti-Viet Nam war movement) and have often acquired technical expertise to support their positions.

The controversies surrounding particular sites or facilities have reached levels of stridency impossible to convey in reports such as this

one. In one case studied, an angry mob was prepared to blow up a facility, but was convinced not to. There were two reports, impossible to confirm, of threats of death or physical harm to key individuals or their families. In one case the threat was reportedly made to a facility sponsor, in the other to a local official who opposed a facility.

Based on the experience studied for this project, public opposition often arises as soon as the community learns of a proposed facility. Excluding hazardous waste generator-owned facilities, the facility sponsor is either unknown to the local community or, if known, may be associated with problems at other facilities. The community envisions few benefits from the proposed facility -- a few jobs and perhaps some tax revenues. Risks are often seen as overwhelming -- a "Love Canal" in their community, polluted water supplies threatening the entire community, decades of uncertainty, hundreds of trucks carrying thousands of drums of hazardous waste on local roads. The industries that produce these wastes may be hundreds of miles away. Because local communities perceive the risks to be great, they demand that the probability of something going wrong be low or, more often, non-existent.

The facility sponsors are often surprised by the vehemence of public concern and opposition. Their technical studies present arcane data to show that the proposed facility meets all regulations. Yet opponents are often able to hire experts who can refute the facility's sponsors claims. As opposition continues, the facility sponsor may offer to change the proposal to suit the community. From the community's perspective, these offers are too little, too late. Opponents question the fairness of having their town bear such a large share of the environmental costs of modern industry. Facility sponsors rarely, if ever, address this question of equity. (Throughout this process the community talks in terms of risks and fears, the facility sponsor in terms of regulations and technology. The terms of one are often not understood by the other.)

The state regulatory agency often is caught in the middle. The agency seeks to protect the environment by encouraging proper disposal facilities. Opponents may accuse the agency of destroying the environment and endangering the public health by granting the facility sponsor a permit. If the agency preempts local controls, it may further incur the wrath of a community that feels powerless to control its own development. Thus state regulatory officials are subjected to the same suspicion and hostility as the facility sponsors.

Should present approaches to siting facilities continue, the data of this project indicate that the prospects for successful sitings in most regions of the country are dubious at best, and grim at worst. National publicity concerning abandoned sites has made citizens and local officials increasingly aware of hazardous waste problems. They are also likely to be increasingly aware of actions taken by others to stop sitings. Opposition will, in all likelihood, become more widespread

and sophisticated. Even if not ultimately successful, opponents may increasingly turn to the courts and delay sitings for months or years with costly law suits.

Overcoming this opposition will require diligence and imagination. States will have to play the lead role in siting. States must be perceived as the arbiters in the siting process. They must strike a delicate balance between the need to protect the public health through environmentally sound disposal, and the economic viability of industry. Industry must be sensitive to and anticipate the broad range of public concerns. Unless circumstances change dramatically, EPA has no direct role in siting. EPA, however, should support continued research to develop hazardous waste management technologies to be used by states and industry and develop guidance to the states on the management and regulation of facilities. EPA should also join with the states to provide more public information. That information must demonstrate that there are positive solutions to what has unquestionably been defined by EPA, the media and others, as a major environmental problem.

I. PROJECT OVERVIEW

Project Purpose

The purpose of this project was to provide insights into those factors which give rise to public opposition to the siting and operation of hazardous waste management facilities, and to identify the actions taken to try to reduce or to overcome that opposition. The project was to address cases where no opposition occurred, where opposition was overcome, and where opposition led to either an abandoned siting attempt or the closing of a facility.

Methodology

Because no centralized data existed on public opposition to siting attempts or operating facilities, it was necessary to identify a sample of cases suitable for the project. Specifically, 30 cases conforming to the following range of situations were to be studied.

- Situation 1. No public opposition; new facility successfully sited; six cases.
- Situation 2. Public opposition; facility siting attempt successful; six cases.
- Situation 3. Public opposition; facility siting attempt unsuccessful; six cases.
- Situation 4. Public opposition; operating facility continues to operate; four cases.
- Situation 5. Public opposition; operating facility forced to cease operations; four cases.
- Situation 6. Public opposition to planned or actual expansion of a facility; four cases.

In addition to the conditions specified by the situations, individual cases were identified according to the following criteria -- disposal method, ownership, location by EPA Region, wastes handled, urban versus rural location, and adjacent land use. The use of these criteria was based on the assumptions that the criteria were linked to public opposition and that with more detailed initial descriptions a sample which allowed for diversity within situations and comparability between situations could be identified.

Data used to identify a sample were gathered through telephone interviews of EPA regional office staffs, state regulators, and (in a few instances) local regulatory officials. All EPA regional offices and 39 state regulatory agencies were contacted and eventually 90 cases were identified that could be tentatively classified by the six situations.

After identifying potential cases, a sample of 30 cases and six alternate cases were selected. (The alternates were to be used, if needed, to replace recommended cases.) Several factors influenced the selection of this sample: the desire to have a sample that was diverse yet which allowed for analysis of comparable facilities in different situations; the desire to have a sample that reflected national patterns, (for example, regional distributions as reflected in earlier facility inventories); and the recommendations of EPA regional office and state regulatory agency staffs familiar with local controversies.

The final step in determining which cases were to be studied was the acquisition of approval from key parties. It was originally decided that no site visit would be conducted without the approval of the facility sponsor.¹ This approval was made with the understanding that those involved in the opposition to particular facilities would be interviewed. Facility sponsors were often reluctant to grant needed approvals. Some were vehemently opposed to the very idea of the project. One facility sponsor threatened to sue both EPA and Centaur if his facility was included in the sample. Another suggested that if a site visit was conducted the local sheriff should accompany Centaur staff to his facility. Without doubt this proved to be the most difficult problem in developing a final sample.

This problem has substantially affected the overall project and is illustrative of the sensitivity of the public opposition issue and of hazardous waste problems in general. In practice five approvals -- from the facility sponsor, EPA headquarters, EPA regions, state regulatory agencies, and Centaur -- had to be obtained before a case was included in the sample. For one-third of those identified cases, facility sponsors declined to participate in the project. For another one-quarter of the cases it was determined that because of substantial regulatory violations or ongoing state investigations of possible violations, those cases should be excluded. Pending permit reviews and other factors led regulators to disapproval of additional cases. Primarily because of case approval problems, the final sample was reduced to 21 cases, Situation 6 cases were eliminated, and a report on the New England Regional Commission's hazardous waste program was prepared.

The final sample, then, is necessarily skewed. This has overall implications for the project. Of the largest national waste service companies, only one (SCA Services, Inc.) is represented in the sample. Thus there is probably an underrepresentation of problems that may be associated with larger companies that operate and/or are attempting to site several facilities. It is also possible that more controversial

¹ For the sake of clarity, "facility" is used to refer to hazardous waste management facility and "sponsor" refers to a company or agency that has sponsored a siting attempt or is operating a facility.

sitings or facilities were excluded. If this is true then this report underestimates the extent of public opposition. Conversely, some actions that have been effective in reducing opposition may not have been identified. A large number of cases where opposition had dissipated were excluded, because facility sponsors feared that opposition might resurface if local leaders were interviewed by Centaur. In spite of these possibilities, there is every evidence that the final sample is representative of current problems. Factors that gave rise to opposition and the issues raised by opponents tended to be common to most cases. Furthermore, actions in response to public opposition showed many similarities between cases.

Interviews and reports, newspaper articles and other secondary sources were used to prepare case studies. Local officials and representatives of local civic and special interest groups provided most information on public concerns and opposition issues. In some cases where no opposition arose it was necessary to restrict interviews to selected local officials in order to gain the facility sponsor's agreement to participate in the project.

Report Organization

The report is composed of six sections and three appendices. Section II presents background information on the 21 cases. Sections III and IV discuss public response and attempts to secure support, respectively. Findings and conclusions are delineated in Section V, and in Section VI the implications of these data on the future siting of hazardous waste management facilities are discussed.

In Appendix A are the 21 case studies. For a more complete understanding of siting problems, the reader is encouraged to refer to these case studies. Each case study provides background information on the specific site, facility, and local community. The history of facility development and public response is presented chronologically. Based on those data the attempts to secure support are identified and analyzed, the major issues are summarized, and the factors leading to public support and/or acceptance are listed. Finally, various views of those interviewed are presented, including retrospective views of the particular case and more general views on hazardous waste management problems. While the focus of these latter views varies widely, they are included because they have been generated by the specific case history and they elucidate what are perceived to be major problems related to siting facilities and solving hazardous waste problems. Appendix B is a report on the New England Regional Commission's hazardous waste program. This was included in the project to illustrate new governmental approaches to siting. Appendix C presents, for states in the sample, basic data on state regulatory agencies and programs and regulatory officials' views on siting and governmental involvement in siting.

II. BACKGROUND INFORMATION

Various data were collected for each proposed or operating facility studied. These data are presented in a table at the end of this section. The location of each case studied is shown in the accompanying map.

The sample of cases studied was national in scope and included facilities using four distinct technologies -- land disposal, treatment, incineration, and deep well injection. The sample was intended to be representative, not random. As indicated below, the locational distribution is generally not inconsistent with the national distribution of operating facilities. The clear exceptions are an underrepresentation in the sample of EPA Region V, which data indicate has the largest number of facilities, and an overrepresentation in EPA Regions VI and VII. In terms of the technologies used at or proposed for facilities in the sample, the sample is heavily weighted in favor of land disposal and underrepresents treatment and incineration technologies. Each of those technologies is represented in the sample as shown in the table on the following page.

Locational Distribution of Sample and
National Distributions of Facilities
(in percent)

<u>EPA Region</u>	<u>Snell Report</u> ¹	<u>Straus Report</u> ²	<u>Centaur Sample</u>
I	6%	4%	5%
II	16	14	19
III	8	10	5
IV	6	4	0
V	25	31	14
VI	9	11	19
VII	7	10	14
VIII	1	0	0
IX	17	12	14
X	5	4	10

¹ Foster D. Snell, Inc., "Potential for Capacity Creation in the Hazardous Waste Management Service Industry," National Technical Information Service, August, 1976.

² Matthew A. Straus, "Hazardous Waste Management Facilities in the United States--1977," U.S. Environmental Protection Agency, January, 1977.

Technologies Utilized in Sample and
in Operating Facilities¹
(in percent)

<u>Technology</u>	<u>Straus Report²</u>	<u>Centaur Sample</u>
Land disposal ³	53%	86%
Treatment/processing	58	19
Incineration	28	5
Injection well	5	5
Other ⁴	4	0

When generator-owned facilities are excluded, only one facility in the sample does not intend to accept a broad range of hazardous wastes. For most facilities it was easier to define wastes not accepted (e.g., no facility studied accepted radioactive waste) than to define the wastes a given facility would accept. For the general public the most significant wastes that a facility can accept are what have been termed "political wastes" such as PCBs, 2,4,5T, Kepone and Dioxin. These are wastes that have achieved public notoriety and some facility sponsors have indicated they will not accept such waste solely because of that notoriety.

The cases in the sample are located in a full range of settings from urban industrial areas to remote underdeveloped areas. A similar diversity is shown in site size and site life. Landfills ranged in size from five to 260 acres and from one to 60 years in projected life.

Market areas for facilities (excluding those designed to serve a specific waste generator) also showed wide diversity in geographic size and were related to facility ownership. The smallest market areas were composed of the waste generators in one urban area. All facilities with local markets were publicly owned. Conversely, all multi-state market areas are associated with private commercial facilities. Some of those interviewed for this study explained that to be economically feasible a commercial facility must serve a multi-state area. In addition, the

¹ Because one facility may encompass more than one technology (e.g., landfill and incineration) columns add to more than 100 percent.

² Straus, see previous table.

³ Includes landfills, landfarms, lagoons and pits.

⁴ Includes ocean disposal and storage.

size of the market area for a substantial number of commercial facilities appears to indicate two things. One is that the commercial service industry is becoming increasingly centralized. The other is that a permitted operating facility fills a dire need for such facilities and can expect to receive a large volume of business from generators hundreds and even thousands of miles away.

Background Information on Cases Studied

<u>Case</u>	<u>Situation</u>	<u>EPA Region</u>	<u>Facility Type</u>	<u>Wastes Accepted</u>	<u>Location</u>	<u>Adjacent Land Use</u>	<u>Site Size (Acres)</u>	<u>Site Life (Years)</u>	<u>Ownership</u>	<u>Market Area</u>
Monsanto Bridgeport, NJ	1	II	Landfill	Generator's Wastes Only	Rural	Industrial	6	5	Private, Generator	N.A. ¹
Frontier Chemical Waste Processors Niagara Falls, NY	1	II	Treatment	Broad Range Liquids Only	Urban	Industrial	8	N.A. ²	Private, Commercial	Multi- State
Gulf Coast Waste Disposal Authority Texas City, TX	1	VI	Landfill Landfarm	Broad Range	Urban	Industrial	200	30	Public	Local
Chemical Processors Tulsa, OK	1	VI	Injection Well	Broad Range Liquids Only	Urban	Industrial	4	500+	Private, Commercial	Multi- State
BSWD Sturbridge, MA	2	I	Landfill	Selected Range	Suburban	Residential Undeveloped	105	6+	Public	State
3M/Chenolite Cottage Grove, MN	2	V	Landfill	Generator's Wastes Only	Suburban	Industrial	5	1	Private, Generator	N.A. ¹
KIES Furley, KS	2	VII	Landfill Treatment	Broad Range	Rural	Agricultural	80	18	Private, Commercial	Multi- State
Bob's Home Service Wright City, MO	2	VII	Landfill	Broad Range	Rural	Residential	15	5-10	Private, Commercial	Multi- State
WES CON Bruneau, ID	2	X	Landfill	Broad Range	Rural	Undeveloped	20	10	Private, Commercial	Multi- State
SCA/Earthline Bordentown, NJ	3	II	Landfill	Broad Range	Urban	School	5	1-2	Private, Commercial	State
Allied Chemical Rossville, MD	3	III	Landfill	Generator's Wastes Only	Urban	Industrial Residential	38	12	Private, Generator	N.A. ¹
MPCA/EPA State of Minnesota	3	V	Landfill Treatment	Broad Range	Suburban & Rural	Varied	260	5	Public	State
Starr Industrial Starr County, TX	3	VI	Landfill	Broad Range	Rural	Agricultural	40	3-4	Private, Commercial	State
IES Kirkeville, MO	3	VII	Landfill	Broad Range	Rural	Agricultural	192	18-20	Private, Commercial	Multi- State
IT Corp. Oil Well, CA	3	IX	Landfill	Broad Range	Rural	Agricultural	160	40-60	Private, Commercial	State
Padre Juan Ventura, CA	3	IX	Landfill	Broad Range Less Hazardous ³	Suburban	Agricultural Residential	28-135	1-254	Public	Local
SCA Chemical Wastes Services Model City, NY	4	II	Landfill Treatment	Broad Range	Suburban	Industrial Undeveloped	200	20-25	Private, Commercial	Multi- State
ENSCO El Dorado, AR	4	VI	Incinerator	Broad Range	Urban	Industrial	45	N.A. ⁴	Private, Commercial	Multi- State
Calabasas Los Angeles, CA	4	IX	Landfill	Broad Range Less Hazardous ³	Suburban	Residential Undeveloped	260	3-40	Public	Local
SCA/Earthline Wilsonville, IL	5	V	Landfill	Broad Range	Rural	Residential Agricultural	130	20	Private, Commercial	Multi- State
Resource Recovery Corp. Pasco, WA	5	X	Landfill	Broad Range	Rural	Agricultural	250	50	Private, Commercial	Multi- State

¹ Because this facility is owned by and serves only the generator, market area does not apply.

² Facility treats hazardous waste and theoretically has an infinite life.

³ Facility is a Class I Landfill (a designation used in California). While Class I landfills can accept all hazardous waste, this facility restricts wastes to those of a less hazardous nature.

⁴ Facility is an incinerator and theoretically has an infinite life.

Location of Cases Studied



III. PUBLIC RESPONSE

The siting and/or operation of nearly all the hazardous waste management facilities visited has given rise to at least some public concern or opposition.¹ Only a few received some support from the public, tacit or otherwise, and in most cases this public support was due to actions taken by the sponsor. These actions and their results are described below in Section III, "Attempts to Secure Support". Only if this support was due to pre-existing conditions or coincidental but unrelated events is it described in this section. Therefore this section is primarily concerned with opposition to facilities.

Factors Which Have Given Rise to Public Opposition

Public opposition to the siting/operation of hazardous waste management facilities is so widespread that it might be thought to be unavoidable. To what extent this might be true, it is also clear from the case studies that the extent and ultimately the effectiveness of public opposition is influenced by identifiable factors. These factors include actions taken (or not taken) by the sponsor, pre-existing conditions, and coincidental but unrelated events. To the extent that these factors are beyond the control of the facility sponsor they might be thought of as expected risks. It must be noted that few if any of these factors are necessarily important for all sites, and that in each situation the sponsor will have to face a different set of problems.

Public relations -- Actions taken or not taken by the sponsor which give rise to public opposition center around public relations. One factor in particular which has been blamed for the demise of a number of sites and potential sites is the failure to inform local residents and elected officials of development plans, so that they are presented with a fait accompli in terms of site location and facility plans. Another is informing the local public of these plans in such a way that the lack of local input is readily apparent. An egregious example of this sort of approach is found in the Minnesota case study. Local residents were not informed of the siting process until the number of potential sites had been reduced to four, and then only by the local press. The ensuing uproar has been cited as the major reason for the failure of this siting attempt. Early discussions of disposal problems and plans with local elected officials has on the other hand led to public support (3M).²

¹ The only site which faced no discernible public concern or opposition was Gulf Coast Waste Disposal Authority in Texas City, Texas.

² Case studies named parenthetically throughout this and following sections illustrate the points raised. However, examples can usually be found in other case studies. For more detailed information, refer to the cited case study(ies) in Appendix A.

A public relations campaign which stresses primarily the danger associated with hazardous wastes (Minnesota) can also lead to public opposition, as can unfortunate statements by employees of the sponsor. In one case (SCA/Wilsonville), the site owner was quoted in the local press as saying that although they were not at that time disposing of nerve gas, they could if they wanted to. A positive public relations effort can, conversely, lead to public support or at least vitiate public opposition (3M). However, such an effort can backfire if it is based on untruths. The Wilsonville facility was first announced as a mine reclamation/resource recovery center, and the local public felt betrayed when they found it was actually a hazardous waste landfill.

On the other hand, in certain circumstances a low-profile approach, with no public relations or public information effort, has worked very well. Both Chemical Resources and Gulf Coast, whose sites were located in heavy industrial areas, adopted this strategy.

Public information -- Another related factor is technical or other information supplied to the public by outside parties, some of whom may be opposed to the site or who wish to conceal its existence (Padre Juan). This problem can be exacerbated if the sponsor fails to provide the public and local elected officials with available information which is favorable to the site (IT Corp.). Equally, there may be difficulties if the sponsor is unable to respond satisfactorily to public concerns (Allied).

Technical studies supporting proposed or extant sites and facilities can contribute to public support if they are produced by a neutral body recognized by the public as such, for example, a local technical official (Monsanto) or state or federal regulatory agencies (Ensco). Conversely, such third party reports can fail to have any effect on opposition (SCA/Model City).

Credibility of sponsors and regulatory agencies -- The credibility of the sponsor is a major factor in the forming of public attitudes toward the site. Credibility is a function of public perceptions of the past history of the facility sponsors. If the developer is perceived to have a questionable history, and especially if this involves the operation of similar sites, then the public is unlikely to accept his assurances that this particular operation will be properly conducted. Ensco's previous problems with its Shakopee, Minnesota facility accounted for the opposition to its operation in Arkansas. SCA Services has faced credibility problems since its Wilsonville facility was shut down by the courts. On the other hand, a firm such as Monsanto, well known and respected in the local community, was able to make use of this good will in gaining public support for a facility. Evidence that the sponsor is willing to negotiate in good faith with the community to allay local concerns can have the same effect (Monsanto, BSWD).

Credibility is also a function of the successes of previous siting attempts. If other communities have been unwilling to accept the facility, this will not be perceived as a recommendation for it. The Ventura Regional County Sanitation District's attempt to site a facility in Padre Juan Canyon was defeated due, among other things, to the failure of previous attempts to site the facility elsewhere on account of adamant public opposition. State regulatory agencies' perceived lack of credibility may also have a similar result (SCA/Model City). Agency credibility can, however, have the opposite effect (BSWD).

National publicity given hazardous waste -- The timing of national publicity given hazardous waste in general and sites such as Love Canal in particular is an important coincidental but unrelated factor behind public opposition to facilities. It can be an influential factor in setting the tone of public response. Although this was specifically mentioned as a factor behind public opposition at only two sites (SCA/Model City, IES), it seems very likely that the increasing public awareness of the hazards associated with hazardous waste -- a factor underlying a large part of public opposition -- is due to this publicity.

Political wastes -- Another factor which has often given rise to opposition to a particular facility is the acceptance of "political wastes" (EnSCO, Resource Recovery Corp., SCA/Wilsonville). "Political wastes" are substances such as PCBs and Kepone which have achieved particular notoriety in the public mind, generally due to publicity in the national media.

Public attitudes -- Local public attitudes toward hazardous waste vary considerably across the country. For instance, the population in the vicinity of the Wes-Con facility in Idaho has a history of public trust in government. They have also taken the position that one should be able to do what one wants on one's own land.

Facility operations -- Especially if a facility is already operating, potential or actual operational problems may give rise to concern. These problems include odors (KIES), fires (SCA/Model City), and spills and subsequent damage to flora and fauna (Resource Recovery Corp.). If the site itself is perceived as being obviously unsuited for hazardous waste disposal, such as Padre Juan Canyon overlooking the Pacific, this may also be a factor behind public opposition.

Local political organization -- One pre-existing condition of particular importance is the political sophistication of the population in the vicinity of the proposed or operating site. If the area has a history of political activism (Allied) or previous experience opposing a facility siting attempt (SCA/Bordentown), then it is likely that organized opposition to the siting attempt will appear that much sooner. As discussed below, the organization of liaison committees by the sponsor has sometimes had the same effect (BSWD).

Issues And Concerns Raised During The Course Of Opposition

After public opposition to a hazardous management facility has arisen, certain issues and concerns are often seized upon in an attempt to stop either the siting or the continued operation of the facility in question. These issues may reflect public concern and thus are often the result of the public education that often accompanies opposition. Alternatively, however, they may be chosen solely on the basis of their potential usefulness in stopping the facility siting or operation. Some of the issues described below tend to overlap with factors described in the previous subsection. Indeed, many factors that give rise to opposition become issues that sustain opposition and are focal points of debate during opposition. On a general level, the distinction between factors and issues cannot always be clearly drawn. In specific cases, however, it is usually possible to identify those conditions or events that have sparked and galvanized opposition (defined for this report as factors) and those arguments and concerns that are used by opponents to support their position (defined for this report as issues). These issues fall into several groups or categories, described below.

Site and facility characteristics -- Issues which have been raised include particular aspects of site suitability, such as soil permeability (SCA/Wilsonville) and seismic stability (Padre Juan); problems associated with site operations, such as odors or fires, and the existence of contingency plans (IT Corp.); the possibility of environmental pollution, especially groundwater contamination (3M); more appropriate or higher uses for the site (Starr); and provisions for long-term maintenance (SCA/Model City).

Siting process -- There were also concerns with the siting process itself, including the possibility that other, superior sites had not been considered (BSWD) and that subjective siting criteria were used (Minnesota). The lack of substantive public input in the siting process has been mentioned as an issue in many cases (KIES, Minnesota), as has inadequate public information and the failure to notify the public of either the process or of their potential role in it (SCA/Wilsonville).

Sponsor and regulatory agency credibility -- If the credibility of the sponsor does not initially give rise to public opposition, it is often raised subsequently during the course of public debate (IES, SCA/Bordentown, Ensco).

Transportation -- Possible problems associated with the transportation of hazardous wastes to the facility have often been cited, including the possibility of waste spills (Chemical Resources) and damage to highways and property caused by heavy trucks (Calabasas).

Wastes to be disposed of at the proposed facility -- The types of wastes to be accepted at the facility are also likely to be a matter of public concern. This includes "political wastes", which, as noted above, are often a factor in the rise of public opposition, and if not, will almost invariably be raised as an issue during the opposition (Wes-

Con). However, hazardous waste in general is also of concern. This has been blamed on the national publicity accorded Love Canal and other cases of improper disposal of hazardous waste.

Local residents also seem to perceive that their community's image will suffer if it becomes known as a "dumping ground" for such wastes (SCA/Model City). Furthermore, in some cases the possibility has been raised that the community will then be unable to keep out other such facilities if one is permitted (3M).

Local publics have often questioned whether there is really a need for a hazardous waste management facility at all in their region (Minnesota). This belief, which is generally incorrect from any sort of objective point of view, can sometimes be traced to public misinformation on the extent of the hazardous waste disposal problem. More typically, this is believed because local industries do not themselves produce large amounts of hazardous wastes or because the public is under the impression that alternative technologies, such as resource recovery, could be relied upon to perform the same function (Padre Juan).

In addition, if hazardous wastes to be disposed of are not locally generated, the public often manifests opposition to the disposal of wastes from other areas, especially if the wastes are from out of state (Resource Recovery Corp., SCA/Wilsonville). Residents of rural areas have expressed opposition to accepting wastes generated by urban industries (Minnesota, Starr). Their objections are based on the likelihood that they would be bearing risks associated with these wastes while others receive the benefits.

Effect of the facility on the surrounding area -- Another category of issues raised concerns the area surrounding the proposed or operating site. These include the contention that the area is too populated (KIES), that property values will suffer (Allied, SCA/ Wilsonville), or that the aesthetics of and quality of life in the area would be adversely impacted (Calabasas).

Economic issues -- Another major category of issues involves economic concerns -- economic disbenefits or lack of economic benefits. In the case of government-owned sites, the issue of loss of property taxes has been raised (Minnesota). Hazardous waste facilities generally provide few if any jobs for the local community, although in isolated cases jobs reportedly were promised (Starr, SCA/Wilsonville). Actual or expected losses to local agriculture supposedly attributable to facility operations can become an issue in rural areas (Resource Recovery Corp.). Finally, the lack of compensation for the nuisances and risks which are perceived to accompany such facilities may be a concern (Minnesota). In other cases, a direct tie between the proposed facility and jobs can give rise to local public support (Monsanto, 3M), although if these jobs are not located in the immediate area the effect is considerably less significant (Allied).

Local control -- Local control of land use (Allied, IT Corp.) and hazardous waste management (IES) has occasionally been raised as an issue.

Site-specific issues -- In addition, site-specific issues have also been raised by those opposed to a particular site or facility. For example, the impact of a facility on Shell Oil Company's oil and gas producing operations also located on the site was an issue in the IT Corporation case.

Tactics Used by Facility Opponents

The most common tactics used by local residents and elected officials in opposing hazardous waste management facilities are testimony at public hearings, initiating or threatening to initiate lawsuits against the facility sponsor to have the site closed, and hiring outside experts to testify or develop a technical case against the facility.

The effectiveness of the public hearing as an opposition technique usually depends upon the ability of the public or of local officials to use hearings as a vehicle for demonstrating the extent of their political influence. Technical experts hired by opponents have at best been able to stalemate the situation. Most lawsuits initiated by opponents to date have been unsuccessful in the courts, but have been moderately successful as a delaying tactic. They have also added substantially to the sponsor's cost. Other more or less prevalent tactics include letters to the media and regulatory agencies (SCA/Model City), editorials in the local media (Ensco), and petitions (IES).

Local elected officials have almost always been involved in the opposition, either of their own accord or in response to pressure from local residents. In addition to taking part in the above-mentioned activities, such officials have also passed resolutions against the facility (IES, SCA/Bordentown), promulgated a local ban on the acceptance of PCBs (Ensco), ordered a facility to close down (Resource Recovery Corp.), and -- supposedly to resolve a drainage problem -- have had a ditch dug across the entrance to a facility (Wilsonville). Local officials have considerably more power to influence the course of events in states where permits from local (including county) jurisdictions are required to site and/or operate a facility (e.g., California). In these cases, officials can deny a permit or impose stringent conditions before one is issued (3M).

In only one case (Gulf Coast Waste Disposal Authority) did a local elected official take active steps to support a siting attempt. This official acted to benefit a local industry which formed the economic basis of the community. This official acted in the absence of any public response, either for or against the siting attempt.

Ad hoc groups are also quite frequently found to have been involved in opposition to a given facility. Besides organizing the opposition and originating or participating in some of the actions previously mentioned, ad hoc groups have sponsored public debates on facility siting between themselves and the sponsor (SCA/Bordentown).

The final category of opposition tactics reported includes civil disobedience (SCA/Wilsonville) and other actions which violate the law. Threats of violence have been made, both against the facility itself (SCA/Wilsonville) and against state personnel sent out to prospective sites (Minnesota).

IV. ATTEMPTS TO SECURE SUPPORT

In the cases studied for this project diverse responses have been made to the concerns and issues raised by the public. While the ideal goal of these responses is to secure support for the given site and/or facility, the practical goal in almost every case is much more modest. At a minimum it is generally hoped that concern and opposition can be reduced to a manageable level (defined as that level which does not block siting or close the facility). This minimal level is generally not exceeded. In a minority of cases, responses to public issues and concerns were able to elicit a significant level of public acceptance.

Attempts to respond to public concerns and opposition can be subdivided into two groups. One includes efforts to secure support or reduce opposition to specific sites and/or hazardous waste management facilities. The other includes efforts to secure support for hazardous waste regulatory programs and procedures. Support for regulatory programs and procedures in most cases leads directly or indirectly to support for specific sites and/or facilities. In this section, the actors who make these attempts, the tactics they use, and the issues raised in support of facilities are discussed.

Actors Involved in Public Support

Seemingly everyone agrees that hazardous waste disposal is a major problem that must be solved. However, when a specific solution (i.e., facility) is proposed the consensus collapses. Based on the experiences studied during this project, the facility sponsor usually has the active support of few if any parties. Those who have actively supported facility sponsors are described below.

Private facility sponsors -- The majority (15 of 21) of planned or operating facilities surveyed in this project were initiated by private industry. For obvious reasons these private facility sponsors were the most active parties in soliciting support for their own facilities. Of these private facilities, 12 were commercial facilities and three were on-site facilities owned by and for the exclusive use of hazardous waste generators. For the commercial facilities, the primary motive for development was profit. For captive facilities, the motives for development included solving the generator's own disposal problems, reducing costs by not using commercial facilities, and responding to state and/or federal regulations.

Government planning and management agencies -- In six of the cases studied, government agencies were to be the owners and/or operators of the facility. Three of these were state agencies and three were county or multi-county agencies. These agencies played the same role as private facility sponsors. However, these governmental agencies were significantly more susceptible and sensitive to political pressures and were significantly more responsive to the concerns of the public.

Governmental agencies became involved in hazardous waste management primarily in response to the need of generators within their jurisdictional bounds. Their involvement was an extension of their roles as providers of environmental services and was not perceived as a revenue-generating activity.

The one major exception to this general description was the case of the Minnesota Pollution Control Agency (MPCA), which sponsored an EPA-funded facility siting attempt. Unlike the other governmental facility sponsors, MPCA is also responsible for regulating hazardous waste management. Thus MPCA was the only governmental agency which could have been in the position of regulating its own facility.

State regulatory agencies -- In theory, state regulatory agencies are neutral parties in siting attempts. In practice, these agencies often are perceived by the public to be proponents of specific sites and/or facilities. When public knowledge of siting occurs only after substantial review by state agencies (e.g., KIES, Monsanto), agencies may have already decided to issue the required permit. By defending their permit review (i.e., trying to secure support for hazardous waste regulatory procedures), these agencies are either directly or indirectly acting as proponents and attempting to overcome opposition to the proposed facilities.

Once a facility becomes operational, the regulatory agency position becomes more clearly one of supporting or seeking support for the facilities. The regulator's goal becomes that of ensuring that the facility operator continues to operate within permit conditions. When operational problems arise, regulators are often in the position of working with operators to seek solutions while opponents demand facility closure (SCA/Model City, Resource Recovery Corp.).

Hazardous waste generators -- In only one case studied in this project (SCA/Wilsonville) did generators take active steps to generate support for a commercial facility. As the primary beneficiaries of disposal facilities, generators have a clear self-interest in their development and operation. They are thus conspicuous by their absence as facility proponents.

Tactics to Secure Support

The actors described above have used a wide variety of tactics to gain support or to reduce opposition. Most tactics have been employed by facility sponsors and have had mixed results. The most significant tactics follow.

Presentations at public meetings and hearings -- With rare exceptions, public meetings or hearings were held during each of siting attempts studied, either as a standard procedure in the state permit application review or in response to public concern and opposition.

Thus presentations at these meetings by facility sponsors and state regulators were the most common attempt to explain or to defend the facility and the application and thereby directly or indirectly to reduce opposition. In addition to presentations, comments and questions from those in attendance were made at these meetings. It should be noted that these public meetings and hearings provided for only the most limited substantive discussion and primarily served as forums for expounding positions for or against proposed or operating facilities.

Discussions between regulators, facility sponsors and local leaders -- These meetings were the second most frequently used tactic to communicate with key individuals at the local level. Because these meetings usually involved smaller numbers of individuals they were significantly more likely to generate substantive discussions between facility opponents, regulators and proponents than were public meetings.

Public relations campaigns -- In a minority of cases facility sponsors developed public relations campaigns to provide additional information to local communities. In one case (Minnesota) this information stressed the negative aspects of improper disposal while in most cases (3M, SCA/Model City, EnSCO) the ability of the facility sponsor to dispose of waste in a safe manner and the economic value of hazardous waste generators or of materials recycled and reclaimed at the facilities was stressed. Most such campaigns were surprisingly ineffective. In cases where information on types of waste to be accepted and the use of land disposal technology was downplayed (SCA/Wilsonville), the campaigns were later seen by opponents as outright deceit. Effectiveness appears to be based on an ability to discuss hazardous waste management positively and to capitalize on the credibility of the facility sponsor's past history, and the facility's potential economic contribution to the community (3M).

Debates with opponents -- In two instances (IES, SCA/Bordentown), facility sponsors debated opponents during siting attempts to try to provide more information to the public and to refute the claims of opponents. These particular debates were either unable to sway opponents or added to opposition by raising issues involving still more potential risks or unanswerable questions.

Siting strategies -- Several strategies were used either to avoid or to preempt public opposition. Most facility sponsors avoided publicity at least in the earliest stages of land acquisition and application preparation. The most extreme low-profile approach (Gulf Coast Waste Disposal Authority) eschewed involving the general public throughout the siting attempt. Similarly, a few sites in industrial areas (Gulf Coast Waste Disposal Authority, Frontier Chemical Waste Processors, Chemical Resources) or at existing landfills (SCA/Bordentown) were consciously chosen on the assumption that these sites were more acceptable to the public. When the public is unaware of a siting attempt, they are unlikely to oppose it. Except for the cases cited immediately above,

the general public eventually learned of the siting attempt. The choice of sites in industrial areas in most cases appeared to avoid or reduce opposition. The choice of other types of sites--at existing landfills or in remote areas--did not in general avoid the public opposition.

Involving government in siting -- Several facility sponsors (Gulf Coast Waste Disposal Authority, IT Corp.) sought to involve local government directly in developing proposals. These actions were designed to respond to local concerns and to enlist local support. Similarly, a number of facility sponsors (KIES, Bob's Home Service) worked in close cooperation with state regulatory agencies for generally the same purpose. A related action taken by a regulatory agency was having local elected officials review and approve a permit (SCA/Model City). This tactic was often successful in gaining the additional support of the state agencies or local officials, but rarely had an effect on public opposition.

Amending proposals/operations -- In a significant minority of cases proposals or operations were amended to address public concerns. Specific examples include revising siting criteria (Minnesota), changing access to facilities (Padre Juan), reducing hours of operation (Allied), upgrading operations to reduce odors (KIES), and generally cleaning up sites (SCA/Model City). In almost every case these efforts failed to reduce opposition because they were seen as too little and too late by the public. Indeed, most revisions were made only after sustained opposition had developed.

Direct incentives to local communities -- Various inducements have been discussed or offered during siting attempts -- amenities such as developing parks (Allied) or providing fire equipment (Wes-Con) and financial compensation to host communities (BSWD, SCA/Bordentown, SCA/Wilsonville). Similarly, facility operators have paid local costs involved in monitoring activities (SCA/Model City, 3M). For the same reasons that revisions to proposals were not always well received, these incentives were sometimes ineffective.

Exceptional regulatory actions -- Regulatory agencies have taken some exceptional actions to demonstrate their credibility and to assuage opposition. These include publicizing the restrictiveness of permits (KIES), and promises by U.S. EPA to take action if regulations are violated (SCA/Model City). When agencies followed through on their promises of tough regulation (KIES), public concern was reduced. When they did not follow through or when the public felt they did not (SCA/Model City), opposition intensified because government was seen as contributing to the local community's problem.

Establishing or utilizing local task forces -- Public facility sponsors have in two instances (Padre Juan, BSWD) set up special task forces to serve as contacts between local communities and facility sponsors during siting processes. For operating facilities, one state regulator (SCA/Model City) has helped to form such a group to try to reduce

communications problems. Similarly, one facility operator (Monsanto) has worked with an existing local environmental commission to address local complaints, most of which related to odors. In cases of operating facilities these task forces appear to be helpful in reducing public concerns and/or demonstrating a willingness on the part of regulators or facility operators to address concerns. When established during the siting process, task forces have helped to improve communications but have also served to organize local opposition.

Use of technical experts -- In addition to using consultants in the preparation of permit applications, facility sponsors (SCA/Model City, Allied) have also used technical experts to buttress their proposals and to refute claims of opponents. Opponents, however, have not normally been persuaded by such technical arguments and can usually find experts with the opposite view.

Enlist support of hazardous waste generators -- Facility sponsors have sought to gain the active support of those industries that would use their facilities both during siting (Minnesota, IT Corp.) and after operations began (Earthline). Generators have not been eager to defend or to publicly support siting attempts. When they have, they have not tried to address the local community directly.

Appeal to governor -- In one case (Allied), a facility sponsor appealed to the state governor to intervene on its behalf in a siting controversy. The governor's support was won, but opposition continued.

Legal tactics -- In one case (Bob's Home Service) a facility sponsor entered into an out-of-court settlement to reach a compromise with a facility opponent which effectively reduced that opponent's concerns.

Good neighbor policy -- Several facility operators have taken a wide variety of steps designed to demonstrate a willingness to help the local community. Some of these steps include free disposal service for selected groups (Wes-Con, Bob's Home Service), contributions to local civic and charitable organizations (Wes-Con, SCA/Model City), the preferential use of local businesses for goods and services (KIES), the opening of the facility for tours (Wes-Con, SCA/Model City). This is only a partial list. Some facility operators have shown substantial imagination in demonstrating their desire to be "good neighbors." The effectiveness of these efforts is dependent on the level of controversy surrounding a facility. When there are major substantive unresolved issues, they overshadow these public relations efforts. When issues are largely resolved, these efforts can significantly improve the operator's standing in the community.

Issues Raised in Support of Facilities

While facility proponents have used numerous tactics to gain public support, they have raised only a few major issues in support of facilities. These issues necessarily focus on the need as opposed

to the desirability of facilities and the reduction of risk as opposed to the possibility of benefit.

Need for hazardous waste disposal facilities -- The primary issue raised by facility proponents has been the need for safe disposal sites. Hazardous waste generators who sponsor facilities (Allied, Monsanto, 3M) have been the most vocal in expressing their needs for their specific sites and in linking their needs directly to the industrial facilities they operate. Commercial and public facility sponsors have also argued the need for sites; however, they are necessarily less able to link this need to specific local industries. State regulators have also consistently raised the issue of the need for disposal sites. Regulators generally focus on the needs of the jurisdiction they serve (i.e., state, region, nation) and the need for the jurisdiction to be responsible for its own disposal problems.

Viability of specific sites or technologies -- Facility sponsors have often gone to great lengths to substantiate the viability of their sites. Most efforts focused on the impermeability of soils and the protection of water supplies. These arguments are also directly tied to land disposal technology. Where treatment and processing technologies are to be employed, the environmental safety and desirability of these technologies have been stressed. Occasionally, the economic benefits from reclaiming or recycling material have also been presented.

Economic and other benefits -- Hazardous waste generators who sponsor facilities have argued that without disposal options their industrial plants might close and thus jobs in local communities would be lost. This same argument has not been uniformly made by other facility sponsors primarily because links between generators' jobs and local communities are more tenuous or non-existent. Some commercial facility sponsors (Starr, SCA/Model City, SCA/Wilsonville) have argued that the facility itself will provide jobs to the local community.

In two cases (SCA/Model City, Frontier) the development of facilities was considered a boost to an area's industry base either by expanding or diversifying it. (It should be noted that one of these facilities is a treatment facility; the other was generally perceived by the public as a treatment facility.) The fact that industries that produce hazardous waste provide all of us with benefits and that disposal facilities are the necessary consequence of those benefits has occasionally been raised by facility proponents.

Illegal and improper disposal -- Various facility proponents have contrasted proposed or operating disposal facilities with "midnight dumping." These proponents argue that facilities such as those surveyed for this study are not only the necessary alternative to dumping but are essential if such dumping is to be eliminated.

V. FINDINGS AND CONCLUSIONS

Introduction/General Conclusions¹

The promulgation of hazardous waste management regulations under RCRA is imminent. It is anticipated that these regulations will exacerbate the problem of hazardous waste disposal site availability both because they will dramatically increase the demand for proper disposal sites and because they will result in the closing of a number of marginal sites. This problem may well be compounded, since facility sponsors are finding it increasingly difficult to site and operate hazardous waste management facilities. The principal reason for this is increased public opposition. This increase in public opposition can in turn be traced to the national publicity given environmental problems, particularly to the hazardous waste problem. This publicity has focused almost exclusively on the disastrous results of improper management of hazardous wastes. The public is thereby unable or unwilling to distinguish between patently improper sites for hazardous waste disposal such as Love Canal, and properly managed disposal sites.

Understanding the problem in this case does not suggest an answer. It is unlikely, even if it were possible, that countervailing publicity alone would succeed in reassuring the public. It is obvious that public opposition is a difficult problem to solve and one that will become more so in the future, especially as efforts are made to identify and correct the problems of abandoned sites.

The case studies suggest that certain actions or situations will certainly give rise to public opposition. For instance, if a facility sponsor has a bad previous history as a facility operator, or if he decides to dispose of what are locally perceived as political wastes, he will almost invariably face intense public opposition. However, there is no corresponding certain or simple solution to the problem of public opposition to facilities, either to avoid public opposition or to mitigate it once it has arisen. Below are indicated, based on the findings of the case studies, partial solutions to the problem in terms of what should and should not be done during siting and operation. As has frequently been stated elsewhere in this report, no single action or set of actions could be recommended for all siting situations.

Public Opposition During Siting

The problems faced by a facility sponsor during a siting attempt are somewhat different from those faced during operation. An obvious

¹ Conclusions with regard to government roles are addressed below in Section VI.

example of this difference is the likelihood that perceived operational problems such as spills or the lack of them will probably be the principal determinant of whether the site faces public opposition once operations have begun. In addition, a different set of problems is faced by commercial sites than by generator-owned sites. On-site facilities in particular are less likely to face credibility problems because the generator is known and respected, and they carry a built-in economic rationale because of the jobs the generator provides. Based on the case study findings, overcoming public opposition requires taking specific actions or negotiating certain conditions and thereby convincing the community that:

- Complete information is available about the operation of the site and proposed waste streams,
- The public and local officials will be substantively involved in the siting process,
- The operator is a person or organization of lasting integrity,
- The risks of catastrophic or insidious dangers are slight,
- There are significant benefits to the local area to offset the risks,
- The site and its operation are not in conflict with other enterprises or existing activities in the area, nor are there any better and more feasible higher land uses for the site,
- The government has sufficient resources and expertise to judge independently the merits of site design and operation,
- There are sufficient government regulations and resources to guarantee safe operations,
- There are sufficient resources and government regulations to ensure that the facility will be properly maintained after closure, and
- The technical merits of the selected site and facility are unquestioned.

All of these conditions have not been met in any of the cases studied. It is much more likely that only a minority are met in the average siting attempt.

Probably the most important single factor in addressing public opposition to siting is coordination and communication with the public and local officials. This includes informing the public and

local officials of the siting attempt and the nature of the proposed facility before a final decision is made on a specific site. It also includes responding to local concerns, in particular those about possible hazards associated with the facility.

In the case of commercial facilities, industries which will use the facility are potentially a very significant public by virtue of their economic and political influence. For whatever reason, in these case studies they are conspicuous by their absence as facility proponents.

Under certain circumstances, such as when the site is in a heavy industrial area and not in the public view, a low-profile approach may be warranted. There is at least some evidence that opposition will not arise in these cases, so that there is no need to alert the public and thereby create a potential for opposition.

The question of operator credibility will probably have been settled for better or worse if the operator is a generator planning an on-site facility or has operated hazardous waste facilities elsewhere. Otherwise, little can be done to convince the local public of the operator's credibility other than to conduct the siting attempt in an open and receptive manner.

It is also unlikely that the public can be convinced that the dangers of a hazardous waste facility are slight, given national publicity on the subject.

Furthermore, hazardous waste management facilities are often perceived as bringing with them economic disbenefits, and do not, except for on-site facilities, necessarily provide local economic benefits. However, providing such benefits for purely public relations reasons has often mitigated public opposition, although this is not always perceived as sufficient compensation for the risks and nuisances which are expected to accompany such a facility. Examples of such benefits include the payment of a tipping fee to the local government and providing jobs and/or services to the local population.

Sites which do not conflict with surrounding land uses include those located in clearly defined industrial areas and those in truly isolated areas. However, many sites which appear to facility sponsors to be remote or not in conflict with adjacent land uses are not perceived in the same way by local residents. Most of the sites visited which were located in rural areas faced opposition for this very reason. The four sites visited which faced little or no opposition were all located in industrial areas. Other sites in industrial areas did face opposition, however because local residents perceived more favorable uses for the land.

Local reaction to the siting attempt will to some degree depend on the local perception of the state regulatory agency and the attitude the agency takes. Although state regulatory officials are ostensibly neutral during the siting process, in several cases studied in this

project state officials were active proponents of the siting attempt. Active support for siting attempts is not at all inconsistent with stringent regulation. On the contrary, in some cases testimony by state officials that the proposed facility has been subject to a stringent review process was quite successful in mitigating public opposition. However, if the credibility of the state regulatory agency is questioned by the public, its support may compromise the project.

Currently, hazardous waste management site and facility regulations vary from state to state. However, it is anticipated that many of these differences will be eliminated when RCRA establishes minimum regulatory requirements. Local perceptions of the way these regulations are enforced will likely continue to differ. In states which now give local government a significant role in permitting sites, this too is not likely to change. While the perception of substantial local control over hazardous waste facilities will ease public opposition, based on this issue in particular, such control is likely to be exercised to veto any proposed facilities. Siting a new facility in such areas may well be considerably more difficult.

The focus of this study has been on perceived technical viability of sites as opposed to any objective attempt to determine that viability. Experience has shown, however, that in cases where facilities face sustained public opposition, the local public almost without fail has been able to seize upon technical faults in the proposal and to use them either before the state regulatory agency or in the courts to defeat the siting attempt. While technical perfection is obviously an unattainable goal, egregious technical faults have been and are likely to be the basis of successful opposition to siting attempts, particularly if the credibility of a state regulatory agency is questioned.

Public Opposition During Operation

Many of the conclusions reached by this study with regard to facility siting also carry through to facility operation. In particular, if a problem is not resolved or addressed during siting, it will very likely come up during operation.

Experience shows that it is much more difficult for public opposition to shut down an operating facility than to prevent a facility siting. A major reason for this is that, unless the facility is violating state regulations in its operations, the state regulatory agency will probably feel obliged to defend its regulatory process and thus the site. This implies that public opposition during operation, to be successful, must have considerably more political and technical resources than would be necessary to defeat a siting attempt. Only if a locally granted permit must be periodically renewed is this not necessarily true.

Facility operators contacted during this study also noted, however, that these operations always proceed against a background of public distrust,

and that very small problems during operations could have very large public relations ramifications. This is true even with no history of operational problems or opposition during siting.

Two primary concerns in avoiding public opposition during site operation are maintaining communication with local officials and the public, and avoiding operational problems that are apparent to the public. A practical way to maintain communications is to set up a grievance procedure, so that residents and/or officials with a complaint about the facility will be able to make this known to facility personnel and, if possible, have it resolved. In this way potential public relations problems can be avoided. Operational problems such as spills and odors will, if not infrequent, be perceived as indications that the facility is not properly run.

VI. GOVERNMENT INVOLVEMENT IN SITING FACILITIES

Based on the data collected during this project, a wide range of actions that government has taken or might take to solve the hazardous waste disposal problem can be defined. Government involvement can be at the local, state, multi-state, and federal levels, and can range from review of proposals to owning and operating sites. Thus, at one extreme, local governments are given no controls over siting and states review and approve permit applications developed by private industry, which is totally responsible for siting and developing facilities. At the other extreme, the federal government sites, constructs, owns and operates facilities.

To date, this project has placed only secondary emphasis on what roles government might play. The data developed by this project, however, suggest that states will have to play the pivotal government role in siting. There are three definite reasons for this:

- States now play the pivotal governmental role and intend to continue to do so.
- EPA intends for states to implement RCRA and has shown no desire to become directly involved in siting.
- States are the most logical level of government to play the lead role because federal agencies are in general too far removed from local problems to be able to respond effectively to them, and because local governments are unlikely to voluntarily accept facilities.

Given that states should play the leading governmental role in siting, the results of this study indicate that they should become arbiters of the siting process. State regulatory agencies should be seen as knowledgeable neutral parties which can carefully and independently judge the merits of facility proposals. Because so many siting attempts have become entangled in disputes, states may also have to serve as negotiators between parties (i.e., facility sponsors and opponents) with widely divergent interests. States cannot ignore public concerns, but must be able to respond to the range of issues raised by local communities. Scrutinizing proposed facilities clearly contributes to better hazardous waste disposal practices. Responding to public concerns will not necessarily win public acceptance but can win public respect for the siting process. Without this public respect the siting process can become mired in political and legal battles over sites. These can cost hundreds of thousands of dollars, delay siting for years, and exacerbate already strained relationships between local residents, the facility sponsor, and state regulators.

While the significance of the role of states in siting is certain, this project can only tentatively discuss the variety of roles that states

and other levels of government might assume. An optional second phase to this study would examine in detail these potential roles. Government, particularly at the state level, is rapidly evolving new conceptions of its responsibility and authority in developing new hazardous waste disposal capacity. The notoriety of abandoned sites and the attendant widespread publicity has helped to spur major new initiatives by both state legislatures and state agencies. The demand for capacity is the major impetus behind these initiatives, but state actions also reflect a clear concern with public opposition to siting and a desire to resolve problems that opposition causes. A better understanding of these governmental initiatives is needed and government agencies would greatly benefit from more knowledge of the actions of other agencies. The second phase of this project could be a significant step in examining these recent developments.

The following discussion highlights the major options that appear to be available to government at the state, multi-state, federal, and local levels. This discussion should serve as a starting point for a much more thorough examination of government involvement in siting.

Options for States

States are the level of government most deeply involved in the siting of hazardous waste facilities. This will continue to be true into the foreseeable future. The implementation of RCRA will provide continuity in state programs. However, individual states have taken and will continue to take different approaches to siting because the urgency of hazardous wastes problems varies substantially from state to state. In the future any national hazardous waste program must recognize these variations and must be able to respond accordingly.

Public participation in the development of facilities (e.g., in the state review of permit applications) is largely the responsibility of states. The question of how to involve the public exists regardless of the state's siting approach. In addition, the public often demands that it have a voice in the decision to develop a facility.

As defined by the states, public participation appears to have three discrete functions. One, it can serve to inform the public of government actions. Two, it can allow for technical input by the public into government decision-making. Three, it can allow the public to provide substantive input to technical and non-technical aspects of government decision-making. For almost all cases studied in this project public participation involved the first two functions only. The third function, a substantive public role, was not common.

The question of what role public participation should play in siting hazardous waste facilities is not easily answered. Even if a state has clearly defined the function of public participation, facility opponents may demand greater involvement than the state has assumed the public will have. If opponents feel sufficiently frustrated by their lack of

involvement, they may turn to political leaders or to the courts. On the other hand, if given too large a substantive role, opponents will probably block all siting attempts. If major local roles in siting were to become widespread, this would very probably be disastrous for siting.

There appear to be five major options for states with respect to siting facilities. The two major variables which define these options are the degree of state involvement in siting and the role of private industry. All of these options are currently being employed by states. The five options are:

- State review of private siting attempts using data provided by private industry.
- State evaluation of private siting attempts based on data generated by themselves or independent third parties.
- State involvement in hazardous waste management planning.
- Joint state-private sector involvement in facility ownership and operation.
- Total state control of facility ownership and operation.

The majority of the states visited in this project limited their involvement in siting to reviewing permit applications prepared by facility sponsors. For many of these states all data used to determine the viability of the site and the proposed facility were provided by the facility sponsor. The state decision to rely on those data was usually a matter of practicality. State resources were limited and demands placed on the state were great. For facility opponents, state reliance on the facility sponsor's data was a major problem. Opponents were suspicious of the reliability of the data and of facility sponsor willingness to present objectively data that would weaken the permit application. Thus this option for state involvement in siting inherently tended to engender public opposition.

Other states developed their own data when evaluating permit applications. For example, some states conducted soil tests to determine permeability. In another case state officials toured a facility operated in another state by the facility sponsor. These actions allowed them to judge independently the soundness of permit applications. By demonstrating an ability to critically evaluate the proposal, state regulatory agencies enhanced their credibility in the eyes of the public.

A third state approach to siting is a logical extension of independent development of data. A few states visited were directly involved in planning for facilities either on a site-specific basis or on a more general basis. Typically, a state regulatory agency would work closely with a facility sponsor throughout the planning process in areas such as determining the most suitable sites, developing engineering plans, and

establishing monitoring requirements. Such actions tended to ensure that the proposed facility met all general and specific requirements set by the state regulators. They also served to demonstrate to the public the effectiveness of the agency and thus reduce public concerns. A related state role involved negotiating conflicts between facility sponsors and opponents over specific site and facility plans and attempting to reach compromises acceptable to both parties. On a more general level, state planning efforts have included statewide surveys to determine the most hydrogeologically suitable areas for facilities. More comprehensive planning efforts by states have included making specific estimates of their needs for facilities, locating centers of hazardous waste generation, developing siting criteria, and planning for other aspects of hazardous waste management. Such planning has substantially improved the state's understanding of its problems and served to enhance the credibility of state regulatory agencies.

A few states visited had joined with private industry to develop facilities, either by acquiring sites or by proposing to operate facilities. The two major reasons for this joint public-private development were: 1) an extension of other waste disposal activities (e.g., industrial waste water treatment) conducted by the state; and 2) a determination by the state that facility development by private industry faced substantial, possibly insurmountable, obstacles. In some cases, state agencies had two particular advantages (not enjoyed by private industry) in acquiring sites. One was the preemption of local zoning and the other was the power of eminent domain. By becoming directly involved in developing facilities, states faced essentially the same opposition as did private industry. However, opponents appeared to see state agencies as more credible than private facility sponsors, because these agencies were perceived as being concerned primarily with environmental problems rather than with commercial interests.

Finally, a few states have decided to assume total control over facility development, ownership, and operation. This decision has apparently been spurred by the absence of private facilities or the conviction that private industry faced insurmountable obstacles in developing facilities. Another rationale for total state control is that the state will exist longer than any individual private company. Thus in the event of post-closure problems, the state will be in a position to respond quickly. (This rationale has also been used to support state ownership of facilities which are operated by private industry.) As this project has shown, total state control in no way avoids public opposition. It is not at all certain that states would have appreciably more success in siting than private industry.

While the above options are presented as relatively discrete, in practice most states combine aspects of the first three options (i.e., relying on facility sponsor's data, generating independent data, and becoming involved in planning activities). However, many state

regulatory officials felt that direct state involvement in facility development was probable or inevitable. Whether states will in fact play a major direct role in facility development will in all likelihood depend on whether the states perceive hazardous waste problems as critical.

Options for Local Jurisdictions

Based on the findings of this project, there are two major options for local government:

- Zoning and other regulatory controls.
- Facility development.

Local jurisdictions exercise regulatory control primarily through zoning, but they may also have responsibilities for local solid waste planning. If these controls can hold veto power over site development, then the primary role of local jurisdictions will be to block siting attempts. Even when local controls are minimal, local governments have substantially delayed siting attempts or frustrated facility operations.

Conversely, local governments have also developed facilities. Except for the fact that several California counties own and operate facilities, the prospects for local government playing any significant role in promoting sites would appear to be minute.

Options for Regional Government

At least three multi-state regional agencies have recently developed hazardous waste programs. One of these programs, sponsored by the New England Regional Commission, was examined for this project.¹ Based on quite limited information on these regional agency efforts, there appear to be three roles that the agencies could play:

- Support to states.
- Public education and information programs.
- Facility development.

Support to states can parallel state planning efforts in developing information on facility needs, siting strategies, and other areas of hazardous waste management. Support can also encompass coordinating individual state efforts in order to minimize interstate problems and to maximize the efforts of individual states.

Regional agencies can also play a significant role in disseminating information and educating the public. To the extent that this can

¹ See Appendix B of this report.

contribute to public confidence in facilities as a solution to hazardous waste disposal problems, regional agencies can help reduce opposition to siting.

While regional agencies have contemplated site acquisition or facility ownership and operation, this would not appear to be a likely possibility. Based on the limited experience of the NERCOM program, states appear quite reluctant to relinquish their own authority and responsibilities to regional agencies.

Options for U.S. EPA

Based on EPA's current activities and the views of regulatory officials and others interviewed during this project, there are five major roles EPA can play which can influence the siting of facilities.

- o Public information and education.
- o Research and development.
- o State program funding.
- o Liability funding.
- o Facility development.

According to many regulatory officials, public information released by EPA has clearly demonstrated that hazardous waste disposal is a problem that must be solved. Thus the public is generally aware of the dangers of improper disposal. What is not generally understood or believed is that there are any reliable solutions to this problem. Thus EPA can significantly reduce general public anxiety by developing information that shows that the problem can be solved.

Directly related to this need for positive information is the perceived need for research on more effective hazardous waste management technologies. Facility proponents and opponents stressed the desirability of technologies that eliminated the burial of hazardous waste. Many felt that more research would lead to better technical solutions to disposal problems. In addition there are a large number of non-technical issues (e.g., institutional arrangements and market structure) surrounding hazardous waste management which need to be addressed.

RCRA provides substantial funds for state hazardous waste programs. This EPA funding fills a clear need in many states for additional resources with which to regulate and monitor facilities and plan for future state needs.

A specific role that EPA could assume is funding for long-term liability of facilities. State regulators considered long-term liability for closed facilities a critically important issue. Because liability costs

could be substantial and problems could arise long after facility operators had closed sites, some state regulators thought that government must eventually assume liability for closed facilities. Because state resources are limited, EPA was seen as a logical source of liability funding. This raises the difficult question of who should ultimately pay for this liability funding.

Finally, a minority of those interviewed during this project felt EPA should site, own, and operate facilities. While most holding this view were local officials and residents distrustful of state regulatory agencies, some state regulatory officials felt that siting problems and public opposition might grow so large that they would overwhelm state agencies. In that event, these state regulators saw federal facilities as a last resort solution.

APPENDIX A
CASE STUDIES

MONSANTO INDUSTRIAL CHEMICALS COMPANY

BRIDGEPORT, NEW JERSEY

I. INTRODUCTION

In the fall of 1978 Monsanto Industrial Chemicals Company began operation of a secure landfill at its Delaware River Plant outside of Bridgeport, New Jersey. The facility only accepts wastes generated at that plant. Operations began after almost three years of planning and development for the facility by Monsanto, including lengthy negotiations with New Jersey Department of Environmental Protection (NJDEP) officials.

The facility was formally endorsed by local officials and the local environmental commission. Although it did meet with some opposition and raised concerns in the local community, this opposition was relatively minor and was overshadowed by local endorsements. Local acceptance was based on an acknowledgement of Monsanto's disposal needs and Monsanto's local image as a trustworthy and responsible company.

The most visible attempts to secure support for the facility were those required by the state permit procedures, primarily the public hearing. These were augmented by ongoing relationships which Monsanto had established with local environmentalists and the community in general. Conscious attempts to secure support for the landfill only partially explain local acceptance which developed prior to the public hearing.

II. BACKGROUND INFORMATION

The Monsanto facility occupies six acres within the bounds of the Delaware River Plant. The plant is bounded by the Delaware River, U.S. 130, and undeveloped land. It is relatively isolated, only a few residents are nearby, and the facility is not visible from U.S. 130, which passes by the plant. The landfill site is 150 feet from the river and 1,000 feet from Birch Creek, which drains into the Delaware River. The soil underlying the site has a permeability, according to Monsanto, of 2×10^{-7} cm/sec. Site life is projected to be five years; this estimate is subject to variation according to the amount of dewatering that occurs to sludges disposed of at the facility.

The facility itself is a secure landfill with two clay liners (18" top liner, 12" bottom liner) separated by a layer of sand. The facility accepts sludges from the plant's pollution control facilities and solids which are by-products of manufacturing processes and of pollution control equipment such as insoluble pitch, rocks from lime slaker operations, and contaminated filters. Sludges are dewatered; solids are buried; all wastes are generated on-site. A collection system above the top liner allows any leachate to be reprocessed by Monsanto's waste-water treatment plant. Between the liners is a leak detection system

which checks for failure of the top liner. In addition, there are five monitoring wells on the plant grounds. Samples are analyzed by an independent lab.

Monsanto's closure and post-closure provisions for the landfill conform to proposed state regulations, which call for quarterly monitoring of the site over a three-year period, at the end of which the state reviews monitoring records and may reduce the frequency of monitoring to once a year if site records indicate that such an action would be justified. Primary responsibility for perpetual maintenance rests with Monsanto. All state regulations concerning funding mechanisms after site closure are unwritten pending U.S. EPA action in this area.

The secure landfill is operated as an adjunct to Monsanto's chemical manufacturing plant, located two miles from Bridgeport. The plant was established in 1961 and currently employs about 180 workers, including the senior environmental engineer responsible for waste disposal. It is one of 200 plants and laboratories operated worldwide by the Monsanto Company. Monsanto is one of the largest U.S. chemical companies, with 1977 sales of \$4.6 billion and assets of \$4.3 billion, according to the 1978 Fortune 500 directory.

Bridgeport (1978 estimated population: 900) is an unincorporated town within Logan Township. The town is in a relatively sparsely populated section of southern New Jersey, approximately 30 miles south of Philadelphia. Major employers in the area are chemical and petroleum companies with a number of facilities along the Delaware River. Bridgeport is also the site of a Rollins Environmental Services hazardous waste disposal facility that has met with strong local opposition.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

The State of New Jersey preempts local zoning controls over special waste facilities. As a result, there are no local permits or regulations applicable to these sites. In developing its facility, Monsanto needed only a permit from NJDEP's Solid Waste Administration (SWA), which takes the responsibility for having permits reviewed by appropriate environmental (e.g., air and water quality) and other state agencies.

Monsanto first began planning for its current secure landfill in late 1975 and early 1976. The impetus for this planning came from several sources. The first was an existing landfill at the Delaware River Plant was reaching capacity and was not designed to meet all of the plant's disposal needs, particularly for sludge disposal. At the time, sludge was being stored at the plant's wastewater treatment facility. Secondly, off-site disposal facilities were not an effective means of solving disposal problems. There were no facilities in New Jersey for sludge disposal. The use of these facilities was also considered too costly. Finally, without a long-term solution to its disposal problem, Monsanto would have to reduce manufacturing operations at the plant.

Thus the decision to develop an on-site facility met Monsanto's primary need for a sludge disposal facility and ensured continued plant operations as well. Monsanto would have added control over its waste stream and would reduce disposal costs. Risk involved in the transporting of wastes off-site would be eliminated. The decision to develop a secure landfill allowing for the dewatering of sludge and the burial of solids was dictated by the nature of the plant's wastes and influenced by Monsanto's experience with various technologies employed at both on-and off-site facilities.

Monsanto sought information from New Jersey's DEP relatively early in the development stage. During preliminary planning Monsanto had general discussions with DEP to learn what state requirements and regulations would apply to the facility and to inform DEP of Monsanto's needs for such a facility. Discussions and negotiations between Monsanto and DEP continued throughout the development period, including the period of permit application review.

In the fall of 1976 Monsanto submitted a permit application to SWA for an 18-acre secure landfill to be located at its Delaware River Plant. It appears that this application encompassed the major objectives and design concepts of the facility eventually developed by Monsanto.¹ In December of 1976, the consulting engineer retained by Logan Township reported to the township on the application. His report indicated an agreement with the concept proposed by Monsanto and recommended that the township be kept abreast of the application's progress.

SWA denied Monsanto's request for a permit in the winter or spring of 1977. The 18-acre landfill would have had an expected life of 15 to 18 years. In SWA's judgment this was too long a site life for a special waste facility, and for that reason it denied the application.

In response, Monsanto reworked its application, reducing the site size to six acres, thereby reducing site life to about five years. This revised permit was submitted to SWA in July of 1977.

Following standard procedures, SWA notified local agencies and officials in nearby jurisdictions of the permit application within days of receiving it. Those notified included the mayor of Bridgeport, the Logan Township health officer, the Logan Township Environmental Committee, and the Gloucester County planning agency.

After this notification Monsanto discussed plans for the landfill with local officials including the Logan Township Environmental Committee. These discussions led to the committee's endorsement of the application. At Monsanto's request, the commission contacted SWA and asked that the permit be reviewed as expeditiously as possible.

¹ The transfer of Monsanto personnel involved with this application and the passage of time limited data availability for the original permit.

In the months that followed the submission of the application, SWA and Monsanto entered into what in effect were negotiations over the landfill design. In reviewing the application, SWA's major concern was over the impermeability of the landfill's lining. Monsanto originally proposed a single clay liner. According to Monsanto's senior environmental engineer, the thickness of the soil underneath the landfill site more than compensated for the fact that it was twice as permeable as the state requirement of 1×10^{-7} cm/sec. The state requested a double liner system and Monsanto responded with a proposal for two 12-inch liners. SWA then asked that the top liner be an artificial (Dupont hypalon) liner. Monsanto disagreed with this request on the grounds that clay has better long-term characteristics than plastic liners and that general quality control is better with clay liners. The state agreed with Monsanto on the condition that the top liner thickness be increased to 18 inches. Monsanto agreed and the final design incorporated an 18-inch top liner and a 12-inch bottom liner.

In December of 1977 the Logan Township engineer reported to the township on the second Monsanto application. The engineer's report indicated that the only major change from the original application was the reduced size of the landfill. For the second time, the engineer's report indicated general agreement with the preliminary design of Monsanto's landfill. Monsanto's proposed liner material, however, did not conform with the engineer's understanding of SWA's requirements of other landfill facilities. Accordingly, he wrote SWA asking for a clarification of their requirements.

In January of 1978, SWA staff met with local elected officials to discuss the permit application. The meeting was intended as a preparation for the upcoming public hearing and was held as a part of SWA's standard procedures in reviewing permits. The same month SWA responded to the township engineer's request for information on state requirements for liner materials. That letter from SWA stated in turn that SWA did not accept clay as landfill liner material, that individual cases determined the acceptability of clay, that clay was acceptable for most municipal and some industrial waste facilities, and finally that clay was generally not acceptable for hazardous waste landfills.

The public hearing on Monsanto's permit application was held in Bridgeport in February of 1978. SWA conducted the hearing and stated in opening remarks that it was not an adversary proceeding and, as a result, would not involve questions and answers between the public and the applicant. Monsanto, however, was free to respond to public comment if it so desired. A Monsanto engineering specialist in pollution control, who along with the plant manager represented the company, explained that the landfill was needed if manufacturing were to continue and that off-site disposal facilities were not available in the area. He also described the site, wastes to be handled, facility design and operation, and provisions for handling leachate.

Public comments followed from local officials and private citizens. Those making comments expressed positions ranging from total opposition to full support. In general, most comments appeared to indicate at least general support for Monsanto and/or the proposed landfill. Most questioners sought additional information about the facility, particularly contingency plans in the case of accidents and post-closure provisions. Monsanto provided responses to all comments either providing additional information about the facility or indicating Monsanto's existing and future commitments to the Bridgeport plans and to Logan Township in general. The comments made during the public hearing included those from three representatives of public bodies.

The Logan Township Environmental Committee (now Commission) had earlier formally endorsed Monsanto's application and this endorsement was restated during the public hearing. The Commission is an agency of the township, chartered by the township. The seven commission members are appointed by township elected officials and provided with a small annual budget. The commission reviews matters of consequence to the environment and advises the township on these matters. Informal procedures have also been established with area industries whereby a commission member investigates environmental complaints (e.g., odors). It was formed in 1974 partly as an outgrowth of an earlier private group of area environmentalists. Although commission members had some major concerns about the facility (e.g., proximity to the river, contamination of water supplies, operating hours), six of the seven members voted in support of the facility. The quality of facility design and provisions for monitoring and leachate collection were the most immediate reasons for this decision. Equally important, according to a commission member, was the impression that Monsanto had anticipated many concerns and dealt with them responsibly. She indicated that commission members employed at area petrochemical plants were also sympathetic to Monsanto's needs for a disposal facility.

The township engineer stated at the hearing that the township was not opposed to Monsanto's application. He referred to the two reports previously prepared for the township which had agreed in concept with the facility design. His only question was in reference to SWA's position on clay as a liner material and the contradictory explanation SWA had given the township in January of 1978. At the public hearing SWA agreed that the earlier explanation was confusing and that a clarification would be made. As of this writing, the town engineer had heard nothing.

The only substantial opposition to the Monsanto permit voiced at the public hearing came from the Gloucester County Environmental Health Coordinator. She opposed the facility on the following grounds: 1) its proximity to the Delaware River (150 feet) and to Birch Creek (1,000 feet); 2) the subsidence potential of the marsh and made land of the area potentially leading to ruptured liners and to water supply contamination; 3) the high water table at the site as indicated by test bores; and 4) the fact that Monsanto's existing landfill was listed as a

pollutant by the area's Section 208 water quality management plan. In addition, she asked what action would be taken if one or both liners ruptured and what monitoring provisions were established. Monsanto responded with an explanation of how ruptures in the liner would be repaired and procedures for quarterly monitoring with testing by independent labs. Monsanto also indicated that data on which she had based some concerns was of dubious value as Monsanto's data refuted her contentions on the depth of the water table. Monsanto also suggested that the 208 plan had been based in part on older data.¹

The February, 1978 public hearing was the last major instance of public response to the permit application. The major subsequent actions involved state review of the permit and Monsanto's construction of the facility. By May, SWA had completed most of its work on the application and told Monsanto formal approval would be given in June. According to SWA this allowed Monsanto to begin site preparations and reduce the possibility that plant operations would be disrupted by lack of the facility. In June, SWA formally approved the facility and construction continued throughout the summer. In October, 1978 Monsanto began disposal operations at the facility.

Since operations began in October local residents have made periodic complaints about odors from the facility. These complaints have usually been made to the Logan Township Environmental Commission which has established grievance procedures with Monsanto as well as other area industries. One commission member has been responsible for contacting Monsanto and inspecting the landfill to determine whether the odors originated there. She indicated that odors have been and will continue to be a concern. However, her inspections have shown that complaints about Monsanto are not always justified and odors can be traced to several other plants in the area.

Monsanto's landfill should reach capacity by 1983. Site life will depend in part on the extent to which sludge is dewatered. When capacity is reached, the facility will be covered and post-closure monitoring will begin as described earlier in this report.

IV. CHRONOLOGY OF EVENTS

Late 1975, early 1976 -- Monsanto begins planning for HWMF.

Fall 1976 -- Monsanto submits application to NJDEP for 18-acre secure landfill.

¹ When interviewed by Centaur, an SWA official said that older landfills such as the Monsanto landfill cited by the 208 plan were assumed to have leachate plumes. These landfills predate the creation of SWA and the implementation of state landfill regulations in 1971.

December, 1976 -- Logan Township engineer's report favorably reviews permit application for Township.

Winter, spring, 1977 -- NJDEP denies Monsanto permit on grounds that facility life projection too long.

July, 1977 -- Monsanto submits permit application for six-acre secure landfill with reduced site life. NJDEP, following standard procedures, notifies local officials and agencies of permit application.

Summer 1977 -- Monsanto discusses proposal with local officials and agencies, receives endorsement of Logan Township Environmental Committee.

Summer and fall 1977 -- NJDEP and Monsanto negotiate site design and engineering.

December, 1977 -- Logan Township engineer's report again favorably reviews permit application, questions clay as liner material.

January, 1978 -- NJDEP responds to Township on clay liners and, following standard procedures, meets with local officials prior to public hearing.

February, 1978 -- NJDEP holds public hearing in Bridgeport. Monsanto and NJDEP make presentations and respond to questions, concerns, and some opposition from those in attendance.

May, 1978 -- NJDEP informs Monsanto that permit will be approved and that site preparation may begin.

June, 1978 -- NJDEP approves permit.

October, 1978 -- Monsanto begins operations at secure landfill.

1983 -- Projected closure of facility when capacity reached; Monsanto begins quarterly monitoring.

1986 -- NJDEP and Monsanto review monitoring data, possibly reduce frequency of monitoring.

V. ATTEMPTS TO SECURE SUPPORT

Direct attempts to secure support for Monsanto's landfill were few. The major efforts were:

- o Early discussions between Monsanto and interested officials and agencies in Logan Township.

- o The public hearing held in Bridgeport by SWA in February, 1978.
- o The establishment of procedures to allow the Logan Township Environmental Commission to investigate complaints concerning facility operations.

VI. SUMMARY EVALUATION

The efforts outlined above were almost certainly necessary but not sufficient for achieving public acceptance of Monsanto's landfill. Monsanto's discussions with local leaders clearly led to either statements of support or of non-opposition. The company was able to convince key individuals both of the need for the facility and the adequacy of its design. Monsanto's ability to work with local environmentalists and establish procedures to deal with complaints reinforced the company's position as a responsible corporate citizen of Logan Township. These two efforts indicated that the company and the community could work together. This cooperative attitude reflects the more basic condition that Monsanto was known and respected by local leaders prior to submitting the application.

The public hearing had little if any impact on public acceptance. Both the township and the environmental committee had earlier decided to support Monsanto's plan. The public hearing then became a forum for pre-determined positions. It had extremely limited objectives with respect to either substantively examining the permit application or addressing any issues raised. It is noteworthy that while Monsanto willingly responded to questions and comments, the company did so at its pleasure. SWA specifically stated that this was not required. In effect the public hearing was an administrative ritual.

A number of issues and concerns were raised by the public during the siting process. These are outlined below. Excluded are specific issues raised by SWA in reviewing Monsanto's permit application because these were not part of the public response. Issues raised by the public generally encompassed those raised by SWA.

Site Suitability -- The proximity of the site to Birch Creek and the Delaware River and the instability of the area's soil were considered to be major disadvantages of the site. Both raised concerns over contamination of water supplies by leachate from the site.

Facility Operations -- Odors from the facility have been a continuing concern. Linked to this are concerns over the facility's operating schedule (i.e., 24 hours daily).

Contingency Plans -- Because any ruptures of the clay liners could result in contamination of water supplies, Monsanto's procedures for detecting leaks in liners and for repairing the liner were of concern.

Long-Term Maintenance -- Concerns over long-term maintenance focused on the specifics of site monitoring for leachate as well as on Monsanto's general commitment to be responsible for any problems that might arise after the facility was closed.

The concerns raised by local public officials and private citizens never became major points of contention between those persons and Monsanto. No major organized opposition arose to Monsanto's plans for the landfill. The consensus among those interviewed was that Monsanto's stature in the community obviated the development of opposition. Monsanto has been in Bridgeport almost 20 years, provides a substantial number of jobs, has the confidence of community leaders, and was responsive to community concerns. Monsanto makes chemicals and southern New Jersey is replete with chemical and similar manufacturing plants. These industries are economically important to the area and area residents are familiar with and sympathetic to these industries. These conditions were the most significant reasons for the successful siting of Monsanto's landfill. Equally important, Monsanto's stature in the community appears to have been established well before the permit application was submitted to SWA.

Because of Monsanto's credibility, SWA's role in the siting process appears to have had little impact from the point of view of local officials. SWA's most visible role was conducting the public hearing which allowed comments to be entered into the public record. Because most if not all local parties had determined their positions by the time of this hearing, its value in generating public acceptance was quite limited. SWA's negotiations with Monsanto over facility design contributed to the perception that Monsanto had anticipated public concerns and designed the facility accordingly. SWA's role in these negotiations, however, was generally not acknowledged by local officials.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

Concerns over Monsanto's proposal for the secure landfill developed as a result of the following.

- o Early notification by SWA of local officials and agencies of the permit application and early discussions between Monsanto and local agencies provided preliminary information on the proposed facility.
- o Reviews of that information raised concerns among some local agencies as to the environmental damage which might result from the facility.

The general public acceptance of the proposed landfill can be attributed to the following factors.

- o Monsanto's credibility in the eyes of the community and the effective rapport between them prior to Monsanto's submitting the permit application.

- o Early discussions between Monsanto and local leaders, many of whom became convinced of Monsanto's need for the facility and of the care taken in the design and operation of the facility to protect against damage to the environment.
- o The reports by the township engineer who found no essential reason for the township to oppose the facility.
- o The limited impact, if any, of the facility in terms of visibility, traffic, and (at least from Monsanto's perspective) the generation of new odors in the area.
- o The fact that the facility serves Monsanto's needs and is not a commercial facility, which means that wastes are known and unchanging in terms of types and volumes.
- o The clearly perceived link between hazardous waste disposal and jobs provided by a hazardous waste generator.

VIII. RETROSPECTIVE VIEWS

In retrospect, only one criticism of the siting process for Monsanto's landfill was raised. From the local perspective there was no guarantee that any local party, public or private, could have a substantive impact on the siting process. Because the state preempts local controls, the community has no meaningful voice. As indicated earlier, the public hearing requirement places no demands on either the state or the applicant to respond to issues. Because of this, it has the potential of underscoring the powerlessness of the local community thereby decreasing, not increasing, public acceptance.

Lack of a meaningful local role did not become an issue because Monsanto was seen as responsive and responsible. Indeed, Monsanto feels that to meet local concerns it has in some respects overdesigned its landfill.

IX. GENERAL COMMENTS

Local officials also commented on siting issues in more general terms. The need for meaningful local input into siting decisions was emphasized. Monetary compensation to host communities as an inducement drew mixed reactions; it was seen as a "payoff" in the pejorative sense but also as a strong incentive for public acceptance if enough money was given to a community. The added costs of compensation for industry were seen as potentially driving industry out of an area requiring compensation. The feasibility of using arbitration, negotiation, or mediation to settle siting disputes was considered questionable because of the lack of informed and disinterested parties. The use of panels of experts (e.g., in the areas of law, medicine, chemistry) was seen as an alternative to individual dispute settlers. Comments on governmental

roles focused on the need for unannounced independent monitoring of sites "to keep industry honest." State resources to do this were seen as extremely limited.

A representative of Monsanto also stressed the need of the state or EPA to monitor sites. Government should also provide the public with more information on hazardous wastes and disposal risks to reduce misinformation and allay unfounded fears. Compensation was seen as a conceivable inducement to some community members but not to those totally opposed to disposal sites. Arbitration and other techniques to resolve conflicts were seen as effective in the case of technical conflicts (e.g., between industry and regulators). When strong opposition arose to a site such techniques could, however, alter site design and operation in a way that reduced the total integrity of the facility. States views on siting and potential governmental involvement are discussed under state program descriptions elsewhere in this report.

FRONTIER CHEMICAL WASTE PROCESSORS, INC.

NIAGARA FALLS, NEW YORK

I. INTRODUCTION

Since the fall of 1974 Frontier Chemical Waste Processors has operated a hazardous waste treatment facility in Niagara Falls, New York. This facility replaced another Frontier facility located in Pendleton, New York, ten miles east of the Niagara Falls site. The Pendleton site began operations in 1958 and by late 1974 had stopped accepting almost all hazardous wastes. Both facilities were designed to process liquid waste but the Niagara Falls site, unlike its predecessor, has no on-site disposal capacity. Treated liquid effluents are discharged into the city's sewer system while solid residues are buried at area hazardous waste landfills.

The Pendleton site was closed following a substantial amount of public opposition arising from concerns over facility operations. The move to Niagara Falls, however, led to no opposition and attracted little public attention. What little attention the new facility did attract appears to have been favorable. Frontier has refrained from publicizing its Niagara Falls facility.

(Although the original Frontier facility was not intended to be the subject of this case study, some discussion of that facility is included. Problems with that original facility caused Frontier to seek its current site. The contrast between the public response to the facilities sheds some additional light on the reasons why Frontier has subsequently been able to avoid similar problems.)

II. BACKGROUND INFORMATION

Frontier's facility is located in an industrial area of Niagara Falls. The seven-acre site was formerly occupied by a chemical manufacturing company which maintains ownership of the land and leases the site to Frontier. A Union Carbide chemical plant is adjacent to the site on two sides and undeveloped land surrounds the other two sides. The closest non-industrial development is a residential area about one-quarter mile west of the facility.

The site has a number of locational advantages. An interchange of I-190 is one-half mile away and the route to that interchange passes almost entirely through industrial development. The site is served by a rail spur. It also is served by the Niagara Falls sewer system as well as other major utilities.

The majority of materials handled by Frontier are aqueous wastes contaminated with organics. Treatment involves pH adjustment, oxidation, the precipitation of solids, and other procedures. The

effluent from this process is discharged into the city sewer system. Frontier monitors all liquid effluent to ensure that it stays within the limits prescribed by Frontier's discharge permit. In addition to the treatment of aqueous waste, Frontier recovers and reclaims materials such as waste oils and solvents; it also serves as a broker for wastes that it cannot handle at its facility. Storage of liquid wastes is limited by site size and available facilities. No long-term storage capacity exists and treatment procedures have been specifically designed to expedite processing and minimize storage needs. No landfilling occurs on-site; all solid residues are contracted out to hazardous waste landfills permitted by the New York Department of Environmental Conservation (DEC). Frontier generates an estimated 50 tons of solid residual monthly.

Frontier was incorporated in the 1950s by two Buffalo area lawyers and an individual who described himself as a practical chemist. A 1960 Buffalo Courier Express article described the company founders as being motivated by general concern with improper or inappropriate disposal of industrial wastes and a conviction that the procedures that they had developed represented a major innovation in disposal of liquid wastes. In its 20 years of operation Frontier has concentrated on upgrading its treatment procedures. It has also branched out into hauling. Total employment is approximately 70 workers. Although it owns the Pendleton site, the Niagara Falls facility is Frontier's only operating facility.

Frontier has always concentrated on providing services to generators in western New York and these firms constitute the bulk of the firm's market area today. As indicated, Frontier handles only liquid wastes, the majority of which are aqueous wastes. While a relatively broad range of such wastes is accepted, the following are excluded: radioactive wastes, explosives, carcinogens, highly toxic pesticides and herbicides, and PCBs.

Niagara Falls is located within Niagara County (1967 estimated population 240,000) and within 15 miles of Buffalo. While Niagara Falls has been linked historically to the beauty of American and Horseshoe Falls and to the attendant tourist industry, the city is a major manufacturing center of chemicals, electrical machinery, and paper products. Together with Buffalo, the entire metropolitan area is the second largest in New York state. It is the major trade, service, financial, cultural and transportation center for western New York and southeastern Ontario.

In recent years Niagara Falls has received national attention because of events surrounding Love Canal and other dumping sites once used by the Hooker Chemical Company. On a regional level opposition has arisen to two operating hazardous waste landfills, both of which are permitted by DEC. Opposition has also arisen to a storage facility in Niagara County which contains the world's largest concentration of radium and which is reported to be leaking radiation. In March of 1979 DEC released a draft report listing 36 dumping sites (one active, 35 inactive) in Erie and

Niagara Counties with substantial amounts of hazardous wastes and an additional 116 sites (47 active, 69 inactive) which might have significant amounts of hazardous wastes. In the past three years, hundreds of articles on specific area sites and hazardous waste problems in general have appeared in area papers. More than any other area of the country, Niagara Falls has had problems of and issues surrounding hazardous waste disposal emblazoned on the public consciousness.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

When Frontier began operations at its Niagara Falls facility, the two applicable regulatory requirements were local zoning and a state sewer discharge permit. The site was already zoned industrial and Frontier inherited the SPDES (state pollution discharge elimination system) permit of the chemical plant which had been operating at the site. In 1977 revisions to state solid waste regulations required Frontier to submit an application to DEC for an operating permit by February of 1979. That application was submitted to DEC, which had 90 days to review it and make a decision. A public hearing on the application is not required, but at DEC's discretion one may be held if public response is significant. A DEC official indicated that Frontier's application had attracted no attention and would likely not be the subject of a public hearing. He also indicated that, barring the unlikely possibility that data submitted by Frontier are inaccurate, DEC will issue the operating permit.

Frontier's first facility began operations in 1958 in the town of Pendleton, New York. Operations included treatment of liquid wastes to reduce their hazardousness and incineration of flammable wastes. The site included a former clay quarry covering 20 acres which Frontier used as a lagoon for the storage of treated effluents. The surrounding area is rural in character but did include scattered residences.

From relatively early in its operating history this facility generated some local opposition because of smoke coming from the incinerator. Concerns over smoke, noise, truck traffic, and odors sustained local dissatisfaction with Frontier throughout the 1960s and early 1970s. In June of 1973 seven drums of waste exploded a few hours after being delivered to the site. As a result about 100 residents were evacuated from an area surrounding the site for a period of 45 minutes. While no one was harmed by the explosion and the company delivering the waste to Frontier was reportedly at fault, the explosion did little to assuage local concern over the facility.

In the summer of 1973, Frontier decided to expand its operations and attempted to acquire additional land adjacent to the Pendleton site. According to Frontier's president, the original local zoning for the site had been changed in 1963 from industrial to non-conforming residential use. Frontier belatedly learned of the zoning change in 1973 when planning of the expansion began. As a result of the zoning change any expansion would have required a variance from the town zoning regulations. Accordingly, Frontier went to several town board meetings,

but was unsuccessful in persuading town officials to grant the needed variance. Subsequent efforts to get the variance from the zoning board of appeals were similarly unsuccessful. Frontier considered but rejected legal actions to acquire the variance on the grounds that such actions would produce more harm than good. By August, 1973 the town's opposition had escalated from concern over expansion to attempts to restrict the operation of the existing facility. As reported by the Niagara Falls Gazette, the town attorney advised Frontier that not only would expansion not be allowed but that Frontier would have to close lagoons it was then using.

Faced with few prospects of favorably influencing the decisions of local officials, Frontier in early 1974 attempted to improve the operating facility in lieu of expanding. It was hoped that by upgrading equipment and procedures the company could increase handling capacity but continue to operate within the bounds of the original site. Not entirely convinced that their efforts would be successful, Frontier also began to consider acquiring a new site outside of the Pendleton area.

In the spring of 1974 Frontier began to investigate other sites. It first looked at the Niagara Falls site in April or May. The site offered a number of advantages. Because it had been operating as a chemical plant, many of the site's existing structures and equipment could be adapted for waste treatment and processing. The site provided a discharge into the city sewer system. Because the city's sewage plant would provide physical-chemical treatment, Frontier's discharge permit did not need to meet the more stringent requirements of discharging into a biological treatment system or directly into a water body. The site had been used for manufacturing chemicals for 60 years and was in an industrial area; Frontier's operations would then conform to adjacent uses, be relatively inconspicuous and be consistent with previous activities at the site. Similarly, the site was zoned for industrial use and no zoning changes were required before Frontier could operate. While not considered essential, the proximity of the Niagara Falls site to the Pendleton facility eased the move to the new site and had little impact on the market served by Frontier. The only major disadvantage of the site was the lack of storage capacity and the inability to dispose of treated residuals on-site.

The site met Frontier's needs and the company sought to purchase it from the chemical company. A sale could not be consummated and Frontier arranged to lease the site. The move to the new site began in September of 1974 and by late fall operations began.

The transition to the Niagara Falls site did not bring a complete end either to operations at the Pendleton site or attempts by officials to restrict those operations. By December of 1974, DEC and the Niagara County Health Department (NCHD) ordered a stop to all discharges into Frontier's lagoon at Pendleton. The only exception would be for colorless and odorless liquids; all handling of materials at the site stopped in 1977. Frontier's major concern since that date has been to

maintain the integrity of the lagoon as a storage facility so that leakages are prevented.

The start-up of operations at the Niagara Falls facility did not stimulate any vocal response from area residents or the general public. Frontier's operation was within the bounds of then applicable permits and regulations. There was no need to apply for changes in regulations and thereby involve local officials and possibly the general public in the siting process. One indication of the reception that Frontier was given was an editorial in a February 1975 edition of the Niagara Gazette. Entitled "Welcome Frontier" the editorial greeted Frontier's arrival in the city because as a small firm it added diversity to a local economy dominated by large firms. It specifically praised Frontier's reprocessing of industrial waste, noting that such treatment had a "...bright future in an economy where pollution and waste of resources are not tolerated as they once were." Although the editorial also expressed some reservations because of odor complaints made against the Pendleton facility, overall it was favorable to the new facility. A county health officer responsible for monitoring Frontier noted during the site visit that the nature of Frontier's operations obviated public opposition. As a treatment facility Frontier does not require large-scale land disposal of wastes. The relatively small volumes of solid residuals are land disposed by other firms. Thus, in the health officer's opinion, Frontier has not used the disposal technique most objectionable to the public.

Since the start of operations Frontier has constantly upgraded its treatment procedures. This continues the firm's long-standing practice of developing improved techniques. A major incentive for these improvements is the fact that Frontier's SPDES permit places inflexible limits on specific pollutants it may discharge. Consequently, an increase in volume of wastes processed must be balanced by reductions in pollutants per unit of discharge. Frontier has also studiously avoided publicizing its operation or in other ways providing information to the public.

In response to revised state regulations, Frontier submitted to DEC an application to operate its facility. The application was submitted in February, 1979, and according to Frontier's president will subsume all applicable regulatory permits other than zoning. DEC has 90 days to review the permit, to approve or deny it, and may at its discretion hold public meetings on the application. A DEC official indicated that Frontier's application was virtually certain to gain approval.

IV. CHRONOLOGY OF EVENTS

1958 -- Frontier begins operations at Pendleton site.

1960 through 1975 -- Opposition to site develops and continues as a result of operational problems.

June, 1973 -- Explosion at Pendleton site causes 45-minute evacuation of surrounding area.

Summer, 1973 -- Frontier unsuccessfully seeks local approval for expansion of site to enlarge facility operations.

August, 1973 -- Town of Pendleton announces its intention to close lagoons at the site.

Early 1974 -- Frontier attempts to upgrade existing operations at Pendleton site.

Spring/Summer, 1974 -- Frontier seeks replacement sites, determines that Niagara Falls site meets needs, and arranges lease of that site.

Fall, 1974 -- Frontier moves to Niagara Falls site and begins operations.

December, 1974 -- DEC and NCHD prohibit Frontier from accepting all wastes, except for odorless and colorless wastes, at Pendleton site.

February, 1975 -- Generally favorable Niagara Gazette editorial welcomes Frontier to Niagara Falls.

1977 -- All acceptance of wastes at Pendleton site stopped.

February, 1979 -- Frontier submits application for operational permit for Niagara Falls facility to DEC.

May, 1979 -- Deadline for DEC action on Frontier permit application.

V. ATTEMPTS TO SECURE SUPPORT

Frontier made no attempts to provide public information about its Niagara Falls facility to potentially interested parties nor was there ever any need or occasion to respond to publicly raised issues or concerns.

VI. SUMMARY EVALUATION

Frontier was able to site its Niagara Falls facility without generating public concern. This experience, however, should not suggest that such non-concern was inevitable. The public reaction to Frontier's Pendleton site is ample witness to the possibility that a hazardous waste treatment facility is not inherently innocuous. On the other hand, the above-cited editorial and comments from state, county, and Frontier officials indicate that the treatment of hazardous waste, as opposed to burial, is publicly perceived as an acceptable and desirable technology. The public apparently perceives Frontier's Niagara Falls facility as generating not only lower environmental risks but also economic benefit by virtue of its capacity to reclaim and recover valuable materials. This perception is in marked contrast to public perceptions of hazardous waste landfills visited during this project.

The characteristics of the two Frontier facilities differ greatly, contrast as do the operations of the facilities at those sites. Those contrasts suggest causes for the non-response to Frontier's Niagara Falls facility. The Pendleton facility is at odds with its immediate environment. Frontier operated an industrial facility in a semi-rural, historically non-industrial area. The Niagara Falls site is in an urban, industrial area and the site had been used for decades as a chemical plant. Frontier's move to the site did not inject an alien use into that environment, but in a real sense served to perpetuate its historic use. Because Frontier's Niagara Falls site, unlike its Pendleton site, precludes the use of large holding lagoons, it is literally and figuratively less visible to the public. Finally, Frontier's use of other firms' landfills for its non-liquid residuals can be seen as an exportation of potential public concerns.

It should not be assumed that Frontier's experience is so anomalous that it has no bearing on future sitings. Sites within industrial areas and unused but adaptable industrial facilities are not unusual. The apparent lack of significant public interest in Frontier's Niagara Falls operation suggests its neutral image both as a site and a facility.

There have been no public concerns or issues raised with respect to the Niagara Falls site.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

Acceptance is a less accurate term in this situation than public non-opposition. The factors contributing to this "non-opposition" follow.

- o Frontier's adaptive re-use of a former chemical plant which had access to the city sewer system.
- o The lack of need to receive new regulatory approval to begin operations, thereby minimizing contacts between Frontier and public officials or the general public.
- o Public comment which saw Frontier's benefits substantially outweighing risks.
- o Frontier's "low-profile" approach to public relations.

VIII. RETROSPECTIVE VIEWS

Regulatory officials and Frontier's president agreed that the siting of the Niagara Falls facility proceeded smoothly and in retrospect no changes in that process would be warranted. Should the siting be repeated today Frontier would have to apply for a DEC permit. Based on the response to Frontier's February, 1979 permit application, however, a DEC official felt that no public concerns would be raised. This, he explained, was consistent with similar facilities which require SPDES permits. With some minor exceptions, there has been no public opposition to the granting of these permits.

Frontier's president cautioned that the company's experience did not translate into public acceptance of hazardous waste treatment facilities. He felt, in direct contrast to the view held by the DEC official, that public concern and opposition to the land disposal of hazardous wastes could easily be aimed at Frontier's Niagara Falls facility. The public, being only marginally informed, cannot make distinctions between technologies or reputable and disreputable firms. The tarnished public image of current hazardous waste management is a critical problem with serious implications. The most serious implication is siting, and if the public is given the power to the final decision, he felt no sites could be obtained. Bad publicity has also made lending institutions leery of the industry and exacerbated capital formation problems. Frontier's president felt that industry attempts to improve this image have been and will be only counter-productive.

IX. GENERAL COMMENTS

Frontier's president saw a need for an increased governmental role in siting and an increase in the sophistication of regulatory agencies. Because hazardous waste facilities are so unpopular, local elected officials who support them do so at the risk of their public careers. It is difficult for these officials to play a constructive role in siting. Thus the state needs the power (i.e., preemption of local zoning or eminent domain) to override local opposition in such a way that local legal recourses are minimized. Such recourses could delay siting for years, and companies willing and able to spend three years to secure a site are few. Regulatory agencies also need to be conscious of the implications of their regulations on the industry, particularly in terms of the amount of time required for the impacts of regulations to take full effect. Frontier's president was doubtful that regulatory agency staffs had the requisite knowledge of and experience with the hazardous waste management industry to make informed and reasoned decisions.

State agency comments are presented in the state program write-up elsewhere in this report.

GULF COAST WASTE DISPOSAL AUTHORITY

TEXAS CITY, TEXAS

I. INTRODUCTION

The Gulf Coast Waste Disposal Authority was granted a permit by the State of Texas to operate a hazardous waste landfill and landfarming operation in Texas City. The Authority is a public corporation established by the state in 1969 to operate industrial wastewater and solid waste disposal facilities for three counties in the Houston-Galveston area. The permit for the 200-acre site was granted in early 1978 by the Texas Water Quality Board. This marked the successful completion of nearly two years of site selection and planning by the Authority. The Authority hopes to start disposal operations in early 1980.

The site, which was suggested by the local political establishment, is located in a highly industrial area. Although the site is within view of a weekend recreational community, it did not arouse any public opposition prior to, during, or after public hearings.

A major element of the Authority's successful plan to site its facility has been an effort to assume a low public profile. Staff has argued against extensive public relations and education campaigns in favor of dealings with local politicians. Had significant public opposition developed over this site, the Authority has indicated that it would have withdrawn its plans for the facility.

II. BACKGROUND INFORMATION

The site of the proposed 200-acre landfill and landfarming operation is in the incorporated limits of Texas City, Texas. The existing city sanitary landfill and the Authority's industrial wastewater treatment plant are located to the north of the site; Swan Lake, a shrimp and crab nursery for the Bay, is located to the east; a commercial deep-well injection disposal site is located to the southeast, along with an industrial disposal pit; and a railroad and highway are located to the west. Across the highway and about one mile to the west is a new private recreational community of custom weekend waterfront homes. Many of these homes literally face the site as well as other petrochemical industry facilities. Also to the west is an abandoned hazardous waste disposal pit that the state is trying to have cleaned up. Texas City, which contains all of the waste generating plants that will use the disposal site, is located less than five miles to the north of the site. La Marque is a bedroom community adjoining Texas City to the northwest of the site. The land is currently being used for livestock grazing. It was owned by the University of Texas before it was purchased by the Authority for the disposal site.

The state permit makes provisions to compensate for any deficiencies in the site's hydrogeology. Accordingly, all landfill trenches must be

lined either with four feet of existing soil with a permeability of at least 10^{-7} cm/sec or with liners of three feet of compacted soils with permeability of at least 10^{-7} cm/sec if existing soil cannot meet the permeability criterion. Any groundwater-bearing sediments encountered during excavation must be dewatered prior to installing liners.

The 200-acre landfill and landfarming area will be divided into individual sites, the first of which will be eight acres in area, providing a four-year waste disposal capacity. The total capacity of the area is expected to be approximately 30 years. The permit has been approved for the entire 200-acre site, although the Texas Water Quality Board will be approving each individual disposal site as it is opened for operation.

The landfill portion of the site will accommodate scrap materials, coke, carbon, metals and catalysts. The landfarming portions will accept water oil tank bottoms and sludges. A separate set of trenches will accept fluoride solutions, acid solutions and caustic solutions. The proposed landfill and landfarm areas will be built in increments as they are needed. This procedure is desirable because the amount of rainfall runoff which will have to be treated is thus minimized. Each section is completely self-contained and when exhausted will be closed to further waste disposal. After new soil borings are taken and their analysis completed, the next site will be selected and constructed in the same manner as the previous site. All equipment will be moved to the next site and the closed site will be seeded for vegetation. A new site within the permitted area will then be chosen after consultation with the Texas Water Quality Board.

Scrap materials, coke, carbon, metals and catalysts require no pre-treatment for disposal other than mixing of liquids with soil. All such wastes will be collected and dumped into trenches. Deposited wastes will be covered with soil once a week. Dust and fine powder materials may require more frequent coverage. Water and sludge wastes will be suitable for disposal through landfarming operations. Waste sludges and liquids will be spread over the landfarm site using two methods. The preferred method will be the direct application by the truck that delivers the wastes to the site. An alternative will be used during wet weather. The wastes will be delivered to an earthen tank and stored until the farm is dry. Then the wastes will be pumped onto the farm through distribution pipes.

The landfarm treatment works by absorption and biological decay. To assist this process, the site will be cultivated, mixing residues with the soil and thereby allowing continuation of the biodegradation process, while at the same time exposing fresh soil to receive new wastes.

Runoff water from the landfarm will be collected and pumped to the adjoining Gulf Coast Waste Disposal Authority wastewater treatment plant. The fluoride, acid and caustic solution wastes will require special handling. Some of these wastes require special treatment to

neutralize the pH prior to placement in the trenches. This group of wastes will be divided into compatible sub-groups: fluoride solutions, acid solutions and centrifuge filter cake. Each sub-group will be deposited in a separate disposal area and covered daily with earth. Liquids will be mixed with soil.

The facility design incorporates a number of other safeguards. A series of ditches will divert surface runoff from active disposal areas. Monitoring wells will be constructed for approximately every 20 acres and samples will be analyzed monthly for the first year, quarterly thereafter. Dikes will surround disposal sites to protect against major floods and the entire site will be fenced.

As described above, the facility will accept a broad range of wastes. The wastes will be in solid, semi-solid, and liquid states. All wastes to be accepted are those generated within the jurisdictional area of the Authority, primarily from petrochemical industries in Texas City.

The Gulf Coast Waste Disposal Authority is a quasi-governmental authority which operates four treatment plants for industrial clients. In addition, the Authority provides assistance to area municipalities, helping to solve their waste treatment problems.

Texas City (1978 population: 45,000) is located on Galveston Bay, ten miles from Galveston and 30 miles from Houston. The economy of the Texas City area is strongly based on the petroleum and petrochemical industry. Area residents and officials have a long history of both depending on these industries economically and cooperating with them to solve industry-related problems.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

Under Texas law, commercial-industrial waste sites not owned and operated by and located within 50 miles of the waste generator must receive a permit from the Texas Water Quality Board. The law also requires public hearings on such commercial-industrial waste disposal permits. The discharge permit issued by the Board is the only state permit required in developing a commercial landfill. No local permits are required, and land use controls are generally non-existent throughout Texas and do not apply to the site.

The Gulf Coast Waste Disposal Authority was created in 1969 to own and operate industrial wastewater treatment facilities. The authority was created as a public corporation by the State of Texas with the power to issue tax-exempt bonds to finance its disposal operations in three counties in the Houston-Galveston area.

It was modeled after the regional water pollution agency in the Ruhr Valley of Germany and was to be a special-purpose district covering seven counties in the Houston-Galveston area with regulatory and operating authority. Local elected officials opposed this type of authority because it diminished their existing landfill and wastewater

responsibilities. Some industries, especially those that had mounted effective water pollution control programs of their own, opposed the Authority and the possibility of further government regulations. The general public also expressed some opposition to the taxing authority proposed for the Authority.

The final state legislation created a smaller (three-county) Authority and provided seed funds to start its operation. The final legislation also limited the Authority to waste disposal operational responsibilities. Regulatory responsibilities were left to other state and federal agencies. (The enabling legislation can be found in Appendix 1.)

Since the creation of the Authority, its public profile has faded to the point where most citizens are probably not aware of its existence. At the height of public opposition to its creation, however, the Authority was accused of acting solely to benefit industry by using its power to issue tax-exempt bonds for the construction of industrial wastewater treatment facilities. No counter campaign was mounted by the Authority even though local environmental groups were quite vocal on this issue. Since 1970, other issues have occupied local citizen groups. Furthermore, the subsequent increase in Gulf shrimp and oyster catches in nearby waters has reduced any potential environmental concerns over wastewater pollution controls.

Since the Authority began operations, the General Manager has countered public opposition with the effective and respected operation of the Authority. There have been no campaigns to secure support for the Authority. His rationale for a low-profile strategy came from his years of experience as a city manager involved in many forms of public opposition.

In 1976, the Authority sought the advice of the mayor of Texas City and a local county commissioner on potential sites for a new venture into industrial hazardous waste disposal. Based on their review of other siting attempts in Texas, the Authority decided first to contact local elected officials. Members of the Authority had attended public hearings in other parts of the state to learn what the siting problems were and how to fight them. As a result of this review, the Authority concluded that the site had to be located in an industrial area with the help of local politicians and that no amount of public education would make the public willingly accept a hazardous waste site. In other words, they felt that, "to know a hazardous waste site is not to love it." The Authority was convinced that educating the public on hazardous waste disposal techniques and site suitability was not useful and probably counterproductive since it gave the proposal an unnecessarily high profile. They felt that siting was a purely political problem that should be left to local politicians.

The decision to focus on political problems of siting was made possible because much of the area under the Authority's jurisdiction is or can be made technically suitable for hazardous waste disposal. Sites not

already technically suitable can be made so with engineering modifications such as dikes or clay liners, which would change only the cost of operation.

The mayor of Texas City suggested a suitable site in the spring of 1977, and an application for a permit for this site was prepared and submitted to the Texas Water Quality Board in the autumn of that year. Public hearings were held shortly thereafter in Houston and Austin as a standard part of the permit process. Required notice of these hearings was given; however, in keeping with the Authority's low-profile approach, no steps beyond the legal requirements were taken to inform the public of the hearings. No opposition whatsoever was voiced at these hearings. Only the state and members of the Authority were present at these hearings. The Texas City mayor had been scheduled as a witness in support of the proposal, since all of the wastes were to be generated by plants in the Texas City area, but his testimony was not required. Although advised of the meeting through newspaper notices, no local residents appeared at the hearing or gave any other indication of being opposed to the facility. Following the public hearings, the Texas Water Quality Board issued the Authority a permit for the site in February of 1978.

During the two-year period leading up to the issuance of the permit, no public opposition was voiced. The Authority indicated that had there been significant opposition, the site plans would have been dropped. The Authority is expected to begin disposal operations early in 1980.

IV. CHRONOLOGY OF EVENTS

1969 -- Gulf Coast Waste Disposal Authority is created.

1976 -- The Authority seeks the advice of local officials on potential sites for a hazardous waste disposal facility.

Spring, 1977 -- The mayor of Texas City suggests a suitable site.

Autumn, 1977 -- The Authority submits an application for a permit for the site to the Texas Water Quality Board. Public hearings on the application are held in Houston and Austin. There is no indication of any opposition to the facility.

February, 1978 -- The Texas Water Quality Board issues a permit for the site.

Spring, 1980 -- Expected date on which disposal operations will begin at the site.

V. ATTEMPTS TO SECURE SUPPORT

Actions taken by the Gulf Coast Waste Disposal Authority to secure support for this facility include the following:

- o They solicited the advice of local political officials and allowed them to choose the site.

VI. SUMMARY EVALUATION

There are four reasons why the Gulf Coast Waste Disposal Authority was able to site a hazardous waste disposal facility without public opposition: 1) they kept a low public profile; 2) the site is in a heavily industrial area; 3) they had local political support; and 4) the wastes to be disposed of there are generated locally. Each of these is discussed below. It does not seem that the Authority's being a state-created public corporation affected the site approval process. Their success is in sharp contrast to many other siting attempts in Texas which have been intensely opposed by the public.

Industrial Area -- The perceived impact of a hazardous waste facility on the environment and/or quality of life in an area is likely to be greater where similar operations do not already exist. There have been waste disposal operations in the Texas City-La Marque area for many years. A municipal landfill, an industrial disposal pit, a wastewater treatment plant and a commercial deep-well injection site adjoin the proposed hazardous waste site. There is also an abandoned hazardous waste pit in the area which has received some sporadic public attention but has not created any sustained concern about hazardous wastes. Therefore, although the site is in plain view of a recreational community -- weekend waterfront homes -- there was no public outcry.

Local Wastes - In addition to having learned to live with waste disposal in an industrial area, the local public is also clearly aware of the fact that the area's prosperity is due to the petrochemical industry. The Mayor of Texas City said that fourteen years ago a series of meetings was held between industry and the public to explore the undesirable side-effects of the industry and ways to minimize their problems. Since that time the citizens have lived harmoniously with industry. The local residents appreciate the fact that these industries must dispose of wastes and that a disposal site in their area is just one more fact of life.

Political Support - Although having a waste disposal facility in the area did not arouse any opposition, it was still necessary to involve local politicians in the selection of a particular site. The Authority left this decision entirely up to the local political leadership. The mayor of Texas City had previously been involved in siting a municipal landfill and based on this experience he recommended that the hazardous waste disposal facility be sited in an adjoining area. The entire region is endowed with low-permeability clay formations making the difference between specific locations a matter of proper site engineering. Therefore, the site most politically acceptable was also technically acceptable. This minimized the possibility of local political opposition. It was felt by the Authority that the mayor's decision reflected the public's preference.

Low Profile -- Having reviewed the experiences of other agencies and corporations trying to site hazardous waste facilities in Texas, the Authority felt that trying to educate the general public on hazardous waste disposal issues in support of site selection was unnecessary. They argued that a public education and awareness program was not useful because the public could not be expected to willingly accept such a site simply because it understood the problem. Furthermore, they felt that such a program might be counterproductive, since it might create opposition where none would exist otherwise. The Authority did provide all the necessary public announcements, hearings, and media coverage of its intent to site and operate a disposal facility. However, they did not conduct a public relations campaign to secure support for the site.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

In summary, the major factors contributing to the successful siting were:

- o The area has a heavy concentration of petrochemical plants that generate the wastes to be disposed.
- o The inhabitants of surrounding areas both within and adjoining Texas City are dependent on the continuing tax base and employment opportunities represented by the petrochemical plants.
- o The site was suggested and strongly supported by the local political leaderships.
- o Other municipal, commercial and industrial waste disposal facilities have been in operation in the area for many years.
- o The Authority maintains a low profile with regard to its waste disposal activities to avoid generating public opposition.
- o The Authority has established a good reputation in wastewater disposal enterprises over the past nine years.

VIII. RETROSPECTIVE VIEWS

For officials of the Authority the successful siting of a hazardous waste disposal facility has confirmed their original strategy of maintaining a low public profile and selecting an industrial area with the help of local political leaders. They have indicated that they have no cause to regret this strategy and intend to repeat it in future waste disposal facility plans.

The Mayor of Texas City, who actively participated in the site selection process, also felt that everything done in the siting of this facility represented a proper and effective course of action. If given a chance to participate in a similar site selection process, he has said that he would do it the same way.

APPENDIX:

ENABLING LEGISLATION FOR THE
GULF COAST WASTE DISPOSAL AUTHORITY

Chapter 409, Acts of the 61st Legislature of the
State of Texas, Regular Session, 1969

As Amended By

Chapter 202, Acts of the 62nd Legislature of the
State of Texas, Regular Session, 1971; Chapters 258
and 466, Acts of the 63rd Legislature of the
State of Texas, Regular Session, 1973; and
Chapter 443, Acts of the 64th Legislature of the
State of Texas, Regular Session, 1975

(Originally Codified as

Article 7621d-2, Vernon's Texas Civil Statutes)

THE GULF COAST WASTE DISPOSAL AUTHORITY

Compiled July 1, 1977

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SUBCHAPTER 1. GENERAL PROVISIONS

Purpose

Section 1.01. The purpose of this Act is to establish an instrumentality for developing and effectuating for Chambers, Galveston, and Harris Counties a regional water quality management program including provision of waste disposal systems and regulation of disposal of wastes.

Findings and declaration of policy

Sec. 1.02. It is hereby found and declared that the quality of waters in Chambers, Galveston, and Harris Counties is materially affected by the disposal of wastes throughout those counties; that regional approaches to studying water pollution in these counties, to planning corrective and preventive measures, to providing coordinated facilities for waste disposal, and to regulating waste disposal would be far more effective than efforts on a county-wide, city-wide, or smaller scale; that solid wastes, as well as other kinds of waste, may impair water quality by seepage, drainage, and otherwise; that creation of the Gulf Coast Waste Disposal Authority would advance the established policy of the state to maintain the quality of the waters in the state consistent with the public health and public enjoyment thereof, the propagation and protection of terrestrial and aquatic life, the operation of existing industries, and the economic development of the state; and that impending shortage of water in the district for beneficial uses requires that all reasonable measures be taken to prevent and abate water pollution, and to reclaim polluted water for beneficial uses.

Definitions

Sec. 1.03. (a) In this Act, unless the context requires a different definition, (1) "Authority" means the Gulf Coast Waste Disposal Authority created by this Act.

(2) "Board" means the board of directors of the authority.

(3) "Director" means a member of the board.

(4) "District" means the territory included in the authority.

(5) "Person" means any individual, public or private corporation, political subdivision, governmental agency, municipality, copartnership, association, firm, trust, estate or any other entity whatsoever.

(6) "Quality board" means the Texas Water Quality Board created by Chapter 313, Acts of the 60th Legislature, Regular Session, 1967 (Article 7621d-1, Vernon's Texas Civil Statutes), or its successors.

(7) "Rule" includes regulation.

(8) "Water" means groundwater, percolating or otherwise, lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Gulf of Mexico within the district, and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or non-navigable, that are wholly or partially within the district.

(9) "Waste" means sewage, industrial waste, municipal waste, recreational waste, agricultural waste, or other waste, as defined in this section.

(10) "Sewage" means waterborne human or animal waste.

(11) "Municipal waste" means waterborne liquid, gaseous, or solid substances that result from any discharge from a publicly owned sewer system, treatment facility, or disposal system.

(12) "Recreational waste" means waterborne liquid, gaseous, or solid substances that emanate from any public or private park, beach, or recreational area.

(13) "Agricultural waste" means waterborne liquid, gaseous, or solid substances that arise from any type of agricultural activity, including waterborne poisons and insecticides used in agricultural activities.

(14) "Industrial waste" means waterborne liquid, gaseous, or solid substances that result from any process of industry, manufacturing, trade, or business.

(15) "Other waste" means garbage, refuse, decayed wood, sawdust, shavings, bark, sand, lime cinders, ashes, offal, oil, tar, dyestuffs, acids, chemicals, salt water, or any other substance other than sewage, industrial waste, municipal waste, recreational waste, or agricultural waste, that may cause impairment of the quality of the water in the state.

(16) "Solid waste" means any putrescible or non-putrescible discarded material, including but not limited to garbage and refuse.

(17) "Water pollution" means the alteration of the physical, chemical, or biological quality of, or the contamination of, water that renders the water harmful, detrimental or injurious to humans, animal life, vegetation or property or to public health, safety, or welfare or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

(18) "Sewer system" means pipelines, conduits, canals, pumping stations, force mains, and all other constructions, devices, and appurtenant appliances used to transport waste.

(19) "Treatment facility" means any plant, disposal field, lagoon, incinerator, area devoted to sanitary landfills or other facility installed for the purpose of treating, neutralizing, or stabilizing waste.

(20) "Disposal system" means any system for disposing of waste, including sewer systems and treatment facilities.

(21) "Local government" means an incorporated city, a county, a river authority, or a water district or authority acting under Article III, Section 52, or Article XVI, Section 59, of the Texas Constitution.

(22) "Outside the district" means the area contained in counties adjacent to the district.

SUBCHAPTER 2. ADMINISTRATIVE PROVISIONS

Creation of authority

Section 2.01. There is hereby created, pursuant to Article XVI, Section 59, of the Texas Constitution, a conservation and reclamation district to be known as the

Gulf Coast Waste Disposal Authority, which shall be a governmental agency and body politic and corporate of the State of Texas. A confirmation election shall not be necessary.

Description

Sec. 2.02. The authority's territory consists of the area inside the boundaries of Chambers, Galveston, and Harris Counties. The Legislature declares that all the area included in the district will be benefited by the exercise of the powers conferred by this Act.

Board

Sec. 2.03. (a) The authority's powers, rights, duties, and functions are exercised by a board of directors.

(b) The board consists of nine directors.

(c) From each county within the district, the governor of the State of Texas shall appoint one director.

(d) From each county within the district, the county commissioners court of that county shall appoint one director.

(e) From each county within the district, the municipalities waste disposal council of that county, hereinafter created, shall appoint one director.

Qualification of directors

Sec. 2.04. To be qualified to be appointed a director, a person must be a qualified property taxpaying elector of the county from which he is appointed.

Terms of directors and appointment procedures

Sec. 2.05. (a) A director's term of office shall be two years, commencing September 1 of the year of his appointment, except that four directors of the first board shall have one-year terms, in order to obtain staggered terms. When the directors have been appointed, they shall draw lots to determine which have one-year terms.

(b) Appointments of directors for the first board shall be made promptly after this Act becomes effective.

(c) There are hereby created: the Municipalities Waste Disposal Council of Chambers County, which shall be composed of the mayors of each and all of the incorporated cities and towns the city hall of which is situated within Chambers County; the Municipalities Waste Disposal Council of Galveston County, which shall be composed of the mayors of each and all of the incorporated cities and towns the city hall of which is situated within Galveston County; and the Municipalities Waste Disposal Council of Harris County, which shall be composed of the mayors of each and all of the incorporated cities and towns the city hall of which is situated within Harris County. The sole function of these councils shall be the selection of directors. The temporary chairman of each council shall be the mayor of the county seat. Promptly after this Act becomes effective,

each municipal waste disposal council shall meet at a time and place designated by its temporary chairman after notice of the time and place of that meeting has been mailed by the temporary chairman to each member of the council at least 48 hours prior to the time fixed for the meeting. At that meeting, the council shall elect a chairman, vice-chairman, and secretary, and shall adopt such bylaws relating to the conduct of its affairs as the council may determine to be necessary.

(d) When a director's term expires, his successor shall be appointed by the same source and in the same manner as was the director whose term expired.

(e) When a director's office becomes vacant by death, resignation, or removal, the unexpired term shall be filled by the same source and in the same manner as was the director whose office has become vacant.

Qualification by directors

Sec. 2.06. To qualify for office, each director must

(1) take the oath of office prescribed by Article 16, Revised Civil Statutes of Texas, 1925;

(2) execute a bond in the amount of \$5,000 with a corporate surety authorized to do business in this state conditioned on the faithful performance of his duties; and

(3) file a copy of his bond with the secretary of state, and with the commissioners court of the county from which he is appointed.

Meetings and actions of the board

Sec. 2.07. (a) The board shall meet at least once each month, and may meet at any other time provided in its bylaws.

(b) Except as otherwise provided in this Act, the vote of a majority of directors is required for board action.

(c) The board shall adopt bylaws at its first meeting or as soon thereafter as possible.

Organization of board

Sec. 2.08. (a) The board shall elect from its members a chairman, vice-chairman, secretary, and other officers it deems necessary. A person who is elected to a board office shall serve for two years in that capacity or until he ceases to be a director, if this event occurs within two years. Officers' terms shall commence on September 1.

(b) At its September meeting each year, the board shall elect officers for the offices to be filled.

(c) If a vacancy occurs in a board office, the directors at the next monthly meeting shall elect a person to serve until the next September meeting of the board.

(d) The board's bylaws shall prescribe the powers, duties, and procedures for removal from board office of officers that it elects.

Interest in contract

Sec. 2.09. A director who is financially interested in a contract to be executed by the authority for the purchase of property or the construction of facilities shall disclose that fact to the other directors and may not vote on the acceptance of the contract.

Director's compensation

Sec. 2.10. (a) A director is entitled to receive an allowance of \$25 a day and reimbursement for actual and necessary expenses incurred

(1) for each day he spends attending meetings of the board, and
(2) for each day he spends attending to the business of the authority which is authorized by a resolution of the board.

(b) A director is not entitled to receive a per diem allowance for more than 120 days in any one calendar year.

General manager

Sec. 2.11. (a) The board shall employ a general manager for a term and salary set by the board.

(b) The general manager is the chief executive officer of the authority. Under policies established by the board, he is responsible to the board for

(1) administering the directives of the board;
(2) keeping the authority's records, including minutes of the board's meetings;

(3) coordinating with state, federal, and local agencies;
(4) developing plans and programs for the board's approval;
(5) hiring, supervising, training, and discharging the authority's employees;
(6) contracting for or retaining technical, scientific, legal, fiscal, and other professional services, and

(7) performing any other duties assigned to him by the board.

(c) The board may discharge the general manager upon a majority vote of all the qualified directors.

Directors' and employees' bonds

Sec. 2.12. (a) The general manager and each employee of the authority charged with the collection, custody, or payment of any money of the authority shall execute a fidelity bond. The board shall approve the form, amount, and surety of the bond.

(b) The authority shall pay the premiums on the employees' bonds under this section and the directors' bonds under Section 2.06 (2) of this Act.

Principal office

Sec. 2.13. The authority shall maintain its principal office inside the district.

Records

- Sec. 2.14. (a) The authority shall keep complete and accurate accounts of its business transactions in accordance with generally accepted methods of accounting.
- (b) The authority shall keep complete and accurate minutes of its meetings.
- (c) The authority shall keep its accounts, contracts, documents, minutes, and other records at its principal office.
- (d) Neither the board nor its employees shall disclose any records that it has relating to trade secrets or economics of operation of industries.
- (e) Except as provided in Subsection (d) of this section, the authority shall permit reasonable public inspection of its records during regular business hours.

Seal

- Sec. 2.15. The authority shall adopt a seal, the form of which it may alter from time to time.

Suit

- Sec. 2.16. The authority may sue and be sued in its corporate name.

SUBCHAPTER 3. POWERS AND DUTIES

General powers and duties

- Sec. 3.01. (a) The authority shall administer and enforce the terms of this Act and shall use its facilities and powers to accomplish the purpose of this Act.
- (b) The authority shall conduct studies and research for the control of water pollution and waste disposal within the district. It shall cooperate with the Galveston Bay Study of the quality board and utilize the results of that study.
- (c) The regulatory powers of the authority under this Act extend to every person, as that term is defined in this Act.
- (d) Except as expressly limited by this Act, the authority shall have all powers, rights, and privileges necessary and convenient for accomplishing the purposes of this Act conferred by general law upon any conservation and reclamation district created pursuant to Article XVI, Section 59, of the Texas Constitution.
- (e) Subject only to the authority vested by general law, and particularly the Texas Water Quality Act (Article 7621d-1, Vernon's Texas Civil Statutes), as now or hereafter amended, in the quality board and the state agencies represented on the quality board, the authority is empowered to control water pollution and waste disposal within the district.
- (f) The powers granted to the authority in this Act are cumulative of all powers granted by other laws, now or hereafter existing, which are by their terms applicable to the authority.

Authority rules

Sec. 3.01. (a) The authority shall adopt and enforce rules reasonably required to effectuate the provisions of this Act, including rules governing procedure and practice before the board.

(b) In adopting rules, the board shall comply, as appropriate, with the requirements of Chapter 274, Acts of the 57th Legislature, Regular Session, 1961, as amended (Article 6252-13, Vernon's Texas Civil Statutes).

(c) The board shall print its rules and furnish copies to any person on his written request.

Inspections and investigations

Sec. 3.03. (a) Under the same provisions and restrictions applicable to the quality board or its successor, the authority may enter public or private property for the purpose of inspecting and investigating conditions relating to water quality and waste disposal in the district.

(b) The authority shall transmit the results of its inspections and investigations to the quality board.

Hearings

Sec. 3.04. The board may

(1) hold hearings, receive pertinent and relevant proof from any party in interest who appears before the board, compel the attendance of witnesses, make findings of fact and determinations with respect to administering the provisions of this Act or of any orders or rules of the authority; and

(2) delegate to one or more of its members or to one or more of its employees, the authority to take testimony in any hearing called by the authority, or authorized by the authority to be held, with power to administer oaths, but all orders entered shall be made by and in the name of the authority after its official action and attested to by the proper members of the board of directors.

Penalties

Sec. 3.05. (a) A person who violates a rule, permit, or order of the authority is subject to a civil penalty of not less than \$50 nor more than \$1,000 for each day of violation. The authority may sue to recover the penalty in a district court in the county where the violation occurred. Penalties shall be paid to the authority.

(b) The authority may sue for injunctive relief in a district court in the county where a violation of its rule, permit, or order occurred or is threatened. In any such suit, the court shall have jurisdiction to grant to the authority, without bond or other undertaking, such prohibitory and mandatory injunctions as the facts may warrant, including temporary restraining orders, after notice and hearing, temporary injunctions, or permanent injunctions.

(c) The authority may sue for injunctive relief and penalties in the same proceeding.

(d) The quality board is a necessary party to any suit brought under this section.

Court review

Sec. 3.06. (a) A person who is adversely affected by a rule, act, or order of the authority may sue the authority in a district court to set aside the rule, act, or order. The suit shall be filed within 60 days after the day on which the rule, act, or order took effect.

(b) Venue for suits under Subsection (a) of this section is in any county in the district.

Authority of local governments

Sec. 3.07. (a) Under the same provisions and restrictions as are applicable to the authority, a local government may go in and on public and private property to make inspections to determine compliance with the rules, permits, or orders of the authority. A local government shall transmit the results of its inspections to the authority.

(b) A local government, upon formal resolution of its governing body, may sue to enforce the provisions of Section 3.05 of this Act and for the penalties and injunctive relief provided therein. The authority is a necessary party to a suit under this subsection. Penalties recovered in such actions shall be paid to the authority.

Water quality standards and criteria

Sec. 3.08. (a) After public hearing, the authority shall prescribe standards and criteria for the waters in the district.

(b) After the authority has prescribed standards and criteria, it shall forward a copy of the standards and criteria to the quality board for approval.

(c) The quality board shall consider the standards and criteria.

(d) If the quality board objects to the standards and criteria in any respect, it shall so notify the authority in writing within 90 days after receiving the proposed standards and criteria, stating the objections and the reasons therefor. The authority shall amend its standards and criteria in light of the quality board's timely objections. When the authority has amended the standards and criteria in light of the quality board's objections, the quality board shall promptly evidence its approval of the amended standards and criteria in writing.

(e) If the quality board does not notify the authority that it objects to the standards and criteria within 90 days after receiving them, they are operative at the end of the 90-day period. If the quality board notifies the authority within the 90-day period that it objects to the standards and criteria, they are operative from the date the quality board approves them.

Enforcement of state water standards

Sec. 3-9. Upon formal resolution of the board, the authority may sue to impose the penalties and obtain the injunctive relief prescribed in the Act creating the quality board.

Master plan

Sec. 3-10. (a) The authority shall prepare a master plan encompassing plans for the maximum abatement and prevention of water pollution, plans for the control of waste disposal and plans and methods for the treatment and control of waste water that would otherwise cause pollution. The master plan shall show at least: (1) the nature and location of existing waste disposal systems in the district; and (2) the nature and location of proposed waste disposal systems which will be needed in the district within stated periods of time to maintain desired water quality. The master plan shall be a guide for development of such systems by the authority and by other persons.

(b) The master plan shall be filed with the quality board, for its review and approval. If the quality board shall not notify the authority in writing of its disapproval of the plan in any respect within 180 days of filing, its approval shall not be required. Any objections to the plan by the quality board shall be stated in writing to the authority, and when the objections are met to the satisfaction of the quality board, it shall promptly evidence its approval in writing.

(c) The master plan so approved shall be available for inspection by the public at the authority's principal office.

(d) The master plan may be amended or supplemented by the authority, provided that a copy of such amendment or supplement to the master plan shall be filed and approved in accordance with Subsection (b) of this section.

(e) The first master plan, as amended or supplemented, shall be effective for a period of 10 years. Upon the expiration of each 10-year period, the authority shall revise its master plan and a copy of said revised plan shall be filed and approved in accordance with Subsection (b) of this section.

(f) Prior to the adoption of a master plan, or any amendment, supplement, or revision effecting any substantial change, the authority shall give notice to the public that it proposes to adopt such master plan, amendment, supplement, or revision, by causing a notice describing its general nature to be published once in a newspaper of general circulation in each county in the district. In addition to such publication, a copy of such notice shall be transmitted by mail to the county judge of each county within the district, to the mayor of each incorporated municipality within the district, and to the manager or presiding director of every water district within the district which has registered with the Texas Water Rights Commission under Chapter 62, Acts of the 54th Legislature, Regular Session, 1955, as amended (Article 8280-7, Vernon's Texas Civil Statutes), such notice to be mailed not less than 20 days before the regular meeting at which the master plan, amendment, supplement, or revision is to be considered for the first time. Failure in delivery of notice does not invalidate the action taken.

(g) Such master plan, amendment, supplement, or revision may be considered and approved at the regular meeting of the board next following the last date

of publication or without further notice, at any regular meeting thereafter. However, any amendment, supplement, or revision to a duly approved and filed master plan which is made effective by law or by original action of the quality board shall not be subject to the notice requirements of Subsection (f) of this section.

(h) The affirmative vote of at least a majority of all the directors is required for the approval of the master plan, amendment, supplement, or revision.

(i) After the master plan has been filed with and approved by the quality board, a copy of the plan of any waste disposal system or water pollution abatement proposal, or of any request for permit or authority submitted to the quality board, to be operative within the district, not now or hereafter exempted by law from the requirement for obtaining a permit, shall be submitted in such form as the authority shall require to the authority at its principal office by the party making the proposal or request. In case the proposed plan or request is one by law requiring action by the quality board, the authority shall have the right to present its views and recommendations to the quality board and receive notice of any hearings conducted by it in the matter. Should the proposed plan or request be one not requiring by law action by the quality board, then the authority shall hold a hearing at which the proponents of the proposed plan or request may present their evidence and recommendations.

(j) The authority shall approve such proposal requiring only its action, if it finds such proposal compatible with the authority's master plan; final approval or disapproval shall issue from the authority within 90 days after receipt of a copy of such proposal or request.

(k) If approved, such proposal or request shall be incorporated into the master plan.

Regulation of solid waste disposal

Sec. 3.11. (a) The authority shall establish minimum standards of operation for all aspects of solid waste handling, including but not limited to storage, collection, incineration, sanitary landfill, or composting. Before establishing such standards, the authority shall:

(1) hold public hearings after having given public notice in the time and manner prescribed by the rules of the board;

(2) consult with the quality board, the Texas Air Control Board, and the Texas State Department of Health to insure that the standards are not inconsistent with established criteria; and

(3) find that the standards are reasonably necessary for protection of public health or welfare from water pollution or other environmental harm.

(b) To amend standards, the authority shall follow the same procedures required for establishing standards.

(c) The authority may make rules reasonably necessary to implement solid waste disposal standards. These rules may include issuance and revocation of permits for operation of solid waste disposal sites and other aspects of solid waste handling.

Septic tanks

Sec. 3.12. (a) If it finds that because of the nature of the soil or drainage in the area it is necessary to prevent water pollution that may directly or indirectly injure the public health, the authority by rule may

(1) provide limits on the number and kind of septic tanks in any area defined in the rule;

(2) forbid the use of septic tanks in the area; or

(3) forbid the installation of new septic tanks in the area.

(b) The board shall consult with the Texas State Department of Health and the quality board prior to the adoption of a rule under Subsection (a) of this section.

(c) The board may provide in the order for a gradual and systematic reduction of the number or kind of septic tanks in the area and may by rule provide for a system of licensing and issuing permits for the installation of new septic tanks in the area affected, in which event no person may install septic tanks in the area without a license or permit from the board.

(d) The board may not issue a rule under Subsection (a) of this section without first holding a public hearing in the area to be affected by the rule.

Disposal of waste from watercraft

Sec. 3.13. (a) The authority may enforce within the district the rules of any agency of the State of Texas concerning the disposal of waste from watercraft.

(b) It also may make and enforce its own rules concerning the disposal of waste from watercraft, after public hearing and finding that such rules are reasonably necessary to minimize water pollution.

Acquisition, construction, and operation of disposal systems

Sec. 3.14. (a) The authority

(1) may acquire and provide by purchase, gift or lease any disposal systems within or outside the district;

(2) may construct and provide disposal systems within or outside the district;

(3) may operate and sell any disposal systems that it constructs or acquires;

(4) may contract with any person to operate and maintain any disposal system belonging to the person; and

(5) may contract with any person to train or supervise employees of a disposal system.

Waste disposal contracts

Sec. 3.15. (a) The authority may contract to receive and treat or dispose of wastes from any person in the district.

(b) In contracts under Subsection (a) of this section, the authority shall set fees on the basis of

(1) the quality of the waste;

(2) the quantity of the waste;

(3) the difficulty encountered in treating or disposing of the waste;

- (4) operation and maintenance expenses and debt retirement services; and
- (5) any other reasonable considerations.

Sale of water and by-products

Sec. 3.16. The authority may store and sell water that it collects under Section 3.15 of this Act, and may furnish water of a specified quality. It also may store and sell any by-product from its operations.

Permits from Texas water rights commission

Sec. 3.17. (a) For the purpose of maintaining established water quality standards in the bays and estuaries within the district, the authority may apply to the Texas Water Rights Commission for water appropriation permits.

(b) The authority may apply for water storage or use permits from the Texas Water Rights Commission to store and sell water under the provisions of Section 3.16 of this Act.

Eminent domain

Sec. 3.18. The authority may acquire property of any kind within or outside the district, appropriate for the exercise of its functions, through the exercise of the power of eminent domain under the provisions of Title 52, Revised Civil Statutes of Texas, 1925, as now or later amended.

Relocation of facilities

Sec. 3.19. In the event that the authority, in the exercise of the power of eminent domain or power of relocation, or any other power, makes necessary the relocation, raising, rerouting or changing the grade of or altering the construction of any highway, railroad, electric transmission line, telephone or telegraph properties and facilities, or pipelines, all such necessary relocation, raising, rerouting, change in grade or alteration of construction, shall be accomplished at the sole expense of the authority. The term "sole expense" shall mean the actual cost of such relocation, raising, rerouting, change in grade or alteration of grade or construction in providing comparable replacement without any enhancement of such facilities, after deducting therefrom the net salvage value derived from the old facility.

Use of public easements

Sec. 3.20. The authority shall have the right, power, and authority to use any and all public roadways, streets, alleys, or public easements within or outside the district in the accomplishment of its purposes, without the necessity of securing a franchise.

Acquisition and disposition of property

Sec. 3.21. (a) The authority may purchase, lease, acquire by gift, maintain, use, and operate property of any kind appropriate for the exercise of its functions.

(b) Sales of property not authorized by any other provision of this Act are hereby authorized subject to the following limitations: (1) The board, by affirmative vote of seven directors shall determine that the property is not needed by the authority; (2) sales shall be by competitive bidding if the value of the property as appraised by the board exceeds \$10,000; (3) notice of the proposed sale shall be published once each week for three consecutive weeks in a newspaper having general circulation in the county or counties in which the property is situated if the value of the property as appraised by the board exceeds \$2,000; (4) the specific terms of the sale shall be approved by the board, an affirmative vote of seven directors being required for this purpose, unless the value of the property as appraised by the board is \$2,000 or less, in which event the board by affirmative vote of seven directors may authorize the general manager to sell on such terms as he deems advisable.

Facilities

Sec. 3.22 The authority may acquire in any lawful manner, construct, extend, improve, maintain, reconstruct, use, and operate any facilities necessary or convenient to the exercise of its powers, rights, duties, and functions.

Contracts generally

Sec. 3.23. (a) The authority may make contracts and execute instruments that are necessary or convenient to the exercise of its powers, rights, duties, and functions. A contract may be for any term not to exceed 50 years.

(b) Any construction or repair contract, or contract for the purchase of material, equipment or supplies, or any contract for services (other than technical, scientific, legal, fiscal or other professional services) shall be awarded to the lowest and best bidder therefor, after publication of a notice to bidders once each week for three consecutive weeks before the date set for awarding the contract, if the contract will require an estimated expenditure of more than \$10,000, or if the contract is for a term of more than two years. In the event of an emergency, the authority may let such contracts as are necessary to protect and preserve the public health and welfare or the properties of the authority, without such bidding procedures.

(c) The notice is sufficient if it states the time and place, when and where the bids will be opened, the general nature of the work to be done, or the material, equipment, or supplies to be purchased, or the nonprofessional services to be rendered, and states the terms upon which copies of the plans, specifications, or other pertinent information may be obtained.

(d) Publication of the notice shall be in a newspaper having general circulation in the county or counties in which the contract is to be performed. In addition to publishing notice in a newspaper having general circulation, the notice may also be published in any other appropriate publication.

(e) Anyone desiring to bid on the construction of any work advertised as herein provided, shall, upon written application to the board, be furnished with a copy of the plans and specifications or other engineering and architectural documents showing

the work to be done, and all the details thereof, providing that a charge may be made therefor to cover the cost of making such copy. All bids to do any such work shall be in writing, and sealed and delivered to the board, and shall be accompanied by a certified check upon some responsible bank in the State of Texas or a bid bond from a company approved by the board, for at least one percent of the total amount bid, and the amount of said check or bond shall be forfeited to the authority in the event such successful bidder shall fail or refuse to enter into a proper contract therefor, or shall fail or refuse to furnish bond therefor as required by law. Any or all bids may be rejected by the board.

(f) Bids shall be opened at the place specified in the published notice and shall be announced by the board. The place where the bids are opened and announced shall always be open to the public.

(g) The contract price of all construction contracts of the authority may be made in partial payment as the work progresses, but such payments shall not exceed 90 percent of the amount due at the time of such payment as shown by the report of the general manager of the district. The board shall at all times during the progress of the work, inspect the same or cause the same to be inspected by the general manager or his assistants, and upon the completion of any contract in accordance with such terms, they shall pay the balance due thereon.

(h) The person, firm or corporation to whom such contract is let shall provide such performance and payment bonds as are required by law.

(i) The provisions of this section do not prohibit the authority from purchasing surplus property from the United States by negotiated contract and without necessity for advertising bids.

(j) An officer, agent, or employee of the authority who is financially interested in a contract of the types enumerated in Subsection (b) of this section shall disclose that fact to the board before the board votes on the acceptance of the contract.

(k) Notwithstanding any provision of any charter of any city or town, contracts between the authority and any city or town need not be submitted to the electorate.

Cooperative agreements

Sec. 3.24. The authority may enter into cooperative agreements with other local governments, state agencies, or agencies of the United States of America

(1) to perform water quality and waste disposal management, inspection, and enforcement functions and give technical aid and education services to any entity that is a party to the agreement; and

(2) to transfer money or property to any entity that is a party to the cooperative agreement for the purpose of water quality and waste disposal management, inspection, enforcement, and technical aid and education.

Hearings Concerning Groundwater Withdrawal

Sec. 3.25. (a) The authority is hereby authorized to work in cooperation with and lend assistance to, any permanent standing committee or interim study committee

authorized by the Legislature of the State of Texas, or the Coastal and Marine Affairs Council, and to expend any money specifically appropriated by the legislature to the authority, or money appropriated specifically to the Texas Water Quality Board or any other state agency for a contractual arrangement between such state agency and the authority, for the first phase of a subsidence control program for Harris and Galveston Counties. Such program is intended to develop regional information relating to water demand, present and future, surface water supply sources, present and future, and groundwater pumping zones, and to prepare methods to redistribute water in the future. The authority is specifically authorized to cooperate with and contract with the United States Geological Survey and any other federal or state agencies concerning the results of such program. It is specifically provided that the authority shall not be required to expend any of its funds for the purpose specified in this section unless such funds are specifically appropriated by the legislature or specifically designated for such purpose from contractual arrangements.

SUBCHAPTER 4. GENERAL FISCAL PROVISIONS

• Disbursement of funds

Section 4.01. The authority's money is disbursable only by check, draft, order, or other instrument, signed by the person or persons authorized to do so in the board's bylaws, or by resolution of the board.

Fees and charges

Sec. 4.02. The authority shall establish fees and charges which may not be higher than necessary to fulfill the obligations imposed on it by this Act.

Loans and grants

Sec. 4.03. (a) The authority may borrow money for its corporate purposes.

(b) The authority may borrow money and accept grants from private sources, the United States of America, the state, and local governments. The authority may enter into any agreement in connection with the loan or grant which is not in conflict with the constitution and laws of this state.

(c) The sources of any funds accepted by the authority shall be public information, both as to amount and any restrictions placed by the donor on their expenditure.

Fiscal year and audit by state auditor

Sec. 4.04. (a) The authority's fiscal year shall be established by the board.

(b) The board shall keep separate books and accounts of all money received from the State of Texas, and the state auditor shall audit annually such books and accounts in a manner enabling him to report to the Legislature the manner and purpose of the expenditure of the authority's money received from the state during each fiscal year.

State auditor's report

Sec. 4.05. (a) The state auditor shall make a report of his audit promptly.

(b) The state auditor shall file a copy of the report with the governor, the quality board, the commissioners court of each county in the district, and as may otherwise be provided by law.

Cost of state auditor's audit

Sec. 4.06. (a) After completing the report required by Section 4.05 of this Act, the state auditor shall prepare a detailed statement showing the actual cost of the audit and certify the statement to the authority for payment.

(b) Upon receipt of the statement, the authority shall pay the state treasurer the cost of the audit.

(c) The state treasurer shall credit the payment to the general revenue fund.

Independent audit

Sec. 4.07. (a) The authority shall keep a complete system of accounts and an audit of its affairs (except as provided in Section 4.04(b) above) for each year shall be prepared by an independent certified public accountant, or a firm of independent certified public accountants, of recognized integrity and ability selected by the board. The cost of said audit shall be paid by the authority.

(b) The authority shall file copies of the independent audit with the Governor of the State of Texas, the quality board, and the commissioners court of each county in the district; and the board shall keep at least one copy of such audit at the office of the district open to inspection by any interested person during normal office hours.

Depository banks

Sec. 4.08. (a) The board shall designate one or more banks within the district to serve as depository for the funds of the authority. All funds of the authority shall be deposited in such depository bank or banks except that bond proceeds and funds pledged to pay bonds may, to the extent provided in a trust indenture, be deposited with the trustee bank named in the trust indenture, and except that funds shall be remitted to the bank of payment for the payment of principal of and interest on bonds. To the

(1) bonds secured by ad valorem taxes.

(2) bonds secured by a pledge of all or part of the revenues accruing to the authority, including without limitation those received from sale of water or other products, rendition of service, tolls, charges, and from all other sources other than ad valorem taxes.

(3) bonds secured by a combination pledge of all or part of the revenues described in Subdivision (2) of this subsection, and taxes.

(b) Such bonds shall be authorized by resolution of the board and shall be issued in the name of the authority, signed by the chairman or vice-chairman, attested by the secretary and shall bear the seal of the authority. It is provided, however, that the signatures of the chairman, the vice-chairman or of the secretary or of both may be printed or lithographed on the bonds if authorized by the board, and that the seal of the authority may be impressed on the bonds or may be printed or lithographed thereon. The bonds shall be in such form as shall be prescribed by the board, shall be in such denomination or denominations, shall mature serially or otherwise in not to exceed 50 years from their date, shall bear such interest, and may be sold at a price and under terms determined by the board to be the most advantageous reasonably obtainable, and within the discretion of the board, may be made callable prior to maturity at such times and prices as may be prescribed in the bonds, and may be made registrable as to principal or as to both principal and interest. Such bonds may be further secured by an indenture of trust with a corporate trustee.

(c) Bonds may be issued in more than one series, and from time to time, as required for carrying out the purposes of this Act. Any pledge of revenues may reserve the right, under conditions therein specified, to issue additional bonds which will be on a parity with, or be secured by a lien senior to or subordinate to the bonds then being issued.

(d) The resolution authorizing the bonds or the trust indenture further securing such bonds may specify additional provisions which shall constitute a contract between the authority and its bondholders. The board shall have full discretion in providing for such additional provisions including the authority to provide for a corporate trustee or receiver to take possession of facilities of the authority in the event of default on the part of the authority in fulfilling the covenants therein made.

Refunding bonds

Sec. 5.02. The authority is authorized to issue refunding bonds for the purpose of refunding any outstanding bonds authorized by this Act and interest thereon. Such refunding bonds may be issued to refund one or more series of outstanding bonds and combine the pledges for the outstanding bonds for the security of the refunding bonds, and may be secured by other or additional revenues. The provisions of this law with reference to the issuance by the authority of other bonds, their security, and their approval by the attorney general and the remedies of the holders shall be applicable to refunding bonds. Refunding bonds shall be registered by the comptroller upon surrender and cancellation of the bonds to be refunded, but in lieu thereof, the resolution authorizing their issuance may provide that they shall be sold and the proceeds thereof deposited

in the bank where the original bonds are payable, in which case the refunding bonds may be issued in an amount sufficient to pay the principal of and the interest on the original bonds to their option date or maturity date, and the comptroller shall register them without requiring surrender and cancellation of the original bonds.

Approval and registration of bonds

Sec. 5.03. After any bonds (including refunding bonds) are authorized by the authority, such bonds and the record relating to their issuance shall be submitted to the attorney general for his examination as to the validity thereof. If such bonds recite that they are secured by a pledge of the proceeds of a contract theretofore made between the authority and any city or other governmental agency, authority or district, a copy of such contract and the proceedings of the city or other governmental agency, authority or district authorizing such contract shall also be submitted to the attorney general. If he finds that such bonds have been authorized and such contracts have been made in accordance with the Constitution and laws of the State of Texas, he shall approve the bonds and such contracts and the bonds then shall be registered by the comptroller of public accounts. Hereafter the bonds, and the contracts, if any, shall be valid and binding and shall be incontestable for any cause.

Bond election

Sec. 5.04. No bonds payable wholly or partially from ad valorem taxes (except refunding bonds) shall be issued unless authorized by an election at which only the qualified property tax-paying voters of the district may vote and unless a majority of the votes cast in such election is in favor of the issuance of the bonds. Refunding bonds and bonds not payable wholly or partially from ad valorem taxes may be issued without an election. Such elections shall be held in accordance with the provisions hereinafter set forth governing ad valorem tax elections.

Maintenance tax

Sec. 5.05. The board shall have the power to levy and collect ad valorem taxes for the maintenance of the authority and its improvements, in such amounts as are voted in accordance with the procedure hereinafter set forth; provided that the maintenance tax shall not exceed the maximum rate voted, and said rate shall remain in effect until or unless changed by subsequent vote, and that in no event shall the tax rate exceed the limit specified in Section 5.08 of this Act.

Election

Sec. 5.06. No such maintenance tax shall be levied or collected and no bonds payable wholly or partially from ad valorem taxes shall be issued unless an election is held in the district and any such taxes or bonds are duly and favorably voted by a majority of the qualified property taxpaying voters of the district, voting at the election. Each

such election shall be called by resolution of the board. The election resolution shall set forth the date of the election, the proposition to be submitted and voted on, the polling places, and any other matters deemed advisable by the board. Notice of said election shall be given by publishing a substantial copy of the resolution calling the election in a newspaper of general circulation in the district not less than twice in such newspaper, with the interval between such publications to be at least one week, and with the first of each of said publications to be at least 60 days prior to the date set for the election. To the extent not inconsistent with the provisions hereof, the elections herein provided for shall be held in accordance with the provisions of the Texas Election Code.

Rendition, assessment, equalization, levying, and collection of taxes

Sec. 5.07. The rendition and assessment of property for taxation, the equalization of values, and the collection of taxes for the benefit of the authority shall be in accordance with the law applicable to counties, insofar as such law can be made applicable, and except as hereinafter specifically provided. The board may act as the board of equalization for the authority, or may appoint a separate board of equalization to consist of five resident, qualified voters who own taxable property in the district. In either case, the board of equalization shall have the powers, functions, and duties of the commissioners courts of counties in equalizing property values in accordance with law applicable to counties, insofar as such laws can be made applicable. It is provided, however, that renditions shall be made to the county tax assessor and collector of the county in which the property is located and the tax assessor and collector of each county, respectively, shall act as the tax assessor and collector for the authority for property located in such county. It shall be the duty of the tax assessor and collector in each county to cause to be placed on the county tax rolls such additional column or columns as are needed to show the taxes levied by the authority and the amount thereof, based on the value of such property as approved finally by the authority's board of equalization. The fee of each county tax assessor and collector for assessing and collecting taxes shall be one percent of the taxes collected, such fee to be paid over and disbursed in each county as are other fees of office. All of the laws for the enforcement of state and county taxes shall be available to the authority. The authority shall have the right to cause the officers of each county to enforce and collect the taxes due to the authority in that county, as provided in the law for the enforcement of state and county taxes. Taxes assessed and levied for the benefit of the authority shall be payable and shall become delinquent at the same time, in the same manner, and subject to the same discount for advance payment as taxes levied by and for the benefit of the county in which the property is taxable. The fee for collecting delinquent taxes through prosecution of suit shall be 15 percent of the taxes collected by such suit, such fee to be paid over and disbursed in each county as are other fees of office. Concurrently with the levy of county taxes by the commissioners courts, the board shall levy the tax on all taxable property in the district which is subject to such taxation and shall immediately certify such tax rate to the tax assessor and collector of the counties comprising the authority.

Tax limit

Sec. 5.08. The maximum rate of tax which may be levied by the board in any fiscal year for all purposes, other than taxes levied pursuant to Section 6.05, shall not exceed ten cents (10c) on each \$100 of assessed valuation of taxable property.

Bonds authorized investments

Sec. 5.09. All bonds and refunding bonds of the authority shall be and are hereby declared to be legal, eligible and authorized investments for banks; savings and loan associations; insurance companies; fiduciaries; trustees; the sinking funds of cities, towns, villages, counties, school districts, or any other political corporations or subdivisions of the State of Texas; and for all public funds of the State of Texas or its agencies, including the State Permanent School Fund. Such bonds and refunding bonds shall be eligible to secure the deposit of any and all public funds of the State of Texas, cities, towns, villages, counties, school districts, or other political corporations or subdivisions of the State of Texas; and such bonds shall be lawful and sufficient security for said deposits to the extent of their face value, when accompanied by all unmatured coupons appurtenant thereto.

SUBCHAPTER 6 - POLLUTION CONTROL DISTRICTS

Section 6.01. The authority may establish one or more "Pollution Control Districts" for the purpose of accomplishing any of the powers, purposes, rights, privileges or authority vested in the authority.

Establishment of districts

Sec. 6.02. (a) Pollution Control Districts may be established by the procedures contained in this Section.

(1) The board may adopt a resolution calling for the creation of a Pollution Control District, defining the boundaries thereof, estimating the principal amount of and stating the purpose of bonds proposed to be issued by the authority on behalf of the proposed Pollution Control District, declaring that taxes for the payment of the proposed bonded indebtedness shall be levied exclusively upon the taxable property within the proposed Pollution Control District, and fixing a time and place for a public hearing on the matters set out in the resolution; or

(2) The board may adopt a resolution calling for the creation of a Pollution Control District, defining the boundaries thereof, declaring that taxes for the maintenance of the authority and its improvements shall be levied upon the taxable property within the proposed Pollution Control District, and fixing a time and place for a public hearing on the matters set out in the resolution.

(b) The resolutions authorized by Section 6.02(a) may be adopted simultaneously and simultaneous hearings on proposed bond and maintenance taxes may be held.

(c) The public hearing may be conducted by a quorum of the board of directors, or one or more directors, or one or more employees who may be designated by the board. If someone other than a quorum of the board conducts the hearing, he shall have power to accept evidence and make recommendations upon which the board may act. The board may alter, modify or change any provision of the resolution calling for the creation of the proposed Pollution Control District subsequent to the public hearing;

provided, however, that the boundaries of the Pollution Control District may not be enlarged or expanded without further notice as hereinafter provided.

(d) Notice of the public hearing shall be published in a newspaper of general circulation within the proposed Pollution Control District once not less than fifteen (15) nor more than thirty (30) days prior to the public hearing. To the extent not inconsistent with the provisions hereof, notice of the public hearing shall also comply with Article 6252-17, Vernon's Texas Civil Statutes, as amended.

(e) All public hearings on creation of a Pollution Control District shall be held within the boundaries of the proposed Pollution Control District, and may be held concurrently or in connection with any other public hearing, meeting or proceeding conducted by the board.

(f) Any interested person, including persons residing or owning property within the authority, may appear at the public hearing and present evidence relevant to the matters set forth in the resolution calling for the creation of the proposed Pollution Control District. All persons residing within or owning property within the proposed Pollution Control District shall have the right to appear at the public hearing and present evidence with regard to whether they will receive benefits from the proposed improvements or taxation. Failure to appear at the public hearing shall constitute a waiver of all objections which the absent party might have had to all matters set forth in the resolution calling for the creation of the proposed Pollution Control District.

(g) The board shall review the findings and recommendations resulting from the public hearing, and may adopt a resolution creating the Pollution Control District, stating the purposes for which the Pollution Control District has been created, designating the boundaries of the Pollution Control District, declaring that the indebtedness to be incurred or the cost of services to be rendered by the authority for the benefit of the Pollution Control District shall be payable from taxes levied upon property within the Pollution Control District, finding that the property within the Pollution Control District will benefit from the indebtedness proposed to be incurred or the services proposed to be rendered by the authority on its behalf, and calling for an election within the Pollution Control District to authorize said indebtedness and/or said maintenance tax. Said resolution shall further state the date of the election, the proposition or propositions to be voted on, the location of the polling places, and the names of the officers of the election. Said election may be held in conjunction with a general election or any special election other than a primary election. The provisions of the Texas Election Code shall govern the election unless contrary to any provision of this Act.

(h) The resolution of the board creating a Pollution Control District shall be final and conclusive, and shall not be subject to review by any court except upon the basis of whether the resolution is supported by substantial evidence. Said resolution shall be filed in the deed records of the county or counties wherein the territory within the Pollution Control District is situated. Any action or proceeding wherein the validity of the board's resolution creating a Pollution Control District or of the proceedings relative thereto is contested, questioned or denied, shall be commenced within thirty (30) days from the effective date of the resolution; otherwise, said resolution and all proceedings relative thereto, including the creation of the Pollution Control District, shall be held to be valid and in every respect legal and incontestable.

Boundaries and addition of territory

Sec. 63. (a) The boundaries of a Pollution Control District may include any territory within the authority, whether or not the territory contains non-contiguous parcels of land, and whether or not the territory is located within the boundaries of any incorporated city, town, village, or any other governmental entity or political subdivision of the State of Texas. If any portion of the territory of a proposed Pollution Control District falls within the boundaries or within the exclusive extraterritorial jurisdiction of an incorporated city, town or village, the board shall not create said Pollution Control District until it has obtained the consent of said city, town or village. Said consent may contain such conditions as may be mutually agreed upon by the authority and said city, town or village, and shall be evidenced by a duly enacted ordinance of the governing body of said city, town or village.

(b) Proceedings for the annexation of territory to an existing Pollution Control District may be initiated by a resolution of the board, or by a petition signed by the owners of 50% or more of the value of the land subject to the proceedings, or by a petition signed by a majority of the residents of the land to be annexed. The petition shall, insofar as is practicable, set forth substantially those matters set forth in a resolution calling for the creation of a Pollution Control District, and shall request a public hearing by the board on the matters set out in the petition. The public hearing shall be held in substantial compliance with the provisions set forth herein for a public hearing on creation of a Pollution Control District. If the board determines that the annexation should be accomplished, it may adopt a resolution calling separate elections on the matter of annexation to be held within the existing Pollution Control District and within the land to be annexed. The annexation shall not become final until approved by a majority of the qualified voters within the existing Pollution Control District, and until a majority of the qualified voters within the boundaries of the land to be annexed approve said annexation and elect to allow the land to be annexed to be taxed for maintenance purposes and/or to assume its pro rata share of indebtedness theretofore authorized and/or taxes necessary to support the voted but unissued tax or tax-revenue bonds of the authority which are to be issued on behalf of the existing Pollution Control District, and authorize the board to levy a tax on the property therein for payment for such unissued bonds, when issued. Said elections shall conform to the Texas Election Code, insofar as said Code is not inconsistent with the provisions of this Act. The board's resolution canvassing the returns of such elections shall redefine the boundaries of the Pollution Control District and shall be recorded in the deed records of the county within which the annexed territory lies.

(c) Proceedings for the addition of territory to an existing Pollution Control District on which less than three (3) qualified voters reside may be initiated by a petition signed by the owner or owners thereof praying that the land described therein be added thereto and become a part thereof. The petition shall, insofar as applicable set forth substantially those matters set forth in a resolution calling for the creation of a Pollution Control District and shall request a public hearing by the board on the matters set out in the petition. The public hearing shall be held in substantial compliance with provisions set forth herein for a public hearing on creation of a Pollution Control District. If the board determines that the addition should be accomplished, it may adopt a resolution adding such land. If taxes or bonds have been authorized within the Pollution Control District prior to the addition of said land, said resolution adding the land shall be temporary and the addition shall not become final until approved by a majority of the qualified voters within the Pollution Control District as it exists after said addition. Such election shall be held as soon as practicable after said addition on the proposition of approving said addition, ratifying the unissued tax or tax-revenue bonds of the authority which are to be issued on behalf of the Pollution Control District, and to authorize the board to

levy a tax on the property within the Pollution Control District as enlarged for payment of said unissued bonds when issued and/or for the maintenance of the authority. Such election shall conform to the Texas Election Code so far as such Code is not inconsistent with the provisions of this Act. The board's resolution canvassing the returns of such election or adding the territory shall redefine the boundaries of the Pollution Control District and shall be recorded in the deed records of the county within which the added territory lies.

Taxation

Sec. 6.04. (a) If the qualified voters in the elections called pursuant to Section 6.02 and/or Section 6.03 authorize the authority to incur indebtedness for the benefit of a Pollution Control District, the board shall have authority to issue bonds as provided in Subchapter 5 of this Act; provided, however, that taxes levied for the purpose of making payments of the interest on or principal of said bonds shall be levied only on taxable property within the Pollution Control District.

(b) Notwithstanding any provision of this Act to the contrary, if the qualified voters in the elections called pursuant to Section 6.02 or Section 6.03 authorize the authority to levy and collect ad valorem taxes for the maintenance of the authority and its improvements, the board shall have authority to levy, assess and collect said maintenance tax as provided in Subchapter 5 of this Act; provided, however, that said maintenance tax shall be levied only on taxable property within the Pollution Control District.

Bonded indebtedness

Sec. 6.05. The board may incur all such indebtedness as may be necessary to provide all improvements, and the maintenance thereof, requisite to the achievement of the purposes for which any Pollution Control District is organized, and the authority is authorized to levy and collect all such taxes as may be necessary for the payment of the interest thereon and the creation of a sinking fund for the payment thereof, and such taxes shall be a lien upon the property assessed for the payment thereof.

Annexation by Municipalities

Sec. 6.06. If any city, town or village which has consented to the creation and boundaries of a Pollution Control District as provided in Section 6.03(a) of this Act thereafter annexes any part or portion of the territory within such Pollution Control District, the agreement referred to in said Section 6.03(a) shall be deemed to provide and include the provisions of Chapter 128, Acts of the 50th Legislature, 1947, as amended (Article 1182c-1, Vernon's Texas Civil Statutes), or Chapter 228, Acts of the 56th Legislature, 1959, as amended (Article 1182c-5, Vernon's Texas Civil Statutes), as may be applicable to the specific district, and any such annexing city, town or village shall assume all or the proportionate part of physical assets, properties, facilities, intangible assets, bonded indebtedness, liabilities, obligations and any other debts of the Pollution Control District affected by such annexation.

CHEMICAL RESOURCES, INC.

TULSA, OKLAHOMA

I. INTRODUCTION

Chemical Resources, Inc., was incorporated in January of 1979. It had been operating as a commercial injection well for hazardous wastes under the name of Lamberton Acid Well Disposal since 1973.

Since its opening, the site has experienced no organized public opposition to its hazardous waste disposal operation. There are thousands of similar waste brine injection wells in Oklahoma and three other industrial, waste-generator owned disposal wells in the Tulsa area. Local residents have expressed no significant concern over the Lamberton well apart from a few isolated complaints about odors. The nearby oil refineries are generally blamed for most odors in the area. Public opposition did surface briefly during the off-loading of an out-of-state barge loaded with pesticide wastes en route to the Lamberton well. However, the opposition was directed primarily at the barge and at the possibility of accidental spills in the river if more such out-of-state barges came to off-load their wastes in Tulsa. Because of the lack of public concern or opposition towards the Lamberton well there has been no need to take specific steps to secure public support.

II. BACKGROUND INFORMATION

The injection well is situated on a four-acre site within a 265-acre parcel owned by the operator. The entire area is zoned heavy industrial. The well site was formerly cattle grazing land. Horses and cattle are still periodically allowed to graze the area to keep the grass down.

The site is situated at the edge of an industrial area containing a major railroad yard, two large oil refineries, several steel galvanizing plants, a chemical plant, and a pipeline tank farm. The immediate neighbors of the well site are a commercial stable owned by the Lamberton family, a chemical products firm making ink, and a steel galvanizing plant. One side of the well site is undeveloped land owned by the operator and used for grazing and horseback riding. On this side is also a series of hills which separate the site from the nearest residential area about one mile away. The site is across the Arkansas River and about three miles from downtown Tulsa.

The geology of the area is very suitable to injection well disposal. The site overlies the Arbuckle formation, a limestone aquifer that covers almost three quarters of Oklahoma and is approximately a quarter of a mile thick. At the site of the well the aquifer is approximately

2,100 feet below the surface and extends to 3,300 feet, at which point the bedrock formation begins. This aquifer is well below the fresh water bearing formations which are generally tapped for drinking water at 20 to 60 feet below the surface. The operator remembers that back in the 1930s the Arbuckle formation in this area was tapped for salt water from which commercial salts were manufactured. However, those operations were soon stopped when it was learned that the salt water was naturally radioactive.

The site itself contains an injection well, a pump, and three storage tanks to temporarily hold wastes while balancing the volume of incoming waste streams with the injection rate. Also on the site is a mobile trailer office. The entire area is surrounded by a chain link fence. The site appears relatively clean and neat. The adjacent undeveloped land contributes to the favorable appearance of the site. The operator estimates the life of the site to be at least 500 years. Private injection wells in the Tulsa area using the same limestone aquifer have been operating at much higher injection rates for over 20 years with no noticeable decline in capacity.

The waste disposal operation at the facility is one of deep-well injection. The wastes are piped in directly from local steel plants in the neighboring industrial area. In addition, the facility receives wastes by tanker trucks, rail tank cars and barges. The operator owns a short rail spur several hundred yards from the site which is connected by pipeline directly to the well. He also owns an off-loading facility at the nearby Port of Catoosa. His own small fleet of tanker trucks serves the barge off-loading facility and several local industries in the Tulsa area. With the exception of the piped-in wastes and those delivered by his own trucks, all wastes arrive by commercial haulers or are transported by the waste generator.

The wastes are sometimes stored temporarily when the volume of the arriving waste stream exceeds the injection rate of the well or the wastes need to be segregated before injection. The well normally operates at a rate of 3 barrels per minute (126 gallons per minute) and under an injection pressure of 360 pounds per square inch (psi). The pressure can be increased with the addition of another pump, thereby increasing the injection rate. The well has been operated under a pressure of 500 psi, which resulted in an injection rate of 2,000 gallons per minute. This higher rate is used when a large shipment is accepted which exceeds the storage capacity of the tanks.

The well is constructed of a five-inch steel casing within which is a three-inch fiberglass pipe. The bottom of the fiberglass pipe is open to the 2,100-foot level in the Arbuckle limestone formation. The annular space between the fiberglass pipe and steel casing is sealed at the top and bottom and filled with oil under a higher pressure than the

expected waste stream injection pressure. By monitoring the oil pressure, leaks can be detected either in the fiberglass in the inner pipe or the steel casing. Furthermore, the higher pressure of the oil will prevent hazardous wastes from escaping the fiberglass in the event of a leak. The steel casing is also surrounded by cement from top to bottom.

Some of the wastes are blended before injection to reduce the corrosiveness of a particular waste stream and thereby protect the piping. The limestone aquifer further neutralizes the wastes. Since the operation began there has never been a positive pressure in the aquifer after waste injection has ceased, indicating no buildup of pressure in the aquifer. There are three private injection wells in the area, all using the same Arbuckle formation, with much higher injection volumes and with similar histories of no pressure buildups. The other three wells handled approximately 400 million gallons in 1979, compared to Lamberton's well which processed about 12 million gallons.

The site will soon operate twenty-four hours per day with three two-person shifts. Currently, the site operates only sixteen hours per day.

Contingency and post-closure provisions follow state regulations. The owner has a \$10,000 bond and \$500,000 worth of liability insurance. The insurance amount meets state standards. However, the bonding limit to cover closure and post-closure monitoring has yet to be determined by the state.

The facility accepts a relatively broad range of wastes from a large market area. Out-of-state wastes come from Texas, New Jersey, Louisiana, Ohio, Colorado, Mississippi, Tennessee, and Arkansas. These wastes include sulfuric acid solutions from plating operations, waste oil, and pesticide rinse waters. The operator does not handle highly corrosive wastes which would damage the piping and storage tanks. He also does not accept chlorinated hydrocarbons which contaminate the piping and storage tanks for subsequent use of these facilities for waste oils that are shipped to the refinery for reprocessing. The facility handles an average of 1.5 million gallons per month. During a one-month period in 1978, 4.5 million gallons were received and disposed of.

The owner of the well is a petroleum engineer with drilling experience dating back to 1926 when his family purchased some oil wells that are still in operation near the site. He is a third-generation oil man. His experiences have also included deep-well injection of brines from oil well operations. He claims that there are over 10,000 such injection wells in the state. The injection well is the only hazardous waste disposal facility focused on in this study which was owned by the operator. Although Tulsa is no longer the "oil capital of the world," its primary industry still is oil and associated petrochemical industries. The site is near one of the oldest parts of town, where the oil boom in this area first started in the early 1900s. The neighborhood is now

predominantly a lower middle class blue-collar area viewed by one of its inhabitants as the "wrong side of the tracks" from the rest of Tulsa. The site is within Tulsa County and the Tulsa SMSA, which has approximately 425,000 people. Tulsa is the major trade and service center for eastern Oklahoma.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

When the operation started in 1972, there were no specific regulations covering hazardous waste injection. The state had passed a Solid Waste Management Act in 1970 which covered hazardous waste disposal in landfills but not in deep-well injection facilities. At that time the State Corporation Commission granted all well drilling permits for oil, gas and waste injection wells, and the Water Resources Board granted waste injection permits. In 1976, however, the state adopted the Oklahoma Controlled Industrial Waste Act, which specifically covered deep-well injection of hazardous wastes. The Act provided guidelines for both the construction and operation of such wells, including a provision for public hearings if one is requested. The statute also prohibited the importation of wastes from any state that was not willing to accept hazardous wastes from Oklahoma. In July of 1977, rules and regulations were promulgated for the Act and the authority over deep-well injection of hazardous waste was transferred from the Water Resources Board to the state Health Department. Under an informal grandfather clause, existing operators were permitted to continue operations while their operating conditions were evaluated for new Health Department permits based on the rules and regulations of the 1976 Act. The portion of the Act dealing with the reciprocity agreements between states over wastes shipments was later struck down by a federal court.

In 1978, the state passed an amendment to the Act tightening some of the provisions of the 1976 Act. Revised rules and regulations are now being drafted and are expected to be promulgated in the summer of 1979.

The state, under contractual arrangements with the City/County Health Department, has delegated the responsibility of inspecting the injection well disposal facilities to the county. The county reports its findings to the state and the state has the authority and responsibility to enforce compliance with the regulations.

The federal government under the Safe Drinking Water Act of 1974 has also developed proposed regulations covering underground injection of wastes and the protection of underground sources of drinking water. However, these regulations will presumably allow states such as Oklahoma with their own legal authorities to have primary enforcement responsibilities for an underground injection control program if it meets or exceeds federal standards.

The history of events that led to the hazardous waste disposal operations of Chemical Resources, Inc., formerly the Lamberton Acid Well

Disposal, started in 1957 when the operator had his land holdings in West Tulsa rezoned from agricultural to heavy industrial. The operator had lived in the area since 1918 and operated oil wells on this property since 1916. However, the primary use of the land was cattle grazing. Since 1957 several pieces of land were sold, including one piece to a steel galvanizing operation. Cattle grazing continued during this period and the operator noticed some harmful effects on the cattle from the acid wastes which were being disposed of by the galvanizing operation in evaporation ponds. These wastes occasionally escaped the ponds and contaminated a local creek used by the cattle. This situation led to the idea of an acid waste injection well to serve the steel industry in the area.

In 1972 the operator made arrangements with the area's steel plants to accept their acid wastes for disposal in an injection well. The arrangement included having the wastes piped directly to a four-acre site where the well would be drilled, several hundred yards from the steel plants. In 1973 the operator received a State Corporation Commission permit and the well was drilled. At that time the operator owned 265 acres of primarily undeveloped land around the well site.

In 1973 the State Water Resources Board granted the operator a permit to inject acid wastes into the Arbuckle limestone formation. Waste disposal operation began in 1973 and for two years the site continued to handle only the acid wastes from the nearby steel plants. During this time another commercial waste injection well operated in the area and the Lamberton operation received frequent requests to handle its oversupply of wastes. Therefore, in 1975 Lamberton decided to expand the operation by accepting non-local waste shipments in addition to the direct, piped acid wastes. Waste shipments were received by tank truck, rail and barge from as far away as New Jersey.

Up to this time the facility was operated under a permit granted by the Water Resources Board. In 1976 Oklahoma passed the Controlled Industrial Waste Disposal Act which specifically addressed deep-well injection of hazardous wastes. Rules and regulations under this Act became effective in 1977 and the authority for underground hazardous waste disposal shifted to the State Health Department. Technically, the Water Resources Board permit was no longer valid and a new Health Department permit was required. However, under an informal grandfather clause, the facility continued to operate while certain housekeeping and operating activities were changed to meet the new regulations. There is no established schedule to meet these requirements, and as soon as the state is satisfied with the improvements, a new permit will be issued. Some improvements have already been made, such as diking around the well and installation of an impermeable liner under the off-loading area. Other improvements (e.g., barbed wire strands above the existing chainlink fence) have not yet been made.

At the end of 1977, the operator filed suit against the Health Department over one provision in the new Act. This provision prohibited the importation of hazardous wastes from any state that was unwilling to accept Oklahoma's hazardous wastes. This legislation was the direct result of a hazardous waste landfill operation in southern Oklahoma which was receiving over 60 percent of its wastes from outside the state. There was a growing fear that the state would "fill up" with toxic wastes from other states. The operator argued that a sweeping ban on importation of wastes where no reciprocity agreement existed should not apply to disposal technologies which have virtually unlimited capacities such as deep-well injection, incineration, distillation, and neutralization. When these methods are employed there is little chance of "filling up" the state. Furthermore, the operator argued that only a small portion of the total hazardous wastes disposed in Oklahoma were imported. In the case of the Tulsa area injection wells only about 5 million out of 400 million gallons disposed of in one year were from outside sources. In September of 1978, the federal court agreed with the operator and a temporary injunction was granted preventing the state from enforcing the reciprocity agreement. Both the operator and the state expect that the court will issue a permanent injunction shortly.

A short while after the litigation over the reciprocity issue, an incident occurred which aroused the first local public attention to hazardous waste disposal. In October of 1978 a barge loaded with pesticide rinse water from Mississippi attempted to unload at the Port of Catoosa serving the Tulsa area. The wastes were destined for the Lamberton injection well. Under the new Act, the state required that all shipments of hazardous wastes be covered by a disposal plan which was to be filled out by the waste generator. There is some confusion over why this plan was not submitted. According to the state, some of this confusion may have been the result of the lengthy litigation with the operator and a misunderstanding over whether this requirement was still in effect. At any rate, at the last minute the operator requested permission from the state to off-load the wastes. The state quickly asked the county to inspect the situation and to advise the state on the safety of the off-loading operation. The county's involvement then triggered the news media and according to one county official the situation became an instant media event. For several days, while the barge awaited state approval to off-load, the local Tulsa papers and television carried news about the barge, the possibility of polluting the Verdigris River (which leads to the Arkansas river), and the realization that Tulsa was becoming a "dumping ground" for out-of-state wastes. The officials and townspeople of two towns with water supply intakes downstream from the Port of Catoosa became alarmed at the possibility of having their water supply contaminated by an off-loading accident. They also felt threatened by continued use of the port for similar hazardous waste shipments.

The state finally granted approval for the shipment to be off-loaded onto tanker trucks and transported to the Lamberton well. The off-loading took place without incident. Almost all of the news coverage during this three to four week period was aimed at the barge and the prospects of further shipments of hazardous wastes into the Tulsa area. Only one article was found which dealt specifically with the Lamerton injection well and what this technology meant to the area. The article praised injection wells as a disposal technology. Indeed, it began with a quotation attributed to an EPA official saying "Except for shooting the stuff to the moon, injection wells are the next best thing."¹

With the exception of this incident there had been virtually no public opposition to the injection well operation. Both the state and the county had received a few phone calls voicing concern over the operation and a couple of calls complaining about odors. There is no odor ordinance in Tulsa but the county did check on the complaints and was unable to verify the allegations. The operation was never charged with creating a nuisance.

Conversations with two long-time residents in the nearby residential area indicated that most people were aware of the hazardous waste disposal operation but were not concerned about it. They were more concerned about stopping industrial development in the vicinity of the well to protect a series of scenic hills that separate the well from the nearest residential area. When asked about possible odors from the operation, they said that local odors were primarily the result of two large refineries in the area. One of the residents who was on the previous mayor's planning commission for Project 2000 (a future development plan for Tulsa) felt that under the current administration there was very little input for public participation in the affairs of this neighborhood, where the injection well was situated. She felt that this predominantly blue-collar area was treated as though they were on the "wrong side of the tracks" and frequently not given all the information about developments in the area including information about the injection well. Both residents agreed that the public is generally apathetic towards the waste disposal operation.

In January of 1979 the Lamberton operation, which had been operating as an individual proprietorship, was incorporated as Chemical Resources, Inc. Steps are still being taken to comply with all the new operating requirements imposed by the Controlled Industrial Waste Disposal Act.

IV. CHRONOLOGY OF EVENTS

1957 -- Lamberton property is zoned for heavy industrial use.

¹ It should be noted that the EPA official's statement was meant to underscore the viability of injection wells, not to seriously propose disposing of hazardous waste in space.

- 1972 -- Negotiations undertaken with local steel plants to accept acid wastes.
- 1973 -- Corporation Commission approval granted and well is drilled.
- 1973 -- Water Resources Board grants acid waste disposal permit.
- 1973 -- Operation begins accepting acid wastes from local steel plants.
- July, 1975 -- Operation is expanded by accepting non-local wastes by truck, rail and barge from Oklahoma and out of state.
- 1976 -- State passes the Oklahoma controlled Industrial Waste Disposal Act.
- July, 1977 -- New rules and regulations under the Act become effective. Authority over underground hazardous waste disposal transferred from Water Resources Board to Department of Health. More stringent operating procedures automatically apply to the Lamberton well and must be met before Health Department operating permit is granted.
- December, 1977 -- Operator files suit against state to overturn statute requiring reciprocity agreements with other states over hazardous waste shipments.
- September, 1978 -- Federal court grants temporary injunction prohibiting state enforcement of reciprocity agreements over hazardous waste shipments.
- October, 1978 -- Major news event occurs when state refuses to allow a barge loaded with pesticide wastes to be off-loaded and transported to the Lamberton well.
- January, 1979 -- Operator incorporates the business under the name of Chemical Resources, Inc.
- April, 1979 -- All operating procedures under the new regulations had not been met and operating permit still pending full compliance.

V. ATTEMPTS TO SECURE SUPPORT

Because there has never been significant opposition to the injection well, there has been no need to address public concerns or issues. There were also no specific attempts to secure support for the injection well.

VI. SUMMARY EVALUATION

At the time the operation began, there was no public opposition to the project and very little awareness of its existence. Since that time there have been a few isolated complaints over odors from the site but no organized or persistent opposition. No attempts were made to respond to the public interest and the media coverage that developed over the barge incident, largely because the interest was not directed specifically at the Lambertson operation. The only steps now being taken by the operator, which might prevent future public opposition, are those housekeeping and operational procedures required by the 1976 Act. These include surrounding the area with dikes to prevent accidental runoff lining the unloading area with an impervious material, and adding barbed wire to the fence. Finally, no attempts were made by the operator to publicize the fact that the injection well is probably a much safer way to dispose of locally generated hazardous wastes than the previous use of evaporation ponds. During the barge incident, one lengthy news article did appear in the Tulsa paper, written by a medical reporter, that objectively covered the known pros and cons of injection wells and described the Lambertson operation.

The Lambertson deep-well injection facility has operated successfully for the past six years primarily for the following reasons:

Accepted Technology -- The operator estimates that there are at least 10,000 injection wells in Oklahoma disposing of oil drilling waste brines. His facility is nothing new to the area and is accepted as a simple offshoot to Oklahoma's oil and petrochemical industry.

Site Location -- The site is situated in an industrial area containing oil refineries steel and chemical plants and a railroad yard. By comparison, the relatively clean appearance of the small four-acre site is hardly recognized as a hazardous industrial waste disposal area. The family-owned riding stable and horseback riding trails immediately adjacent to the well contribute to the favorable appearance of the site.

Public Apathy -- The neighborhood closest to the site is made up of blue-collar workers heavily dependent on the petrochemical industry. The existence of the well and the waste disposal operation are treated as a way of life for these people and have not aroused their special interest. They are aware of the operation but not concerned about it.

Media Interest -- Everyone interviewed agreed that the flurry of media interest in the barge incident was over an isolated event and did not reflect long standing or deeply felt public views on hazardous waste disposal. It is difficult to say what triggered the media interest other than it was a newsworthy event in the

light of national publicity over hazardous wastes. However, public interest has been awakened and although the public has not shown its opposition to the Lambertson operation it has strongly opposed a proposal to construct a similar injection operation near Tulsa.

VII. FACTORS LEDING TO PUBLIC OPPOSITION/ACCEPTANCE

The following factors contributed to public acceptance, or rather, to the lack of public opposition:

- o The site is located in an area dominated by many larger and more obvious industrial facilities.
- o The site is buffered from residential areas by a large parcel of undeveloped land.
- o Waste injection wells are common in Oklahoma.
- o The site is small and relatively clean, indicating no obvious nuisance.
- o Nearby residents are either not aware of or unconcerned by yet another industrial activity in the area.
- o Occasional odors from the site are easily mistaken for the more frequent odors of the local refineries.

VIII. RETROSPECTIVE VIEWS

There were no specific retrospective views on the part of the operator or the government officials. One of the nearby residents, however, felt that more information regarding the operation should have been made available for neighborhood planning efforts.

MASSACHUSETTS BUREAU OF
SOLID WASTE DISPOSAL

STURBRIDGE, MASSACHUSETTS

I. INTRODUCTION

The Massachusetts Bureau of Solid Waste Disposal (BSWD) is currently investigating the feasibility of developing a secure landfill for hazardous waste near the town of Sturbridge, Massachusetts. Preliminary engineering reports have indicated that the Sturbridge site appears to be technically suitable for the disposal of metal finishing (hydroxide) sludges and oil spill debris, wastes of the most immediate concern to BSWD and other state agencies. A decision on whether to develop the Sturbridge site was originally expected to be made by the fall of 1979. That decision has been postponed at least until the spring of 1980.

Although the siting process is in an interim stage, public concern and opposition to the possible development of the site have been voiced by residents and officials in the Sturbridge area. Concerns have been raised not only about the site's qualifications and facility development plans but also about potential impacts of a facility on the area's tourist industry.

In December 1978, at the suggestion of BSWD, the town appointed a task force of local officials and residents. The task force has acted to keep residents informed, to communicate with BSWD and other state agencies, and to marshal resources which may be used to assure local input into the siting process. BSWD and other state agencies have made a concerted effort to inform the community of the progress of the project and to respond to community questions and concerns. The town, however, continues to express concern and opposition.

II. BACKGROUND INFORMATION

The site being investigated by BSWD occupies 105 acres near the intersection of the Massachusetts Turnpike (Interstate 90) and Interstate 86, about 45 miles west of Boston and two miles northeast of the town of Sturbridge. The land is privately owned and undeveloped, although it had recently been considered as a site for a waste-to-energy facility and/or regional sanitary landfill project. There are a few small business establishments in close proximity to the site. To the north of the site is a development of relatively expensive homes which surround Walker Pond and which depend on private wells for water.

The geology of the Sturbridge site has required a preliminary design meeting the intent of proposed RCRA regulations where it has not been

possible to adhere strictly to those regulations.¹ The site's soils, (primarily gravels and tills) due to their permeability, are not suitable for liner material. These soils in depths of 20 to 45 feet overlie a fractured bedrock which transmits groundwater. Groundwater appears to discharge into Hobbs Brook which flows through the western portion of the site. The wetland area of the East Marsh section of the site flows into Walker Pond, just north of the site, and Walker Pond in turn flows into Hobbs Creek.

These factors have directly impacted site design. The central portion of the site could be developed using the existing soil as liner material if a Hypalon (i.e., synthetic) liner is also used. Development of the East Marsh would require the excavation of saturated soils down to the level of the underlying tills. Surface water runoff would be diverted away from the site to adjacent water bodies. Development of the East Marsh section of the landfill would also incorporate a Hypalon liner. The entire developed area would be served by a leachate collection system which would capture leachate within the secured impoundments.

If developed as a secure landfill the central portion site would have a minimum life of about six years. Additional development of the site as a landfill could increase gross capacity by 80 percent. Net increases to capacity would depend on specific engineering plans (e.g., whether a number of smaller fill areas would be planned, allowing for greater segregation of wastes but decreasing capacity).

The preliminary design report included needed appurtenances and estimated capital costs. Appurtenances included buildings, fencing, and two monitoring wells downgradient from each impoundment. Construction and capital costs were estimated at \$1.8 million for development of the central portion only and at \$2.7 million for development of the central and East Marsh portions.

The preliminary plan also addressed site operations. Recommendations for ongoing operations included daily covering of wastes, handling of

¹ Assessments of the Sturbridge site employed proposed RCRA regulations (Section 3004, dated March 24, 1978) as design criteria. The most immediate requirements were those pertaining to sites located over usable aquifers. Those regulations called for a five-foot thick liner of a permeability less than 10^{-7} cm/sec. Because of the shallowness of groundwater and permeability of in situ soils, the site would not meet the letter of the draft regulations. (Based on regulatory definitions almost all of New England would be classified as a usable aquifer because of shallow groundwater conditions.) Other design criteria relate to: 1) the containment and removal of leachate; 2) the thickness and permeability of liner materials; 3) the quality and characteristics of soil liners, and 4) the protection of those liners.

leachate, a manifest system to maintain accurate records on wastes accepted and random sampling of those wastes. Monitoring of groundwater was recommended at monthly intervals. The importance of monitoring the site after closure was stressed although most specific provisions were left to the state to develop. Annual operating costs were estimated at \$280,000; site closure capital costs were estimated at \$330,000 to \$590,000, depending upon whether the East Marsh area were developed.

The landfill was designed with the assumption that it would accept primarily plating wastes (metal hydroxide sludges), but it would also accept oily solids resulting from oil spills and other solids and sludges if space were available. The landfill was developed to help solve Massachusetts' waste problem. While no final determination has been made on accepting out-of-state wastes, BSWD can restrict the facility to serving only Massachusetts.

The site would be developed by BSWD which is a state agency within the Department of Environmental Management. BSWD is a planning and management agency concerned with a range of solid and hazardous waste problems in Massachusetts and works with private industry to solve those problems. It has no regulatory power and is subject to the regulatory authorities of other state agencies. BSWD does have power of eminent domain and, unlike private industry, does not need local regulatory approval to develop sites. Operation of the facility would probably be by a private firm under contract to BSWD; however, final arrangements have not been determined.

The town of Sturbridge has a population of 5,550 (1976 U.S. Census) and is located in the central part of Massachusetts. It is the home of Old Sturbridge Village, a not-for-profit institution which is, after Cape Cod, the most popular tourist attraction in the state. While some smaller industries operate in and around Sturbridge, it is also a bedroom community for persons working in Worcester and other larger urban areas. Sturbridge residents were characterized by local officials as being in middle to upper middle income brackets.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

As of May, 1979, state regulation of hazardous waste facilities was shared by two divisions of the State's Department of Environmental Quality Engineering (DEQE), with one division primarily concerned with the transportation of such waste, the other with its disposal. Under new state legislation expected to take effect by 1980, a new division will be created within DEQE with sole regulatory authority for hazardous waste management. This new division will acquire the powers currently within DEQE and add to those the power to regulate generators. Local communities exercise substantial power in siting by virtue of their power to grant local assignments for privately developed hazardous waste facilities. Without such local approval a private company may not develop a facility. BSWD, however, is exempt from this local control and needs only to comply with state regulations.

The impetus for investigating Sturbridge as a HWMF site emerged from a series of unrelated but coincidental events. By late 1977, all major disposal sites used for hazardous waste originating in Massachusetts were closed. These sites were located as far away as western New York and southern New Jersey, some of which have since reopened. With normal disposal options unavailable, state agencies including BSWD and the Division of Water Pollution Control (DWPC) decided it was imperative to find suitable sites in Massachusetts. The need for sites was underscored by a recent estimate cited by BSWD's assistant director that 60 to 75 percent of hazardous wastes produced in Massachusetts are being dumped "indiscriminantly".

To find potential sites, DWPC examined sites in the state that had previously been proposed for waste disposal facilities. Because the sites had previously been proposed for facilities, some data describing the sites were available. Based on these data, DWPC's chose ten sites for more thorough study. In February of 1978 DWPC hired Camp Dresser and McKee, Inc. (CDM) to develop siting criteria and to evaluate the proposed sites using those criteria. The objective of CDM's evaluation was to recommend three sites which would be investigated more extensively.

Because of the perceived crisis in hazardous waste disposal, BSWD entered into a separate contract with CDM to assess the feasibility of implementing a hazardous landfill at Sturbridge as soon as possible. (Sturbridge was one of the original ten sites which DWPC asked CDM to evaluate. When BSWD accelerated the investigation of Sturbridge, DWPC replaced it with an eleventh site.) The major reason for selecting Sturbridge for accelerated study was that based on the data then available, the Sturbridge site appeared to have the most suitable hydrogeology. Thus it appeared to be the most promising of the ten sites and the one that could be developed most quickly.

The contract between BSWD and CDM was signed in late February. In March BSWD officials met with and first notified Sturbridge elected officials of the hazardous waste siting project. BSWD's director indicated that the Sturbridge site was being investigated for the disposal of special wastes, that it site would be state owned and privately operated, that the tonnage of wastes to be disposed could not be estimated, and that there would be ample time to keep officials informed prior to any decision. Those officials expressed opposition and, according to a local newspaper, were shocked at the possibility that a regional industrial sludge landfill might be developed in the area. Local media indicated that the potential site had been considered for the development of an energy recovery facility and sanitary landfill. This project had been reviewed by local officials and, despite some concern and opposition, had been given local regulatory approval. Acceptance of the energy recovery plant (the town had signed a contract with the developer in February of 1977) was based partially on anticipated revenues from the facility. Thus, the energy plant was seen as a more desirable use of the site.

While the first contact between BSWD and Sturbridge officials generated a few articles in local newspapers, the siting investigation attracted little attention until the late summer of 1978. In August BSWD again contacted local officials to inform them of the investigation's general progress. At that time BSWD told officials that the agency had the power of eminent domain and in addition would not require local regulatory approval (specifically, an assignment by the local board of health). Within a month of this contact a petition opposing the site had been circulated locally by area residents and several hundred signatures had been collected. In September copies of the petition were forwarded to the Governor and the Department of Environmental Management, BSWD's parent agency.

In the fall of 1978 a number of events made it apparent that BSWD was seriously considering Sturbridge as a site. The state informed the Sturbridge Board of Selectmen (i.e., the elected officials of the town) that an environmental impact report would have to be prepared by the state before a facility could be developed. A DWPC official was cited by the local press as stating that Sturbridge was one of two sites chosen for a disposal facility. While the DWPC official's statement indicated that a facility would be developed, the same article repeated BSWD's policy that no final decision had been made on the Sturbridge site. According to a press report, DWPC would offer \$.50 to \$1.00 to towns for each ton of hazardous waste disposed. BSWD, during the site visit, indicated that such compensation could in fact be provided to the town.

During this time, opposition to the facility began to build and the outlines of issues emerged. Local officials consistently expressed "surprise" or "shock" at announcements concerning the site. Issues were generally framed in environmental/public health or economic terms. The site's proximity to water recharge areas and floodplains, with the attendant potential for contamination of water supplies was the primary environmental issue. The impact on Sturbridge's tourist industry which brings \$50 million into the local economy and tax structure were described as primary economic issues. In addition, it was indicated that the development of the energy recovery facility should be the top priority for the site. By early 1978, however, that project had been abandoned for reasons unrelated to BSWD's site investigation.

CDM, by December 1978, completed its preliminary design investigation. The major conclusion of this report was that the central portion of the site was "immediately amenable to development of a hazardous waste landfill, if consideration of artificial liner systems was included."

Within a few days, BSWD provided the Board of Selectmen with copies of CDM's report and suggested that a task force be appointed to work with the agency. This suggestion was also made by the area's state representative and a local resident. In late December the selectmen appointed a six-member task force representing the Board of Selectmen, town agencies, environmental and public interest organizations, and

private citizens. The task force was charged with collecting and disseminating relevant information, assuring coordinated and constructive public input into decisions, and leading any discussions and negotiations with state agencies. Since its creation, the task force has spearheaded public concern with and opposition to the siting process.

In early January of 1979 the task force issued a report based on its review of CDM's study. That report reiterated issues that had been developing publicly in the fall and criticized inadequacies in the CDM report. A prime concern was the potential of a significant threat to groundwater supplies, not only in the Sturbridge area but also downstream in areas served by the Quinebaug River after which is fed by Hobbs Creek. Provisions for site monitoring during operations and after the facility was closed were considered inadequate, and CDM's recommendation of Hypalon liners over a superior but more costly liner was sharply criticized. The task force generally concluded that CDM's report left too many unknowns with respect to impacts on the environment. The report noted that the task force would seek state funds to conduct an independent assessment of the site.

Soon after the task force issued its report, the local League of Women Voters sponsored a public meeting in Sturbridge to discuss the siting project. Staff from EPA Region I and several state agencies were invited and made presentations. The federal and state regulatory officials discussed RCRA, the general problem of hazardous waste from generation to disposal, and the development of a state plan for hazardous waste management, including the need for cooperative public participation. BSWD's assistant director discussed the Sturbridge siting study and its relationship to the state plan. A question-and-answer period followed the presentations.

While BSWD and the other agencies received generally positive comments from the community for the presentation, the community remained skeptical of the siting process and opposed to the development of the facility. Task force members indicated that BSWD had provided an honest review of progress to date and an accurate picture of the site's potential for development. At the same time the information available was considered incomplete by task force members and other area residents and, at least in the area of impacts on Sturbridge's tourist industry, completely inadequate. A major impression of the presentation (as stated in a local editorial the following day) was that "...like it or not, if the state decides to locate an industrial waste landfill in Sturbridge, there is little the town can do." This impression of potential inevitability was coupled with the perception that Sturbridge was at the top of the list for development in spite of the state's assurances that no final decision would be made until after further study.

By late January of 1979, the task force was trying to determine what resources, particularly financial, could be made available to it to pursue its objectives and what avenues of protest were available. BSWD indicated that state funds might be available for an independent review of the site. The task force also approached the area's U.S. congressman

to see if federal funds could be found for the same purpose. No funds had yet been made available and it was uncertain if funds would be available. The Sturbridge Conservation Commission had been petitioned by the task force to see if the state's Wetlands Act provisions applied to the site. Considered but dismissed by local officials were local controls over the transportation of hazardous waste over local roads. Local zoning's potential for blocking the site had been investigated.

In January, the area state representative had filed a bill banning hazardous waste landfills within a set distance of any well. The representative felt that any final legislation would be different from his proposed bill, but that the bill served as a starting point for negotiating within the state legislature.

The task force had also solicited support from various agencies and organizations. Several local agencies (e.g., the town water and sewer commission, the conservation commission) had formally protested development of the site primarily because of potential water pollution. The Army Corps of Engineers, which has jurisdiction over nearby water basins, had been approached, as had various environmental organizations. None had responded as of January, 1979.

The task force, as the official representative of Sturbridge, began to mount a determined effort to block development of the site. While acknowledging the severity of the hazardous waste disposal problem and the consequent need for sites, it viewed the Sturbridge site as involving unacceptable risks to the local environment and economy. If, utilization of the site was inevitable, however, the task force was prepared to negotiate. Only the BSWD and state regulatory agencies had taken a position in favor of the site. The area's state representative was in a potential position to act as a negotiator between BSWD and the town. By January he had taken no official position vis-a-vis the site. BSWD indicated to local leaders that a number of issues raised by the community (e.g., site access, operating hours, monitoring provisions) were negotiable.

The next important action was the public announcement of potential sites recommended by DWPC for development as hazardous waste disposal facilities. The town was eager to compare Sturbridge to those sites to determine its relative merits.

The Centaur site visit was conducted in late January; in late May Centaur again contacted BSWD to determine the status of the siting attempt. In the intervening four months the state's approach to siting had become more comprehensive. One result of this development was a reduction in the sense of urgency with respect to the Sturbridge site.

In February, DWPC announced the results of the CDM survey of ten sites in the state. CDM had recommended that two sites be further studied for the development of hazardous waste facilities. Two towns--Taunton and Amesbury--then joined Sturbridge as prospective sites. According to BSWD, subsequent discussions by state agencies led to a decision to drop

Amesbury as a potential hazardous waste site in favor of pursuing its feasibility as an interim and back-up landfill for a resource recovery facility. Dartmouth, one of the ten sites evaluated by CDM, was then designated as a backup hazardous waste site. Public opposition has developed in Tauton and Dartmouth as a result of these actions.

According to BSWD the announcement of these additional sites has had some impact on opponents to the Sturbridge site. Those opponents have now had the opportunity to compare its characteristics with other sites. The site is no longer the "number one" prospect, according to BSWD, but is at the same stage of development as the other announced sites. While these developments have addressed some of the issues raised by Sturbridge residents, opposition has not diminished. To some extent opposition has reportedly shifted to the potential economic impact of developing a facility on tourism generated by Old Sturbridge Village.

The state's approach to siting has evolved substantially, which may have much greater implications for Sturbridge than the DWPC announcement. A second survey of sites has been initiated and will be completed by late 1979 or early 1980. BSWD has been investigating potential sites on federal and state land. In addition, private landowners have been asked to recommend sites and those sites are also being investigated. BSWD expects to have a pool of prospect sites as a result of this survey and it is at least possible that these sites may be more suitable than Sturbridge or other currently identified sites.

BSWD is also developing a state hazardous waste plan which should be completed by early 1980. According to BSWD's assistant director, recent agency experience has indicated a need for greater state involvement, at least insofar as BSWD must be more knowledgeable about non-technical, non site-specific issues. Accordingly the state plan will discuss, among other things, the need and justification for a state role in hazardous waste management, general siting criteria, institutional and management policies, and regional and industrial concentrations with respect to hazardous waste generation. The plan may also classify specific wastes by degree of hazard, by susceptibility to treatment and/or processing and by their compatibility for disposal with other hazardous waste.

Had the state's original schedule been followed, a decision to proceed with one of the announced sites would have been made by late April or early May. An environmental assessment would have then been initiated and completed by late summer or early fall of 1979. Necessary permits would then have been applied for.

With the development of the new site survey and the state plan, that schedule has been abandoned. The state plan and related pool of potential sites will be completed in early 1980. An environmental impact report (EIR) on those sites will then be prepared. If, as is possible, 20 to 25 potential sites are identified, then preparing the EIR may be a protracted process. After the EIR is completed site acquisition(s)

will be made and necessary permits applied for. Thus any final decision on the Sturbridge site has been substantially delayed.

IV. CHRONOLOGY OF EVENTS

- Late 1977 -- Crisis in hazardous waste disposal leads state agencies to decision to investigate potential disposal sites in Massachusetts.
- February, 1978 -- DWPC contracts with CDM to investigate ten sites; BSWD contracts with CDM to investigate suitability of Sturbridge site.
- March, 1978 -- BSWD notifies Sturbridge officials that site is being investigated; some opposition surfaces and media coverage appears.
- August, 1978 -- BSWD informs Sturbridge of investigation progress.
- September, 1978 -- Local petition opposing site is circulated and sent to governor and state agencies.
- Fall of 1978 -- Sturbridge informed that EIR must be prepared. DWPC reportedly declares that Sturbridge has been chosen as disposal site; BSWD denies making a final decision. Local opposition increases.
- December, 1978 -- CDM completes report on Sturbridge; BSWD provides local officials with a copy of CDM report. Local task force to respond to investigation is established.
- January, 1979 -- Task force issues report critical of CDM report; opponents seek political and financial support for their fight against proposal. League of Women Voters holds informational meeting attended by EPA, DWPC, BSWD, and local residents.
- February, 1979 -- DWPC announces that Amesbury and Taunton are also prospective sites for hazardous waste facilities.
- Spring of 1979 -- BSWD begins second site survey and state plan, postpones any immediate action on pursuing Sturbridge or other announced sites.
- Early 1980 -- Expected completion date of state plan and second site survey. Possible starting date of EIR on potential sites.

V. ATTEMPTS TO SECURE SUPPORT

Attempts have been made to secure support both for BSWD's siting process and the general need for facilities. Major actions include:

- o BSWD's early and continued notification of local officials of the site investigation and its progress. An important part of this notification process has been the conscious attempt by BSWD to be both open and responsive.
- o The informational meeting sponsored by the League of Women Voters in January 1979 and the agency presentations made at that meeting.
- o The statement by a DWPC official that compensation is available to communities with disposal facilities.

VI. SUMMARY EVALUATION

Conflict which has arisen over the Sturbridge site has not been resolved to date. There are several major reasons for this: 1) BSWD has not made a final decision on the site's feasibility; 2) additional work will be done by BSWD before a decision is reached; and 3) BSWD's decision and additional data will significantly contribute to the final disposition of issues raised by the Sturbridge community. Thus no resolution has been achieved, nor is there any reason why issues should be resolved at this time.

As indicated above, BSWD and other agencies have met with the Sturbridge community to provide information and to respond to local concerns. These dealings with officials and citizens in Sturbridge have met with mixed results. BSWD has established credibility with local officials; task force members feel that BSWD has been honest and above board with them. This has helped communicate the need for disposal sites to local officials and private citizens. Consequently this need has been recognized and acknowledged even by those most opposed to a facility in Sturbridge. EPA's regional office and Massachusetts regulatory agencies have contributed to this recognition.

In spite of this, Sturbridge opposes any development of a facility at the site. The CDM report commissioned by BSWD is considered generally inadequate by task force members. To meet technical issues raised by the community, BSWD has indicated that state funds may be available for Sturbridge to commission its own investigation. This would clearly meet with local approval as the task force has actively sought such funds. Whether such a report would overcome locally expressed concerns is uncertain. Even if such a report reaffirmed CDM's conclusions, a task force member felt that a considerable "selling job" would be required to convince locals of the site's suitability. Among other concerns, the task force wanted to compare Sturbridge to other potential disposal sites in Massachusetts.

BSWD has also indicated that aspects of site design (e.g., access, screening) and operation (e.g., monitoring, working hours) are negotiable. If site development is inevitable, task force members have indicated a desire to negotiate with BSWD to ensure that the safest and most responsible plan for site development is prepared. The area's state representative feels he is a potential negotiator for Sturbridge. In discussing possible negotiations he reiterated the major issues outlined by the task force and by BSWD. He also indicated that the state might provide some compensation to Sturbridge by funding projects to support the area's tourist industry.

A range of issues has been raised by local officials and citizens. These generally relate to the viability of the site, the plan for facility development, the potential economic impact on the area, and the site investigation of Sturbridge compared to other potential sites in Massachusetts.

Site viability -- The proximity of the site to a marsh, a pond, and a creek which might be contaminated by leakages from a facility is a major concern. There are private wells in the area and sites that might in the future be developed as public wells. The area is an aquifer which must meet stringent requirements to avoid contamination of drinking water supplies. BSWD acknowledges these facts but does point out that almost all, if not all, of New England would be classified as an aquifer under existing regulations.

Facility development plan -- The task force has criticized CDM's report for not addressing a number of issues in sufficient detail, from the specific wastes to be accepted to provisions for post-closure monitoring. Primary among these criticisms is that engineering will not compensate for hydrogeological flaws of the site. BSWD has responded by indicating that additional engineering and an environmental review have yet to be prepared and that these will address many of the issues raised. In addition, if site development occurs, both sides have indicated a desire to negotiate the details of site design and facility operation.

Economic impacts -- Community representatives feel that the development of a hazardous waste landfill is inherently incompatible with the area's tourism. Regardless of other risks associated with a facility, they feel its very presence could adversely affect tourist business. (According to task force members interviewed, tourists spend \$50 million annually in the Sturbridge area and that the area is second only to Cape Cod as a Massachusetts tourist attraction.)

Sturbridge versus other potential sites -- Community representatives want to compare this site to others being investigated in the state. They feel Sturbridge is the front runner because of its central location and accessibility. Without data on other sites they are extremely skeptical of statements and evidence which describe the site as suitable for hazardous waste disposal. By the spring of 1979 these data were available.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

Opposition and concern arose to consideration of Sturbridge as a hazardous waste disposal site almost as soon as BSWD informed local officials of its site investigation. In the one-year period since officials were first informed of the investigation, opposition has grown and issues have become more clearly defined. The factors contributing to opposition include the following.

- o BSWD's decision to push the investigation of Sturbridge ahead of DWPC's survey of other potential sites in the state.
- o The sense among local residents that Sturbridge was the front runner among sites in the state despite BSWD's statement that no final decision has been made.
- o The perceived incompatibility of a hazardous waste disposal facility with area development, particularly the tourist industry.

In spite of the opposition, there appeared to be some opportunity to arrive at a negotiated agreement on the site. This potential could erode over time; however, a number of factors contribute to the potential for development of areas of agreement between BSWD and local concerns.

- o The state's power of eminent domain which preempts local regulation.
- o BSWD's credibility in the eyes of local leaders, resulting from BSWD's openness and responsiveness.
- o Two local options for negotiators--the task force which is so charged and the area's state representative.
- o BSWD's willingness to negotiate issues and the local perception that negotiation is desirable if the facility is inevitable.

VIII. RETROSPECTIVE VIEWS

The Sturbridge case is an example of an ongoing siting process; hence, retrospective views would amount to pre-judging an incomplete process and are therefore not included as part of this case study.

3M/CHEMOLITE

COTTAGE GROVE, MINNESOTA

I. INTRODUCTION

In early 1978, the Chemolite Division of the 3M Company joined with local residents to successfully oppose an attempt by state and regional agencies to site a hazardous waste landfill on their property. Little more than a month later, Chemolite was informed that it could not continue co-disposing of certain hazardous wastes in a nearby landfill, and was obliged to attempt to site a hazardous waste facility of its own.

Chemolite immediately contacted local officials on learning that it would have to make new arrangements to dispose of these wastes and conducted a relatively effective but largely low-key public relations campaign. They were successful in obtaining local support for a temporary hazardous waste landfill on their property. In the long run, however, they expect to have to ship their hazardous wastes to an out-of-state landfill. Given local attitudes toward hazardous waste at that time, their success in gaining approval even for a temporary landfill was noteworthy.

II. BACKGROUND INFORMATION

The 3M Company's Chemolite landfill is located on land adjacent to its Chemolite complex in Cottage Grove, Minnesota. The site occupies approximately five acres of the 820-acre 3M property, and is surrounded on all sides by this property. Of the other 815 acres, 385 are developed, 250 are non-buildable and 280 are reserved for future expansion. (Portions of the undeveloped area are used for outdoor weather testing of products and as a recreational areas, and the remainder is leased on a yearly basis for agricultural uses.) The land is presently zoned for general industry. The soils of the area are silty and sandy surface soils underlain by sand. These are moderately to highly permeable. Groundwater flow in the area is toward the Mississippi River, which borders the 3M property on the north.

In order to ensure that the groundwater is not contaminated, the landfill and the surrounding berm are lined with bentonite clay. This also allows the collection of leachate for analysis. Lysimeters are located adjacent to the disposal area to collect any percolating water to determine whether any substances are being leached into the groundwater. Finally, samples of groundwater from the Chemolite Plant Well No. 4, the closest well to the site, are periodically analyzed for contamination. The landfill accepts wastes only from the Chemolite facility -- wastewater sludge (including incinerator scrubber sludge) and boiler ash. The 3M Company operates a rotary kiln incinerator at the Chemolite plant which burns hazardous wastes (e.g. oily rags and

sludges). Both the incinerator scrubber sludge and incinerator ash are hazardous, (particularly because of their heavy metal content) and must be landfilled. Incinerator ash was previously disposed of in the 3M landfill, but is now hauled to a hazardous waste facility in Milwaukee, Wisconsin. The remaining wastes are mixed prior to burial in the landfill. The MPCA is of the opinion that the resulting mixture is sufficiently alkaline that leachate is not a problem. Each year, the Chemolite facility produces about 14-15,000 cubic yards of wastewater sludge, (of which 30% is incinerator scrubber sludge), less than 1,000 cubic yards of incinerator ash, and about 6,500 cubic yards of boiler ash. Approximately 1.5 acres of the landfill have not yet been filled, so that the maximum remaining life of the landfill, at current rates of disposal, is about two years.

The 3M Company is a major chemical producer with over 90 plants located around the country. Its chemicals are used in the production of various coated materials (from adhesive tape to recording tape) which 3M produces. With fiscal year 1978 sales revenues of over \$4.6 billion, 3M was ranked fiftieth in the 1979 Fortune 500 listing of U.S. industrial corporations. 3M does operate waste disposal facilities at some plants. However, the Cottage Grove facility is the only one designed to take hazardous wastes.

Cottage Grove is located in Washington County, Minnesota, part of the Minneapolis-St. Paul metropolitan area (1976 population: 2.0 million). The town has a population of about 18,000, the majority of whom are white-collar workers employed elsewhere in the region, and has one of the highest per-capita incomes in the region. The only major industries in the town are the Chemolite plant and a Whirlpool appliance assembly plant. The prevailing land use in the surrounding county is agricultural.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

Any solid waste disposal site for hazardous or other wastes in Minnesota is required to have a Solid Waste Disposal Permit issued by the Minnesota Pollution Control Agency (MPCA). Initially, they recommend that the prospective permittee discuss the scope and nature of the project with MPCA staff. A preliminary application must then be submitted to the MPCA. This application must include data on the proposed site, facility design and engineering, access, clientele, type of wastes, and some estimate on the environmental impacts of site development and operation. The MPCA then responds to the preliminary application and suggests changes which are incorporated into the final application. In addition to receiving MPCA approval, the final application must also be approved by the Metropolitan Council¹ if the proposed facility is in the seven-county Minneapolis-St. Paul region, and must be reviewed by the Minnesota Environmental Quality Board to

¹ The Metropolitan Council is the regional planning agency for the seven-county Minneapolis-St. Paul metropolitan region.

determine whether an Environmental Impact Statement is required. If the application is approved, the MPCA must give public notice, and can hold a public hearing if one is requested. The permit if granted is for the development and operation of the facility for the life of the site, given that monitoring and reporting requirements are met. (Once the site has been developed, a statement is required from a registered professional engineer that the site has been developed according to the permit).

No other state agency requires permits for the development and operation of hazardous waste facilities. However, a number of counties and towns in Minnesota do. Washington County and the City of Cottage Grove are among these. Washington County has an ordinance which regulates the development and operation of landfills, and requires that they receive a permit to generate. The City of Cottage Grove requires that a hazardous waste facility must have met MPCA standards and received an MPCA permit. Within the state of Minnesota, local zoning generally cannot be preempted to site hazardous waste facilities. Within the seven-county metropolitan area, the Metropolitan Waste Control Commission (MWCC) can preempt local zoning to site its own hazardous waste facilities. Elsewhere in the state, the counties have this power. However, they cannot preempt zoning for sites owned by other government agencies or by private industry.

From June of 1975 through March of 1978, the MPCA with the aid of a U.S. EPA grant, attempted to site a hazardous waste landfill in Minnesota. This attempt was ultimately unsuccessful.¹ One of the final four sites considered was located on land owned by the 3M Company in Cottage Grove, although not on the same land on which the 3M site was to be located. Two public meetings were held in Cottage Grove (in November 1977 and February 1978) to receive public comment on this proposed site. Public opposition to the proposed site was intense. About 1,900 people came to the November meeting to voice this opposition. Although fewer people came to the February meeting, they were of the same opinion about the proposed facility. At this February meeting, 3M spokesmen gave a presentation detailing the company's opposition to the proposed site. The reasons for their opposition were: 1) concern that if contaminants leaked from the facility this would taint water in company wells and disrupt production; and 2) that the construction of the facility would deny the company the option of future expansion at that location. Specialized production operations at the Chemolite facility demand large quantities of consistently pure water. Since the groundwater flow in the area of the proposed site was toward Chemolite wells, any leakage from the proposed facility would have jeopardized these operations.

Of the 820 acres owned by 3M, 385 were already developed and 255 were non-buildable, leaving 180 acres for possible future expansion. The entire 180 acres would have been included in the proposed MPCA site.

¹ See the Minnesota case study elsewhere in Appendix A.

Until March 15, 1978, the Chemolite facility disposed of sludge from its wastewater treatment plant and ash from its incinerator at the Pine Bend landfill in Dakota County. (Boiler ash was buried on-site.) However, on that day the MPCA informed the landfill owner/operator that from then on wastes from Chemolite would have to be buried separately from the municipal solid wastes which comprised the greater part of the wastes handled at this landfill. MPCA was of the opinion that acids produced by decomposing organic materials in municipal waste could leach heavy metals out of the Chemolite waste and into the groundwater. The Chemolite waste alone is sufficiently alkaline that there would be virtually no danger of this happening if the wastes were not mixed. Dakota County officials then informed the owner/operator that such a change in operating procedures would require an amendment to their existing landfill permit. The owner/operator in turn decided to resolve this problem by not accepting any more wastes from Chemolite, and so informed the company. Chemolite has been storing sludge and ash wastes on its Cottage Grove property since March 24, 1978.

Chemolite's decision to store these wastes on their property -- albeit in the absence of any immediately available alternatives -- immediately put them in technical violation of city, county and state law.

In late March, 3M officials consulted with Cottage Grove officials about their hazardous waste storage problem, and in early May the company applied for a city permit to establish a temporary hazardous waste landfill on the Chemolite site. There was not public discussion of the proposal until late June, when the proposal was discussed at a Cottage Grove City Council meeting. In the meantime, 3M had also applied to the MPCA for a permit to store hazardous waste on its property.

In July the 3M Corporate Secretary and the Manager of Environmental Affairs gave a presentation to the Cottage Grove Planning and Zoning Commission in support of their permit application. They reiterated their opposition to the MPCA/MWCC siting attempt and noted several significant differences between the two proposals. In particular, they pointed out that their site was not located in the area proposed for future expansion; that it would cover five rather than 200 acres; that they had complete control over the wastes buried in the landfill; and that the wastes they were disposing of would not pose a threat to their own operations.

Also during July, the Metropolitan Council staff tentatively approved 3M's proposal to temporarily store hazardous wastes at the Chemolite facility, and 3M signed a stipulation agreement by which they promised to come into compliance with MPCA regulations (i.e., either to obtain an MPCA permit or dispose of these wastes elsewhere) within one year.

There was little immediate reaction to the proposal from the public or local officials. The response of the Cottage Grove City Council is said to have been concern about the possible hazards posed by the facility, but not outright opposition. The reasons for this concern were two-fold. First, the public information campaign during the MPCA/MWCC siting attempt had emphasized the hazards of improperly disposed

hazardous waste. By virtue of this program, the public was made acutely aware of the problems associated with hazardous waste but not with possible solutions. Second, 3M had previously operated a landfill site in a neighboring community. Some material dumped at this site had leached into the water table and into private wells. 3M had had to put in two wells to pump out the contaminated groundwater and this operation is still continuing. The landfill was closed, and 3M received heavy criticism from residents and public officials. After this landfill was closed 3M installed the rotary kiln incinerator. Local residents were also said to be afraid that if 3M were given permission to open a hazardous waste landfill, the town would be unable to keep out other such facilities.

Notwithstanding 3M's previous landfill experience, there was no outright opposition to the facility due to the town's economic dependency on 3M, and to 3M's reputation in the community as a competent and responsible firm which would be there long after the site is filled.

The only significant criticism of the 3M proposal came from state and regional officials, some of who had been involved with the MPCA/MWCC siting attempt. An official of the Minnesota Geological Survey stated that he opposed the facility because the site is over a Jordan sandstone formation that contains a major water supply. A member of the MPCA board questioned what he saw as the double standard being applied to 3M's application. He felt that the 3M proposal was being evaluated against less strict standards than had been the MPCA/MACC proposal because of 3M's local political and economic connections.

On August 22, the Cottage Grove City Planning Commission voted to recommend that the City Council consider levying a fine against 3M for storing manufacturing wastes on its property without a permit. Concerns expressed by the Planning Commission included the inherent conflict of a landfill with the proposed uses of the Mississippi River Critical Area¹ inappropriate soil type and bedrock conditions. The following week, however, the Planning Commission seemingly reversed itself and voted to recommend that City Council grant 3M a temporary permit to store hazardous wastes through December of 1978. The Commission also called for periodic testing for leachate from the landfill.

The Cottage Grove City Council voted in September of 1978 to give preliminary approval to 3M's application to store hazardous wastes until December, 1979. The conditions of the permit were that the wastes eventually be removed from the site; and that if testing showed seepage from the landfill, the wastes must be removed immediately. The final resolution to grant the city permit was approved on October 4. The

¹ The Mississippi River Critical Area is a corridor along both sides of the river for which certain strict development controls apply. The recommended uses for this land are recreation and open space, but existing uses and related development are allowed under certain conditions.

stipulation was added that 3M must pay for periodic studies to determine whether any wastes were leaching into the groundwater. Accordingly, 3M developed the landfill. To resolve permanently its waste disposal problem, 3M has a number of options, not all of which include an on-site landfill. The principal options are:

- o To dispose of all their ash and sludge wastes in an on-site landfill;
- o To ship all these wastes to an out-of-state hazardous waste facility;
- o To split this waste stream into hazardous and non-hazardous wastes, ship the hazardous wastes out-of-state, and dispose of non-hazardous wastes in their own landfill or at the local municipal waste landfill.
- o To site a facility elsewhere in Minnesota, either on their own property or in an area seeking industrial development.

Currently, 3M is planning to adopt the third option. All incinerator ash is already being hauled to a hazardous waste facility in Milwaukee, Wisconsin. The MPCA has told 3M that if incinerator scrubber sludge is separated from the rest of the wastewater sludge, the wastewater sludge will then be non-hazardous and could be disposed of, separately, in any sanitary landfill which would accept it. The incinerator scrubber sludge would then also be hauled to the Milwaukee landfill.

Furthermore, if 3M can reduce the levels of contaminants in leachate from this sludge to within an order of magnitude of levels specified in the U.S. Public Health Service drinking water standards, they would be allowed to co-dispose of the sludge with municipal wastes in the Pine Bend landfill. Levels of contaminants in leachate could be reduced by mixing boiler ash and lime with the wastewater sludge to increase its alkalinity. 3M plans to adopt this option and to cease disposing of wastes on-site as of December, 1979. From 3M's point of view, the least costly option would have been to establish a permanent on-site disposal facility. According to an official of the MPCA, local opposition to a permanent facility is to blame for 3M's not being able to do so.

IV. CHRONOLOGY OF EVENTS

January 19, 1978 -- 3M announces its opposition to the location of a proposed chemical waste landfill on land at its Chemolite complex in Cottage Grove.

March 15, 1978 -- MPCA tells Pine Bend landfill to no longer mix Chemolite wastes with municipal solid wastes. The landfill owner/operator informs 3M that no more Chemolite wastes will be accepted.

- June 20, 1978 -- 3M announces that it is considering a plan to build a chemical waste landfill on its Chemolite site.
- June 27, 1978 -- Official of the Minnesota Geological Survey says he is opposed to the 3M plan; that the proposed site lies over a Jordan sandstone formation that contains a major water supply.
- July 18, 1978 -- Metropolitan Council staff tentatively approves 3M proposal to store chemical wastes.
- July 24, 1978 -- 3M officials make a presentation to Cottage Grove Planning and Zoning Commission in support of their permit application.
- August 22, 1978 -- Cottage Grove Planning Commission recommends that the City Council consider levying a fine against 3M for storing manufacturing wastes on its Chemolite property without a permit.
- August 29, 1978 -- Cottage Grove Planning Commission votes to recommend that the City Council grant 3M a temporary permit to store hazardous wastes through December, 1978; calls for periodic testing for leachate from these wastes.
- September, 1978 -- Cottage Grove City Council votes to give preliminary approval to allow 3M to store hazardous wastes until Decemer, 1979, with the proviso that these wastes eventually be removed, and if testing shows seepage, that they be removed immediately.
- October 4, 1978 -- City Council approves final resolution to allow 3M to store wastes. 3M agrees to pay for periodic studies to determine whether wastes are leaching into the groundwater.
- February 9, 1979 -- 3M announces that the future of the Chemolite plant depends upon their finding an acceptable way to dispose of hazardous wastes.
- December, 1979 -- Expected closing date of 3M landfill.

V. ATTEMPTS TO SECURE SUPPORT

There were few attempts made to secure support for the facility. These included:

- o Discussions about 3M's hazardous waste disposal problem between 3M and Cottage Grove officials soon after the closing of the Pine Bend landfill to 3M and prior to any public disclosure of the problem.

- o The presentation given by the 3M Corporate Secretary and Manager of Environmental Affairs to the Cottage Grove Planning and Zoning Commission.
- o The slide show and talk -- which stressed 3M's economic value to the community and its competence in safely disposing of its own wastes -- which was given before all involved government bodies.

VI. SUMMARY EVALUATION

This siting attempt is noteworthy because it so closely followed an unsuccessful siting attempt and because it was successful, albeit only temporarily. The major factors in 3M's being able to site a hazardous waste landfill on virtually the same site where a public agency had been unable to only a few months previously are the firm's credibility and economic leverage, the small size of the proposed facility, and 3M's ability to control the wastes being dumped there. Local officials and residents seem to feel that 3M is competent, responsible and committed to the welfare of the community, notwithstanding the previous 3M/Chemolite landfill experience. Furthermore, the Chemolite facility employs about 1,100 people, roughly 40 percent of whom live in Cottage Grove, and pays approximately \$700,000 per year in property taxes, about 40 percent of the county's industrial tax base.

These advantages notwithstanding, the 3M Company mounted a considerably more effective public relations effort had the MPCA and MWCC. The effort was low key but nonetheless reasonably successful. In particular, local public officials were consulted shortly after the siting attempt was begun, and public information stressed 3M's competence in dealing with these wastes. This contrasts sharply with the earlier attempt, wherein local officials were not apprised of the progress of the siting attempt until after the first set of sites had been selected, and wherein public information stressed the dangers of improperly disposed chemical wastes. While it is presumably true that 3M learned from the earlier attempt, it is also true that their task was made more difficult by extensive public knowledge of the hazards associated with chemical wastes. A 3M official noted that during their testimony in opposition to the MPCA/MWCC project they should have made it clear that they were soon going to face a similar situation. He further stated that their major problem was timing: that they needed to site a facility so soon after a previously unsuccessful attempt. Not only did their effort suffer because of the public information program mounted during the earlier attempt, but local officials had already taken positions opposing any hazardous waste facilities, and it would have been counterproductive to bring in the MPCA to testify on their behalf before local officials which otherwise could have been done to help gain local support. If the MPCA and MWCC had conducted a well-designed public relations effort, he felt, the 3M facility could have been permanently sited.

Only a few issues and concerns were raised by the public and local officials during the siting attempt, although these few were strongly felt. These included:

Site Suitability -- The 3M property had previously been rejected as unsuitable for a hazardous waste landfill, in particular due to the permeability of the soil in the area.

Chemical Wastes -- Due in large part to the public information campaign mounted in the previous siting effort, residents were acutely aware of the many hazards associated with improper storage and/or disposal of chemical wastes.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

Public opposition developed as the result of the following.

- o Public awareness of the hazards associated with chemical wastes, which was largely due to the public relations effort mounted during the previous (MPCA/MWCC) siting attempt.
- o Local public opposition to siting hazardous waste facilities following the state attempt to site a facility in Cottage Grove.
- o Local public feeling that if this facility were sited, others would be able to come in.

This opposition was blunted and partially overcome due to the following factors.

- o 3M's credibility in the eyes of the community.
- o The economic ties between 3M and the community: in particular, employment and taxes.
- o Early discussions between 3M and Cottage Grove officials about their problem and plans immediately following 3M's exclusion from the Pine Bend landfill.
- o 3M's public relations campaign, which stressed their competence and willingness to deal with their hazardous waste problem.

VIII. RETROSPECTIVE VIEWS

It was noted by an official of the MPCA that, while the 3M siting attempt is instructive, it does not point the way to the future of hazardous waste facility siting in Minnesota. Most firms which produce

chemical wastes do not produce enough to warrant maintaining on-site disposal facilities, nor would the MPCA be amenable to such a decentralized approach because of the difficulty of enforcing regulations which this would imply. Furthermore, most firms have neither the credibility nor the economic leverage that 3M has. Local officials were generally sympathetic to 3M's problems and had no criticisms to make of the way in which 3M handled the siting process, but indicated that it would have been politically impossible for them to accept a permanent site so soon after rejecting the state attempt. They did feel that since these wastes were being generated in their town and, in part, to their benefit, there was no rational argument to be made for letting someone else bear the risk of their disposal.

IX. GENERAL COMMENTS

A representative of 3M stressed that people who live in the immediate vicinity of any proposed site should be contacted individually before a public announcement of the site is made. If their particular concerns can be determined, some might be ameliorated (e.g. concerns about traffic associated with the site). This would also help determine the suitability of the location. The next step is to contact local elected representatives. Only then should the public announcement be made.

He noted as well that public participation in decision making can be either good or bad, depending upon the procedure followed; that if local "opinion leaders" can be brought into the process early on, public hearings can be conducted on a rational basis.

3M also does not view long-distance hauling as a permanent solution to its hazardous waste problem, and is cooperating with MPCA in their attempts to site a statewide facility.

KANSAS INDUSTRIAL ENVIRONMENTAL SERVICES

FURLEY, KANSAS

I. INTRODUCTION

In February of 1977 Kansas Industrial Environmental Services (KIES) received a permit from the Kansas Department of Health and Environment (KDHE) to operate a hazardous waste disposal facility. This event capped a one-year siting and development process which was marked by close cooperation and coordination between KIES and KDHE. By the time of the Centaur site visit, KIES had modified its original land burial and treatment lagoon operations and was adding new treatment capabilities at the site.

The successful siting attempt was not accomplished without public opposition. Area residents organized within days of the first public announcement of the proposed facility. They raised concerns about potential ground and surface water contamination and other issues. While these concerns led to the filing of a suit to enjoin the issuance of the permit, no sustained effort to block the siting developed. Since KIES began operations, residents have complained about odors from the facility and have sought additional state requirements to reduce potential problems with the facility.

KDHE was the major party which effectively reduced the public opposition. By developing stringent permit regulations with the advice of state legislators and citizens, KDHE was able to address major concerns and, for the most part, convince opponents that effective regulation of the site would occur. While KDHE received almost all of the public credit for allaying concerns, the head of KDHE's solid waste section attributed much of the success to the cooperation the state received from KIES. KIES officials' attempts to address opponents' issues met with much less success during the siting process. KIES has, however, gained some credibility with area residents through conscientious efforts to resolve operating problems and a more general "good neighbor" policy.

II. BACKGROUND INFORMATION

The KIES facility occupies an 80-acre tract of land in northeastern Sedgwick County about 15 miles from Wichita. An additional 80-acre tract adjacent to the site has recently been purchased for future expansion but to date has not been developed. The land was previously used as grazing land, and adjacent land is used primarily for agricultural purposes or as small homesteads. No zoning regulations apply to that area of the county. Though close to Wichita, the site itself is relatively remote and the only resident who could see the KIES building sold her land to KIES. Access to the site is by county roads. The Kansas Turnpike (I-35) passes within ten miles of the site.

The site lies within a band of Wellington Clay Shale, which is particularly impermeable. Within the bounds of the site, clay depths range between 80 and 109 feet from ground level to a permeable limestone stratum beneath the site. Clay depths from the bottom of disposal trenches to the limestone are about 65 feet. The clay has a permeability in the range of 10^{-9} to 10^{-11} cm/sec and a plasticity index greater than 45. There is a perched aquifer within the clay stratum in one area of the site, but this has been specifically excluded from development as a disposal area.

As first developed, the facility design encompassed burial of drummed waste and evaporation of liquid wastes. A total of 30 acres was engineered for burial with the assumption that this would provide 30 years of capacity. Four small treatment ponds for acid neutralization, chrome waste stabilization, oxidation and other treatment were originally developed. Two large (400 by 200 feet) evaporation ponds were also a part of the original design.

Based on its operating experience, KIES has changed and expanded its operational capabilities. Wastes are now buried in small trenches designed to accommodate a specific waste stream. These can be closed fairly quickly and used year-round. (The large "bath tub" originally used for burial was restricted to about six months of operation and involved periodic pumping to eliminate standing water). KIES has added 63,000 gallons of liquid storage capacity for wastes which it sends to reclaimers or incinerators. Treatment capability for cyanide and hexavalent chromium waste was being developed during the Centaur site visit.

The entire site is ringed by a 200-foot buffer strip of unused land. Catchment ponds are designed to receive all on-site drainage and can hold the equivalent of two 100-year storms in a two-day period (about 12 inches of rain in 24 hours). Ponds are monitored quarterly. Off-site runoff is diverted from the site. Monitoring wells are tested monthly. All tests are done by an independent lab approved by KDHE.

KIES's permit requires a complete post-closure plan one year prior to closure. KIES has already submitted this plan to the state but expects to upgrade it in response to new state regulations developed in response to RCRA.

KIES was established in 1976 specifically for the purpose of developing this facility. While KIES had no prior experience with hazardous waste management, its two principals combined operating experience with wastewater treatment facilities and a long-standing commitment to environmentally sound land use practices. Key administrative people with laboratory research, pollution control, and hazardous waste management and planning experience were recruited from Vulcan Chemicals Company and a consulting engineering firm. KIES employs about ten operational staff at the facility. A separate division of KIES provides hazardous waste hauling services and employs an additional 12 to 15

persons. KIES owns a fleet of a dozen trucks in a range of sizes to handle any specific hauling need. Hauling is regulated by the Kansas Corporation Commission and applicable federal regulations. In addition the KDHE permit specifies a manifest system to track all wastes hauled and disposed of by KIES. While most KIES monitoring tests are performed by an independent laboratory as a condition of the permit, KIES has its own on-site lab. At the time of the site visit, KIES was planning to redevelop its lab facilities.

KIES accepts a broad range of hazardous waste including acids, alkalines, solvents, small amounts of pesticides, and some PCB-contaminated material (e.g., electrical transformers). Specifically excluded are radioactive waste, bulk pesticides, and large volumes of PCBs. Some wastes which are accepted by KIES are not disposed there but are hauled to other facilities. Typically these are wastes that should be incinerated or that can be reclaimed using technologies that KIES has not developed.

KIES' most immediate market area is Wichita and nearby areas of Oklahoma. In its short operating history, however, it has dramatically expanded its effective market. KIES had disposed of wastes from as far away as Minnesota, Tennessee, Colorado and Texas. Some of these market areas are ones which KIES hopes to serve with future facilities.

KIES has initiated a rather ambitious campaign to develop new sites. Work on an Oklahoma site has been underway since 1977 and a final permit application was expected to be submitted in March, 1979. By the end of 1979, KIES hopes to submit plans for facilities in Missouri and Iowa. Additional sites in two other states are contemplated.

KIES is located a few miles from Furley, Kansas, a town with a population of about 50. The northeastern corner of Sedgwick County is largely devoted to farming, small-scale oil production, and small homesteads for those working in the Wichita area. Wichita (1977 estimated population, 263,000) is the largest city in Kansas and a major center for small aircraft manufacturing. With a broad range of goods and services available, the Wichita-Sedgwick County metropolitan area is a major trade and service center for south central and southwestern Kansas.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

To operate a hazardous waste landfill in Kansas a facility must have a permit from KDHE. The need for a local permit depends upon whether the site is subject to local zoning. The area of Sedgwick County where KIES is located does not have zoning. (The majority of Kansas counties do not have county-wide zoning.) As a result, KIES required only the KDHE permit in order to operate.

KDHE permit procedures involve a two-stage process. When an application has been fully prepared through the stage of engineering design, KDHE authorizes facility construction by letter. When construction is

completed and meets state requirements, a permit is issued and operations may begin. According to the chief of KDHE's solid waste section, only permittable facilities will reach the stage of construction authorization. Emphasis is placed on extensive involvement by the state in the development of the application from site selection through construction. In this manner, KDHE can be assured that the final application for a permit meets all requirements and is approvable. Once a permit is issued, operational changes and facility expansions need only KDHE approval rather than a new permit application. In addition to granting a permit to operate, KDHE must approve each hazardous waste by source before it may be accepted by a facility.

Planning for the KIES facility began in early 1976. The principals of KIES had determined that a market for industrial waste disposal existed in the state. Consulting engineers experienced in the design of hazardous waste facilities in Oklahoma were retained and KIES approached KDHE in April to determine what state requirements and regulations would apply to the proposed facility.

At that time Kansas had no regulations specifically applicable to hazardous waste landfills. The only existing state regulations were those for sanitary landfills. The development of the KIES facility thus provided the initial impetus for the development of state hazardous waste disposal regulations. (Continuing local concern with KIES and the passage of RCRA have ensured the continued upgrading and expansion of the state's regulations.) The need to develop these regulations contributed to the close working relationship between KDHE and KIES during the development of the permit application.

KIES' siting process (as described by KIES' general manager and KDHE's solid waste section chief) began with preliminary surveys of state geology. With state concurrence, this survey narrowed the area of potential sites to a band of Wellington Clay Shale, which has particularly low permeability characteristics. Within that clay band, areas with unsuitable hydrogeology (e.g., presence of aquifers subject to vertical percolation) and topography (e.g., floodplains) were excluded. Aerial surveys were conducted to judge transportation access, population density, and topography. By that process ten sites were selected for soil tests by a private soils engineer. In the spring of 1976, tests run on the sites included assessments of the proportion of clay to other soils the presence of perched and major aquifers and, by laboratory analyses, the clay's permeability, plasticity, shrinkage potential, and reactivity to specific chemicals. Following these analyses five sites were selected as qualified for development.

The final site selection rested on several additional considerations. The Furley site is not subject to local zoning. The site, though not on the market at that time, could be purchased from the previous owner. The site was purchased quietly, with no publicity.

In late May, KIES submitted an application to KDHE for approval to establish and operate an industrial waste landfill. The application was accompanied by preliminary plans for site design and facility operation. Also submitted to KDHE in late May and early June were soil reports, monitoring well design, and drainage plans. All were prepared by KIES consultants.

In late June of 1976, KDHE notified local officials that it would hold an informational meeting on the KIES facility. This was the first knowledge officials and residents of the Furley area had of plans for the disposal site. Although work on site testing and engineering design was not complete, KDHE indicated that a permit would probably be granted to KIES.

The notification, given about a week before the meeting, produced a quick and vocal response by area residents. An article in the Wichita Eagle reported that about 150 residents were "fighting mad" and would take any legal steps necessary to stop KIES. Concerned residents met two days before the meeting, organized a committee, and hired attorneys. Prior to the meeting, residents expressed concerns about potential environmental and economic impacts, the site location and opportunities for local participation in decision-making. They foresaw the potential for air and water pollution and felt KIES could not predict what pollution would occur. Drainage from the site was feared. One resident noted that local regulations had banned runoff from feedlots into the area's streams and that the impacts of chemicals would be far more serious than those of manure. Several residents predicted that land prices would fall. Residents felt the site was in too populous an area, which in 20 years would likely become part of Wichita. Residents did not like the thought of being known as "the dumping ground of Kansas" or "a guinea pig for the rest of the state". Finally, the fact that only a few days' notice of the meeting was given left the impression that facility development was being rushed along without the local community's knowledge.

The informational meeting was held in Wichita on June 30, 1976. It was conducted by KDHE's director of the Division of Environment and attended by about 200 local residents. KIES' engineering consultant was also in attendance. KDHE made a presentation and KIES' consultant responded to concerns voiced by attendants. Opponents doubted the validity of research prepared for KIES, specifically soil tests indicating low permeability. Although KIES' consultant responded to these concerns, he was unable to convince opponents that there would be no detrimental impact on the environment. Indeed, some in attendance felt that neither KDHE nor KIES' consultant could satisfactorily answer any of the questions raised by residents. An attorney for the opponents declared that the public had not had sufficient time to consider the proposal and demanded more time. KDHE agreed to a second public meeting. The meeting did little to allay public concerns. Opponents' earlier threats to sue in order to stop the proposal were repeated at the end of the meeting.

Subsequent to the first public meeting, KIES submitted additional soil test results to KDHE. By early August, KDHE was satisfied that all data requirements had been fulfilled and work proceeded on a draft of the permit for the KIES facility. By mid-October, 1976, KDHE was close to a final version of the permit and scheduled a second public meeting.

On October 14, the second public meeting was held in the Wichita area. KDHE's Division of Environment director again conducted the meeting and outlined the regulations which would be applied to KIES. The permit was developed by KDHE with recommendations from a study group established after the second public meeting by the Kansas legislature and a citizens' group. The permit restrictions were considered extremely stringent by state elected and appointed officials and were described by EPA Region VII staff as among the tightest in the nation. Comments by proponents and opponents, both at the time of meeting and during Centaur's site visit, indicated that the permit had a substantial impact on reducing opponents' concerns. In addition to imposing stiff controls on KIES, KDHE also strongly supported the development of the facility. KIES had also come prepared, and presented a complete flowchart of proposed facility operations, the manifest system to be used, quality controls over facility construction and operation, and fire fighting safeguards. KDHE told those at the meeting that KIES had not only submitted all required information, but also exhausted all data possibilities in preparing the application.

The major conditions of that permit included the following: approval by KDHE of all wastes accepted; approval by KDHE of all transportation routes; maintenance of records of wastes received and analyses of those wastes; payment of an annual fee for KDHE on-site inspection costs; cost and security bonds; liability insurance; and criminal and civil penalties to insure compliance. Although not developed at the time of the meeting, a post-closure plan would be required before the final permit was issued. The permit was issued subject to annual review and approval and to amendment at any time based on the development of new regulations and requirements. The permit did allow KIES to expand the facility or change procedures subject to KDHE approval.

In mid-November, KIES agreed to all conditions of the permit and KDHE authorized facility construction in accordance with approved plans and specifications. Construction began, and with some additional modifications required by KDHE was completed in late January of 1977. On February 1, KDHE issued the permit allowing KIES to begin operations.

While the second public meeting substantially reduced public concerns, it did not eliminate them altogether. After that meeting the area's state representative said she and other legislators would seek to delay permit issuance until after the legislative session began in January of 1977. In late January, a group of local opponents sought a temporary restraining order on the permit issuance. The suit was based primarily the fact that some KIES engineering work had been signed by an engineer registered in Oklahoma, but not in Kansas.

According to a KDHE official, opponents resorted to this technicality because they could find no substantive dispute with the permit. The matter was settled out of court and no permanent injunction blocking permit issuance was ever obtained.

In March of 1977 KIES accepted its first load: four five-gallon cans of pesticide. Since that inauspicious start, the volume of wastes handled has increased substantially, to the point where the original site life of 30 years has been reduced by as much as 40 to 50 percent. KDHE estimates about 70 percent of this waste is from out-of-state generators. KIES' general manager explained that more than fifty percent of the present volume would be diverted to new sites KIES hopes to develop in the future.

Facility operations have been changed since operations began. Small trenches have been added for burial of individual waste streams and allow for greater control than did large disposal trenches. Storage capacity of 63,000 gallons for liquid wastes has been added. At the time of the site visit KIES was developing waste treatment capabilities for cyanide and chrome wastes.

Since operations began, the most frequently cited complaint by local residents has been odors. On several occasions the treatment of wastes has generated obnoxious odors, in one case for a period of about two days. According to area residents, these have been a continuing source of irritation. KIES has responded in two ways. First, it has improved its operating procedures to minimize any odors. Secondly, it has sometimes helped state health officials find the source of odors, not all of which have come from its site. According to KIES, odors have been tracked to old gas wells, ruptured pipelines, manufacturing plants, feedlots, and in one case, the barnyard of the resident who had lodged the complaint against KIES. In spite of this, residents appear to blame KIES for most odors in the area.

In addition to attempting to respond conscientiously to odor complaints, KIES has pursued a "good neighbor" policy in small ways. KIES helps to maintain local roads in winter by plowing snow with its own equipment and has helped pull residents' cars out of snow drifts. It has provided free earth moving service to a local farmer. To the extent possible, KIES uses area businesses for needed parts and fuel oil. A KIES employee lives on-site and local residents have shown little reluctance to contact him with concerns or complaints.

According to the former chairman of the opponents' organization, KIES has gained a certain respect locally. He indicated that KIES has been able to reduce odor problems. On the other hand, he felt that some promises made by KIES and KDHE at the public meetings had not been kept. He cited the case of runoff after a particularly bad rain, and mentioned the KIES statement that this would not happen. (According to KDHE, the rain was the equivalent of a 500-year storm, which overtaxed the site's

safeguards designed for two 100-year storms in two days. KDHE also stated that no adverse impacts resulted from the runoff.) He also referred to KIES' projection of a 30-year site life versus the current projections and the KIES purchase of an additional 80 acres for expansion. He also felt the state had not inspected KIES weekly as promised and nor had it seemed sufficiently concerned about its regulatory responsibilities. A major problem, he felt, was reliable information which could conceivably show that local concerns were unwarranted.

The ex-chairman and KIES general manager both indicated that, while local concerns had been reduced, major opposition could easily revive. This uneasy relationship has been reflected in the local media's coverage of KIES. In January of 1978, the Wichita Eagle ran a full-page article on the site. The article described of the KIES facility in the context of state and national efforts to upgrade hazardous waste disposal. While making some reference to past opposition, the article described KDHE's support for KIES and was generally favorable. In October, 1978 several articles appeared following some discussion of constructing an incinerator at KIES. The incinerator proposal was not pursued. However, residents interviewed at the time repeated issues and complaints that had been raised since June of 1976. Although the articles reiterated support for KIES on the part of state and local health and environmental officials, the overall impression was one of local hostility. After those articles were published, KIES played the major role in cleaning up a nitric acid spill at a titan missile silo. According to KIES' general manager, local media generally praised KIES for its activities.

KIES' current status with local residents appears to be one of cautious and concerned co-existence. The day Centaur spoke with the ex-chairman of the opponents' organization, another ex-leader of the opponents was in Topeka to discuss developing new legislation with the area's state representative. The bill, if proposed, would be aimed at reducing odor problems at KIES. These discussions underscored the feeling that residents did not want to close KIES but did want to make sure that every precaution would be taken to safeguard operations.

IV. CHRONOLOGY OF EVENTS

Early 1976 -- KIES begins planning for facility, hires consultants.

April, 1976 -- KIES and KDHE hold initial discussions over facility development.

Late May,

Early

June, 1976 -- KIES submits preliminary plans for approval by KDHE and submits supporting test results.

Late

June, 1976 -- KDHE announces proposal publicly, holds first information meeting, and promises second meeting.

August, 1976 -- KDHE informs KIES that all data requirements to date have been met.

October, 1976 -- Second public meeting held, concerns are substantially reduced by KDHE permit restrictions.

November, 1976 -- KDHE authorizes facility construction.

January, 1977 -- Citizens suit to enjoin permit issuance is filed but resolved without injunction. Construction of facility is completed.

February, 1977 -- KIES permit to operate is granted by KDHE.

March, 1977 -- First wastes are accepted.

1977 -- Problems with handling oil refinery waste lead to citizen complaints of odor. Periodic odor complaints continue to recur, although at a reduced rate.

January, 1978 -- Wichita paper writes long and generally positive article on KIES and general topic of hazardous waste management.

October, 1978 -- Possibility of constructing an incinerator at KIES generates media attention to residents' concerns and complaints about KIES.

1979 -- KIES handling of nitric acid spill in titan missile silo attracts favorable media attention.

Spring of 1979 -- KIES develops new treatment capabilities for cyanide and chromium waste.

V. ATTEMPTS TO SECURE SUPPORT

The following are the major efforts to inform the public of KIES and address public concerns.

- o The June, 1976 public meeting where KDHE and the primary consultant for KIES first explained the proposed facility and state regulations and responded to opponents' concerns.
- o The October, 1976 public meeting where KDHE outlined the permit restrictions which would apply to the facility.
- o Efforts by KIES staff to reduce odor problems and to help identify sources of odors.
- o A range of efforts and actions by KIES which amount to a "good neighbor" policy.

VI. SUMMARY EVALUATION

The cumulative effect of the attempts to generate support has been to reduce what was initial total opposition to the development of the facility. Currently there appears to be a cautious willingness on the part of nearby residents to let KIES operate. This by no means translates into local support for KIES, but more nearly reflects the attitude of a "good loser," as one resident termed it.

The major factor in effectively overcoming public opposition was KDHE's ability to demonstrate tight controls over facility design and operation. As described earlier, KDHE's performance at the second public meeting met with general expressions of satisfaction from those who had opposed the facility. Just as important as KDHE's response to public concerns was its steadfast support for the KIES proposal as a desired solution to hazardous waste disposal problems. Commendations for KDHE's role have been made by a range of parties from KIES officials to local opponents whose individual interests were divergent and sometimes completely opposed. KDHE's solid waste section chief suggested that the agency's general credibility with citizens was a significant factor in allaying specific concerns about KIES. KDHE was in this case able to perform the delicate balancing act of safeguarding the public health and at the same time encouraging and supporting environmentally sound hazardous waste management.

The ability to allay public concerns is more significant in light of the earlier public meetings and post-operational attempts to secure support. That the first public meeting was unsuccessful (one regulatory official called it a disaster) in reducing concerns is evidenced by the fact that a second public meeting was held. Various regulatory officials indicated that the failure of the meeting was attributable to poor preparation. Despite the fact that the bulk of site investigation and a significant amount of site engineering had been completed, KIES was unable to persuade the public that the proposal was credible. The failing then was not primarily defined in terms of information, but rather in terms of communications and public relations. Newspaper articles prior to the meeting citing KDHE's almost certain approval of the proposal undoubtedly added to area residents' concerns.

Since operations have begun, KIES has worked in many ways to gain the trust and respect of area residents. Based on limited contacts with former opponents, it appears that KIES has had some success. However, residents' deeply rooted concerns (e.g., eventual water contamination) have changed little. This experience suggests that even the operator of the best managed facility has very real limits placed on its ability to reduce public concerns. More simply, the local community may never accept and never completely trust the facility operator.

Facility opponents raised a number of issues. The major issues follow:

Contamination of water and other media -- Opponents felt that the site, its design and regulations did not adequately protect surface and ground-water from potential contamination from chemical wastes disposed of at KIES. Less well defined were concerns that the soil and air would also be polluted. They also felt that KIES could not predict the facility's environmental impacts.

Site location -- Opponents felt that the site was not sufficiently isolated. While that section of the county is not densely populated, opponents stressed its proximity to Wichita (about 15 miles) and the potential in the future for urban development to envelop the area.

Economic disbenefits -- Residents feared that nearby land values would fall if the facility were developed.

Equity issues and local image -- There were general concerns about the equity of choosing the Furley area as a site. Opponents did not want to gain the notoriety of being the industrial dumping ground of Kansas. Similarly, they did not want to become the "guinea pig" for developing appropriate hazardous waste disposal practices. This latter concern reflected a more general concern over the reliability of these practices.

Public participation opportunities -- The outcry prior to and during the first public meeting was compounded by the complaint that local residents were not being adequately informed and were not given any meaningful role in the decision-making process.

Since KIES has begun operation two issues have evolved: odors, and site monitoring.

Odors -- These are the most salient impact of operation and have generated the bulk of the complaints. These complaints have diminished because of KIES efforts to control odor problems and (perhaps) because of odor surveys which have shown barnyards, pipelines, and other sources of odors in the area.

Site monitoring -- There appears to be some concern over whether the state is adequately performing its monitoring and inspection functions. KDHE states that monitoring is performed weekly, but opponents seem to doubt this. They also feel uninformed about the results of on-site monitoring.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

The following were major steps leading to public opposition.

KDHE's announcement of the first public meeting to acquaint the public with the KIES proposal.

- o Statements by KDHE officials reported by the press prior to the first meeting that nothing in the proposal would disqualify the site on technical grounds.
- o The inability of KIES and KDHE to convince opponents of the soundness of the proposal and of state controls over the facility in the course of the first public meeting.

The reduction of public concern and opposition was attributable to the following.

- o KDHE's demonstration at the second public meeting of strong regulatory controls over KIES.
- o The ability of KDHE to include state legislator and citizen concerns in the development process for the KIES permit.
- o The close cooperation between KDHE and KIES throughout the siting process, particularly in regard to the development of KDHE's regulatory program for hazardous waste management.
- o A final important factor may have been the lack of major national publicity of hazardous waste problems during the siting. Love Canal and other hazardous waste disasters became general public knowledge subsequent to the issuance of the KIES permit.

VIII. RESTROSPECTIVE VIEWS

Comments on the siting process by area residents have focused on two related issues: ongoing provisions to ensure safe operations and the public availability of reliable information pertaining to those operations. At the close of the second public meeting residents indicated a need to be reassured that adverse impacts would be eliminated or reduced. During the site visit a former opposition leader reiterated this concern and stated that the lack of information on site monitoring prevented citizens from knowing what impacts had occurred. Locals did not know the state of affairs and might have no cause to worry. He felt that a small citizens' committee with the resources to independently analyze water samples from monitoring wells would provide a means to reliably inform residents on facility operations.

IX. GENERAL COMMENTS

The KIES general manager (who had previous hazardous waste experience as a consultant and state official) made a number of comments regarding state and industry roles in siting. As in the KIES siting process, he felt states should play a strong role but were constrained by a shortage of well-qualified staff in hazardous waste offices and a lack of operational experience with facilities. By consulting with other state

agencies, hazardous waste offices could substantially increase available expertise. This pooled talent could help states scrutinize permit applications and focus on permit deficiencies.

While a strong state review of permits was critical, the KIES official felt this should not slow down the permit process. Three to six months should be allowed for permit review, with definite time limits placed on other state agency and public comments. Lengthy review periods would substantially increase industry costs and begin to drive out smaller companies with limited capital.

Public participation was seen by KIES as a state function. State agencies should take the lead in conducting public meetings and not place the burden on industry to provide all information on facilities and safeguards. From industry's point of view, public input should help point out problem areas which industry and the state can then address and correct. The KIES general manager cited the format employed in Oklahoma as a possible model for public input. In that state, public commenters may only address technical issues and only under oath; cross-examination is allowed.

A final public agency role is the development and dissemination of reliable public information. Distinctions between Love Canal and sound disposal practices need to be publicly understood. The desirability of incineration and other techniques over the burial of any hazardous waste should be publicized. The KIES official felt that the public, the media, and even some regulatory officials are not sufficiently knowledgeable about current management practices and as a result impeded the development of sound hazardous waste management.

One role which KIES felt to be inappropriate for government was site ownership. The inevitable increase in administration would not result in any greater public acceptance of sites. Financial and institutional arrangements would be chaotic. This approach might also lead to increased centralization in industry (because larger companies could demonstrate greater experience) without any guarantee that this would result in better disposal practices.

From KIES' perspective, this siting experience has provided two particular lessons for future siting. Given the need for a strong state role, the disposal industry should help pay state costs. By providing the state a share of gross revenues (KIES provides about 5 percent), industry can defray part of the costs of monitoring sites and administering regulations. Industry also needs to amass as much information as possible when developing new sites. In many cases this will require significantly more data than minimally required by states.

To date, EPA Region VII has played a minor role in siting. It has not reviewed any permit applications nor has it asked to do so. Instead it has provided quiet support for sites which states have determined to be good. In rare instances, Region VII staff have discussed general

problems of hazardous waste management and the need for sound disposal sites with opponents of specific sites.

According to regional staff the implementation of RCRA could drastically change the EPA role, impede siting, and change the status of disposal in the region. It was considered possible that some Region VII states would ask EPA to implement RCRA. Yet only one-third of the estimated personnel needed by the office to implement RCRA has been budgeted. Recently issued regulations for public participation could add six months to two years to the siting process. This could drive public participation costs to a level equal to the rest of siting costs. If these estimates are at all accurate, siting costs will mushroom and a number of potential facility sponsors will drop out. This would clearly result in a slower rise in regional disposal capacity. That disposal capacity could drop drastically when RCRA is implemented, as the office expects only two sites in the region to meet the new regulations.

The regional office sees the major siting issues as follows: Do sites meet, or preferably exceed, minimum technical standards for safety? Are funds for all post-closure costs and eventualities available perpetually? Are facility sponsors and operators qualified and trustworthy? Can site proponents communicate clearly and effectively with local officials and concerned citizens?

BOB'S HOME SERVICE

WRIGHT CITY, MISSOURI

I. INTRODUCTION

Bob's Home Service (BHS) is a hazardous waste landfill which began limited operations in 1976 and received a permit for full operation in May, 1977. That permit was issued by Missouri's Department of Natural Resources (DNR) which played an active role in the development of the facility's transformation from a sanitary landfill to a hazardous waste landfill.

Opposition developed prior to the issuance of the DNR permit and continued for several months. Two different groups expressed opposition: a homeowner's association representing a second home development adjacent to the site and permanent residents of Wright City. While much opposition was based on general objections to the development of any hazardous waste disposal facility, the potential contamination of surface and groundwater were specific issues.

Several attempts were made by BHS and DNR to address general concerns and specific issues. These included specific operational procedures taken by BHS to monitor and analyze runoff from the site. It appeared that these actions were largely successful in reducing expressed concerns. It was indicated, however, that this partial success by no means suggested public acceptance of the facility.

II. BACKGROUND INFORMATION

The BHS site is located approximately five miles south-southwest of Wright City. The facility is within the bounds of a 150-acre farm owned by BHS's owner/operator who is also at the site. Inter-city access is via I-70; the route to BHS goes directly through Wright City.¹ The site is surrounded by forest, which lowers the its visibility. There is a small number of year-round homes along the half-mile road which gives direct access to the site. Immediately south of the site is a development of vacation homes built around a lake.

The hydrogeology of the site was described by DNR and by Reitz and Jens (engineering consultants to BHS) as being particularly suited to

¹ BHS representatives indicated that an alternative route to the site which involved passing by fewer residences is available. This route, however, is longer and because DNR does not regulate routes is not used by trucks coming to BHS.

hazardous waste disposal. The uppermost geological stratum is glacial till with a rated permeability in the range of 10^{-8} to 10^{-9} cm/sec. According to Reitz and Jens, this till is not subject to shrinkage as is clay. Beneath the till is a shale and limestone formation approximately 160 feet thick. This formation reportedly has a low permeability and carries little groundwater. A stream bed which has an intermittent flow crosses the site and eventually empties into the lake around which the vacation home development has been built.

The facility operates as a landfill for sludges and solids. The original design called for two large trenches (20 x 30 x 200 feet), each of which would accept drummed and bulk wastes. One trench was for acidic wastes; the other for alkaline waste. At DNR's direction this design was changed to four trenches to allow for the segregation of drummed and bulk wastes. Currently the use of trenches has been abandoned in favor of small holes (3 feet in diameter, 27 feet in depth) which can accommodate eight drums. The use of holes has eliminated the need for pumping standing water from trenches. This water would have had to be held in ponds, analyzed, and land applied. This new disposal procedure also allows for greater isolation of individual waste streams, surer cataloging of buried wastes, and involves fewer problems with operating equipment. There are only minor changes in the site's capacity.

A broad range of hazardous waste is accepted including acids, bases, organics, and flammables; specifically excluded is radioactive waste. Virtually no liquid waste is accepted except in extremely small quantities. While the St. Louis area is the primary market area for BHS, out-of-state waste has been accepted from as far away as Georgia.

The facility encompasses 15 acres and the life expectancy was estimated at five to ten years. BHS's original intent was to develop the entire 150-acre site. This was reduced 90 percent because of DNR's requests for monitoring wells at 100-foot intervals around the perimeter of the site. BHS considered this too costly. The final plan includes 16 monitoring wells.

Post-closure provisions will, at a minimum, adhere to state requirements. As proposed, state regulations specify operational procedures for facility closure and the development of a post-closure fund to cover contingencies when the facility operator cannot be held legally liable.

BHS is a privately owned company. Prior to the development of the hazardous waste landfill, BHS operated a sanitary landfill at the same site. In addition to the landfill, BHS also hauls wastes. For the first year of its operation, BHS hired Chem-Dyne to manage daily operations. Since then BHS has hired its own operations staff. The Wright City facility is the only BHS disposal operation.

Wright City (1976 population: 1,170) is located in Warren County (1976 population: 12,430) about 50 miles west of St. Louis. Until the late 1960's the County was solely a farming area. Since then there has been an increase in the number of residents who live in the county and commute to the St. Louis metropolitan area. Due in part to the lack of county zoning, the area has been particularly attractive to the development of small homesteads.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

In Missouri, primary regulatory responsibility for hazardous waste facilities rests with DNR. DNR regulations do not override local zoning; however, Warren County has no zoning. The county does license landfills, but this licensing cannot, in the opinion of Missouri's attorney-general, apply to hazardous waste landfills. Thus, in the case of BHS, the state permit was the only applicable regulation.

In the summer of 1976 DNR had only rudimentary regulations covering the disposal of special wastes (i.e., those "requiring handling other than that normally used for municipal wastes," as defined by then existing state law). According to DNR, the permitting of BHS as a disposal site was based on the professional judgment of DNR staff who determined what restrictions would apply to a given site on a case-by-case basis.

The origin of BHS's facility was tied to the need of a St. Louis Monsanto facility to dispose of sludge generated in a silicone purification process. According to DNR, Monsanto had been disposing of that sludge at a landfill about 15 miles from the BHS site. Because of the marginal geology at that site, the state stopped Monsanto from taking its sludge there in 1976. Their major problem then was to find a suitable site. One option was for Monsanto to dispose on-site. According to BHS, Monsanto had a temporary permit to do that but only under the condition that the company eventually exhume the wastes. Another option was to landfill the sludge at BHS.

In the summer of 1976 arrangements were made between BHS, Monsanto, and DNR for disposing of Monsanto's sludge. According to BHS, Monsanto contacted the company about using its site and BHS in turn contacted DNR. A DNR official said that the department was aware that the geology of the BHS site was good and wanted to discontinue Monsanto's use of the other site.

BHS then hired engineering consultants who began to investigate the site's potential for hazardous waste disposal. According to Reitz and Jens, the results of soil tests conducted in August of that year convinced DNR of the site's suitability. DNR then encouraged BHS to close down the sanitary landfill operations and develop the site as a hazardous waste facility. Accordingly, a trench was developed to accept Monsanto's sludge. BHS first accepted sludge in August of 1976.

For the first month, BHS accepted the sludge under the state's "good graces."¹ In the latter part of September DNR issued a temporary permit allowing BHS to accept the Monsanto sludge for 90 days. This permit was subsequently extended until May of 1977, when a permanent permit was issued. In encouraging BHS to develop a hazardous waste facility, DNR stipulated that a detailed engineering plan be developed by BHS and approved by DNR before a permanent permit would be issued. As described earlier, BHS's original plan for two trenches was changed to four trenches at DNR's request. The original plan for engineering the entire 150 acres was reduced to 15 acres because of the state's demand for monitoring wells and the cost of those wells. The final agreement on providing safeguards against the migration of chemicals also included the excavation of any sand lenses uncovered during the excavation of the trenches.

Following standard operating procedures, DNR did not provide for public participation during the review of the permit application. On May 24, 1977, DNR notified state and local elected officials that approval had been given to BHS. The following day the permit was formally issued.

The same day that the permit was issued (i.e., May 25), the attorney for the second home developments adjacent to the site filed suit to close the facility. The petition filed with the court argued that the facility was a nuisance and that it was accepting toxic wastes. The petition reportedly listed those materials which BHS was allowed to accept under the DNR permit. The petition also claimed that the wastes were flowing toward the plaintiffs' property. The judge issued a restraining order which temporarily closed the facility. The order also called for BHS to show why the operation should not be closed permanently. A hearing was set for June 24 to allow for further arguments with respect to the injunction.

About two weeks later the director of DNR publicly announced the permit approval during an industrial waste exchange conference in St. Louis. Local electronic and print media publicized the directors's June 6 announcement. This media attention provided the broad public knowledge of the facility and began to raise some concerns among local residents in Wright City.

On June 22, two days before a scheduled hearing on the temporary injunction against BHS, an out-of-court settlement between BHS and the developments was announced. In that settlement BHS agreed to post a \$75,000 bond guaranteeing that no pollutants would leach out of the

¹ As explained by a DNR official, BHS began operations with DNR's full knowledge but without a formal state permit. Because DNR was convinced of the BHS site's suitability, it had confidence that the permit would be issued shortly, and thus DNR allowed operations under its "good graces."

site. BHS also agreed to monitor the inlet where the creek passing through the site emptied into the lake. For the first year BHS would analyze water samples monthly; thereafter samples would be analyzed quarterly. In exchange for these provisions the developments' attorney agreed to drop the suit against BHS.¹

While the problems BHS had had with the developments had been ameliorated by late June, other problems with permanent residents of Wright City still existed. In the latter part of June, DNR agreed to attend a public meeting in response to concerns raised by area residents. The meeting was arranged by the University of Missouri Extension Service and held in Warrenton, the Warren County seat. The meeting was attended by several DNR officials, BHS's engineering consultant and over 100 area residents. DNR, with the help of the consultant for BHS, made a presentation on the facility, its operation, and provisions to guard against pollution. The presentation was followed by a question-and-answer period that allowed residents to express their concerns. According to a local official the major issue raised by area residents was the potential for the contamination of water supplies. During this meeting a resident asked DNR not to convince residents that the site was good but to explain how to get rid of it. A DNR official who had gone to the meeting with the assumption that rational explanations would persuade opponents felt that this segment was the most telling comment made. The request convinced the DNR official that area residents would never accept the facility.

Several weeks after this meeting DNR was contacted by one of the Warren County judges.² The judge asked DNR to explain the BHS facility to the county court (i.e., to all the county judges) and DNR agreed. Prior to this meeting a local pilot flew over the BHS site. According to BHS, the pilot, seeing a bluish substance on the ground and assuming it to be Monsanto sludge, complained to DNR that BHS was operating improperly. DNR closed BHS pending an analysis of the material. That analysis determined that the material was clay which BHS had excavated from the site. Although DNR reportedly attempted to assuage those who had been concerned, BHS indicated that the incident raised significantly the level of general opposition to the facility.

The meeting requested by the county judge was held in August. DNR expected to brief the county court; however, the meeting had attracted over 100 officials and residents including the area's state elected officials. The meeting became quite heated and most if not all elected

¹ Although that suit was never pressed, BHS contended that it would not have been successful. The major weakness was that the petition had listed all wastes from the permit and claimed that they were buried at the site. According to BHS, only Monsanto sludge had been accepted when the petition was filed.

² In Missouri, county judges are the chief elected officials of counties; they are not judicial officials.

officials spoke against the facility. The area's state representative, who was minority leader of the state house, argued that local officials should sue BHS on the grounds that there should be county control over the facility. He indicated that he would ask the state Attorney-General for an opinion on the question of what legal controls the county could exercise. According to DNR, the local prosecuting attorney indicated at the meeting that there was little likelihood that such a suit would be successful. (At the time of this meeting the regulation of hazardous waste facilities was based on 1975 state solid waste law and regulations. A new state hazardous waste law had been passed by the state legislature. That law, however, would not take effect until September 28, 1977.)

On October 6, 1977 the Attorney-General of Missouri issued an opinion letter in response to the state representative's request. That opinion held that counties were authorized to regulate in substantial fashion solid waste management systems under the 1975 solid waste law. The newly enacted hazardous waste management law, however, subsumed the earlier law as it pertained to hazardous waste. Thus for hazardous waste facilities regulation, authority rested with state government and local governments could not regulate facilities which had been granted state permits.

The Attorney-General's opinion marked the end of major local efforts to restrict or to close BHS. Since that time there have been some requests for state inspections for the facility and DNR has responded to these requests. The relative quiet has not indicated a lack of concern or opposition to BHS. During the Centaur site visit in March 1979, a DNR official said he had recently been contacted by the attorney for the second home developments adjacent to BHS. The attorney, described as a former aide to a Missouri governor, had asked how severe a violation of state regulations would have to occur in order to close BHS.

BHS has made some operational changes since opening. As indicated in Section II, trenches have been replaced with much smaller holes for burying wastes. BHS has severed its contract with Chem-Dyne and now has its own operating staff. BHS has maintained a relatively low profile and refrained from any active public relations. The firm does, however, maintain the county road leading to the site and provides free waste disposal for residents along the road. These residents, according to BHS and others interviewed, have never given any support to local citizens trying to close the facility.

IV. CHRONOLOGY OF EVENTS

1976 -- Monsanto precluded from using landfill, resulting in need for alternative disposal site.

June/July 1976 -- Monsanto contacts BHS, BHS contacts DNR, initial arrangements for disposal of Monsanto sludge at BHS made. BHS hires engineering consultants.

August, 1976 -- BHS accepts first sludge for disposal under "good graces" of DNR; soil tests and engineering for facility proceed.

September, 1976 -- DNR grants temporary permit for disposal of Monsanto sludge.

Late 1976/
early 1977 -- BHS and DNR negotiate over design of facility

May, 1977 -- DNR notifies selected officials of permit approval; DNR approves permit. Attorney for second home developments sues BHS; court temporarily closes BHS as a result.

June, 1977 -- DNR director announces permit approval publicly. Out-of-court settlement reached between BHS and attorney for second home developments, allowing BHS to reopen. DNR and BHS consultant attend public meeting to explain facility to area residents.

July, 1977 -- BHS temporarily closed by DNR, following charge of improper operations.

August, 1977 -- Second public meeting over BHS; area's state representative argues for suit against BHS based on local controls over hazardous waste management.

September, 1977 -- State hazardous waste law enacted.

October, 1977 -- Attorney-General of Missouri renders opinion that state law precludes local regulation of hazardous waste management.

1979 -- Attorney for second home developments contacts DNR requesting information on conditions required to close BHS.

V. ATTEMPTS TO SECURE SUPPORT

The following steps were taken to secure support and/or address concerns.

- o The out-of-court settlement resulting in the BHS posting of a \$75,000 bond and increasing monitoring of facility operations.
- o Responses made by DNR and BHS officials during the two public meetings.
- o BHS provides solid waste disposal and other services to residents along the county road leading to the site.

VI. SUMMARY EVALUATION

The various attempts to secure support for the BHS operation have been moderately successful in reducing concerns, but probably not successful in gaining any substantial support for the facility. The out-of-court settlement appears to have been the most clear-cut case of BHS being able to offer services (i.e., defined safeguards) in return for the plaintiffs' acceptance of the facility. That an out-of-court settlement was reached suggests that both parties were interested in resolving differences. BHS's interests for this are self-evident. It was suggested that the plaintiffs as well had definable reasons for arriving at a compromise as well. The actual property owners are not permanent residents and had left the questions of objecting to BHS to the developer. The developer, not wanting to endanger property values by undue publicity, sought an effective, expedient solution that would increase safety provisions.

Direct attempts to reduce the concerns of permanent residents appeared to have largely failed. Much more significant in overcoming this opposition was the absence of any legal means by which the county could control the facility. DNR did not significantly allay any concerns but the law strongly suggested that continuation of BHS operations was inevitable as long as BHS adhered to state regulations.

Finally, BHS does appear to have at least gained acceptance from its closest permanent abutters. Because BHS's owner lives at the site, these abutters are also his long-time neighbors. BHS's conscious attempts at a "good neighbor" policy have largely succeeded. These abutters, however, constitute only a small number of persons.

Overall, the successful siting of BHS is probably significantly linked to the lack of widespread public knowledge of the facility until after the permit was granted. Once the permit was granted opponents had few means of effectively fighting the facility. Over time, opposition has waned; however, there is little to suggest that this lack of opposition means acceptance. There is some evidence that opposition would arise in the future if opponents felt they had a reasonable chance of restricting or closing facility operations.

There were only a few issues raised during the controversy. They include the following.

Potential water contamination -- A major concern was that runoff from the site would flow into and pollute the lake near the site. Less clearly defined was the concern of contamination to groundwater by chemicals migrating through the soil.

Improper operation -- Opponents charged BHS with lax operational procedures after a pilot spotted bluish material lying about the site. DNR later refuted the charges of mismanagement.

The existense of BHS -- For some opponents the mere existence of a hazardous waste management facility such as BHS was the most major issue.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

The following factors led to public opposition.

- o The existence of the facility.
- o DNR's announcement of the permit approval.
- o The evidence (later refuted) that BHS was improperly dumping Monsanto's sludge.

The following factors led either to acceptance or a waning of opposition.

- o The willingness of the plaintiffs in the court suit to compromise.
- o The overriding of local hazardous waste regulation by state law.

VIII. RETROSPECTIVE VIEWS

In looking at future hazardous waste facility siting, BHS saw a need for better provisions for communicating with the public. In particular, local leaders should be educated both through small meetings with leaders and tours of facilities or sites. The major thrust would be to demonstrate credibility to these leaders prior to public meetings or other events that are more conducive than public meetings to reasoned discussions. BHS perceived state agencies as being strictly neutral parties in siting attempts. EPA was seen as having no major role in siting attempts.

IX. GENERAL COMMENTS

Representatives of BHS also had more general comments on hazardous waste management. Publicity about improper disposal generated by EPA could possibly create backlash against good facilities, making it more difficult for the private sector to secure future sites. EPA regulations should address the degree of hazard in wastes so that the need for facilities could also be geared to the degree of hazard. This could reduce the demand for facilities capable of handling extremely hazardous wastes. Finally, if an operator has followed all regulations but some spill or other accident occurs, the operator should not be held liable. Instead, the government should establish a fund with payments from hazardous waste generators to cover liability costs.

To date, EPA Region VII has a minor role in siting. It has not reviewed any permit applications and has not been asked to do so. Instead, it has provided quiet support for sites which states have been determined to be sound. In rare instances, Region VII staff have discussed general problems of hazardous waste management and the need for sound disposal sites with opponents of specific sites.

According to regional staff, the implementation of RCRA could drastically change their role and the status of disposal in the region. Only one-third of the estimated personnel needed by the office to implement RCRA have been budgeted. Recently issued regulations for public participation could add six months to two years to the siting process. This could drive public participation costs up to a level equal to the rest of siting costs. If these estimates are at all accurate, siting costs will mushroom and a number of potential facility sponsors will drop out. This would clearly result in a slower rise in regional disposal capacity. That disposal capacity could drop drastically when RCRA is implemented, as the office only expects two sites in the region to meet the new regulations.

The regional office sees the major siting issues as follows: Do sites meet, or preferably exceed, minimum technical standards for safety? Are funds for all post-closure costs and eventualities available perpetually? Are facility sponsors and operators qualified and trustworthy? Can site proponents communicate clearly and effectively with local officials and concerned citizens?

State agency comments are described in the state program write-up elsewhere in this report.

WES-CON, INC.

GRAND VIEW AND BRUNEAU, IDAHO

I. INTRODUCTION

Both the Grand View and Bruneau facilities of Wes-Con, Inc., are discussed in this report because their histories are so closely intertwined. The sites are located in the same county, only 40 miles apart. Many of the same residents and local elected officials sat in on public hearings and county commission decisions for both sites. The sites are identical abandoned Titan missile silo facilities and many of the state's operational disposal guidelines developed for the Grand View facility were later improved and adopted for the proposed Bruneau facility. In addition, the County Commissioners viewed the permission to operate at Bruneau as a simple extension of their previous approval at Grand View.

Public opposition to both sites was very mild. There were a few complaints about odors which were checked by the state, but absolute verifications of the odors were never made. Neither the state or the county has an odor ordinance. However, several operational changes were made to minimize the potential odor nuisance. Following the national publicity on Kepones and the announced possibility of their being disposed of in Grand View, a few citizens voiced alarm. In response to this opposition and as part of the state's re-evaluation of the permit conditions, a public hearing was held over the Grand View operation. Although some opposition was voiced, the state felt that it was minimal and easily assuaged by certain operational changes and stricter controls on the disposal operations.

Approximately a year and a half later a public hearing was also held for the proposed Bruneau site. No significant opposition developed at this hearing. Wes-Con received a similar conditional use permit and signed a consent decree for the Bruneau operation.

Public support for both facilities came primarily from local elected officials and civic leaders. They assumed a traditional attitude in this area that if one owned the land, they were entitled to do with it what they wanted to. The public also assumed that state and federal organizations such as EPA and the State Department of Health and Welfare would supervise and enforce the safe operation of the sites. Wes-Con undertook several public relations initiatives to become good neighbors and earn the continuing trust of the community. The Cattlemen's Association is the only organized interest group in the area and they supported the proposed activities of Wes-Con because they saw no conflict with the agricultural and ranching economy of the area.

II. BACKGROUND INFORMATION¹

Both sites are located in remote areas of Owyhee County. The Grand View site is 10 miles from the town of Grand View (population: 260). The Bruneau site is 20 miles from the town of Bruneau (population: 100). The nearest rancher is two miles away at the Grand View site and 20 miles away at the Bruneau site. The remaining abutting land on both sites is BLM grazing land. There are no zoning ordinances in effect in Owyhee county.

The hydrogeology of both sites is particularly well suited to hazardous waste disposal. The well log at the Grand View site revealed numerous thick layers of blue clay underlying the missile silos. Since clay is highly impermeable, especially at the reported depths and pressures, the chance of groundwater contamination in the event of leachate escape is almost non-existent. The site well logs report that first water was encountered at approximately 3,000 feet. Although it was not documented by a well log, a shallow water table reportedly existed in the general Grand View area at 300 to 400 feet. However, it was determined that the water table was not a flowing aquifer and was not present in all locations in the Grand View area.

The hydrogeologic characteristics of the Bruneau site are similar to those of Grand View but rendered somewhat more complicated by a shallower water table, approximately 2,000 feet below the silos, and intervening layers of volcanic rock instead of clay. However, the lack of vertical fractures, the relatively impermeable deep formations, and the high pressure of the deep artesian aquifer indicate that under normal circumstances the deep aquifer would not be contaminated by hazardous wastes.

Both the Grand View and Bruneau sites are identical in terms of the silos and underground vault complexes. Each site has a number of silos and two large underground vaults that can be used for temporary storage, long-term warehousing or final disposal of wastes. Each site consists of an approximately 20-acre fenced portion and an additional 100-acre buffer zone. The underground structures were designed to withstand a ground-zero atomic blast and to contain an internal explosion and fire

¹ Most of this background information is derived from a technical evaluation of Wes-Con which was provided to Centaur by Wes-Con. This evaluation has allowed for a much more detailed description of background and information than has been generally possible for case studies in the project. The evaluation was conducted by TRW, Inc. under contract to U.S. EPA. See Case Study No. 4 in Study of Selected Landfills Designed as Pesticide Disposal Sites, TRW Systems Group, U.S. Environmental Protection Agency, 1976, published as PB 250-717 by the National Technical Information Service, Springfield, Virginia, 22161.

in the event of an accidental ignition of the missile propellant. The walls and floors are steel reinforced concrete treated to withstand complete water immersion. The silos are approximately 50 feet wide and 160 feet deep with up to 6-foot thick walls and 13-foot thick floors. The silos and vault areas are interconnected by tunnels which are sealed with bomb-proof doors. Each silo has a 100-ton reinforced concrete cover door which will be sealed when the silo is completely filled with wastes. Preparation of the silos and vaults consisted of salvage operations to recover metal structures and to collapse floating floors. The Grand View site is completely prepared and operational. The Bruneau site is still under preparation.

Wes-Con is also operating a landfill trench at the Grand View site which allows them to segregate some of the more volatile wastes and thereby reduce the risk of fire and extend the life of the silos.

The walls and floors at both sites were poured within a gunite form which was constructed by excavating the original earth then recompacting and finally "shooting" with a 6- to 12-inch thick gunite pad. The excavation and recompaction of the entire area would also disrupt any natural geological strata which might be evident in the upper sand and clay layers and would thereby eliminate the possibility of underground infiltration of surface water into the disposal area. To even further minimize the chance of groundwater contamination, Wes-Con was required to incorporate a clay soil mixture in the silos with each waste load in order to eliminate any free-standing liquids in the silos. Both sites are also protected from surface water problems by being situated on knolls and in an area with an average precipitation of 10 inches and evaporation of 72 inches.

Initially the silos were to be filled simply by dropping drums of wastes into the opening at the top of the silo. This practice was later replaced by a crane lowering the loads to help prevent sparking caused by the impact of free-falling drums. In addition to the drums of waste, bentonite clay is added in equal proportions to the waste volumes to suppress odors and to make a "mud-mix" from the liquid wastes that leak out of the ruptured drums. Every fifty feet or so a complete clay lid is placed over the wastes to absorb further liquid wastes and to help eliminate odors and prevent fires.

Both water and clay are available at the lip of the silo opening to be bulldozed into the silo in case of fire. A fire truck is also available on-site for additional water and foam pumping capacity. Other safety features include protective clothing for the operators, showers in the event of bodily contact with waste materials, and periodic physical checkups with complete blood and urinalysis tests. Employees are protected by regular monthly blood tests they are required to undergo at a poison control center in Boise. Also, the final paycheck of a terminating employee is withheld until they have arranged for a complete physical. Access to the site is encouraged but limited to appointments only in order to prevent an authorized entry which could be dangerous.

Wes-Con does not own or operate its own waste hauling trucks. Under agreements with some of the major clients, however, hauling of the wastes is Wes-Con's responsibility. Wes-Con hires commercial waste haulers for hauling in wastes from these clients. Only licensed commercial waste haulers are admitted to the disposal site. Currently, Wes-Con does not have on-site laboratory facilities for waste analysis and the customers are required to identify the contents of their shipments. In most cases, major waste producers send a technical representative along with the waste shipment to assure that the waste load reaches its intended destination and that the waste is disposed of properly. The customers are usually consulted and their recommendations on proper waste handling methods and pretreatment procedures are solicited. Wastes received at the site are disposed of immediately.

The capacity of each site is approximately 1.5 million cubic feet. At the projected rate of use the anticipated life of each site is approximately 10 years. At the Grand View site, Wes-Con has recently started a landfill trench adjacent to the silos in order to increase the capacity of the operation. They are also considering incineration and some form of resource recovery operation in the future to concentrate the hazardous wastes and recover some valuable products. Implementation of these plans will extend the life of the site. However, no estimates are available at this time as to the total life of the operation. At the moment there are no site closure plans short of sealing the silo doors and reseeded the areas. The state has no rules regarding bonding or other forms of financial responsibility during or after the operation of a site.

The Wes-Con sites have been approved by the state as a pesticide waste disposal facility and have a "blanket" permit for accepting pesticide wastes. Disposal of hazardous wastes other than pesticides, however, requires specific state approval which is granted on a case-by-case basis. As a matter of policy, however, Wes-Con keeps a record of all pesticide and non-pesticide wastes which it handles and the records are available to the state for review upon request.

Wes-Con accepts a broad range of wastes in addition to pesticides. The other wastes are miscellaneous hazardous wastes, including PCBs, laboratory wastes, electroplating sludges, etc. Some hazardous wastes are not accepted: Kepones, radioactive materials, military poison gas and pressurized gas.

Through agreements with major power companies and the Bonneville Power Administration, Wes-Con is currently handling most of the PCBs generated within the Pacific Northwest. Some of the wastes come from as far away as Hawaii and negotiations have been conducted with an Australian firm. Most of the wastes handled at Grand View and projected for Bruneau will be from out of state.

The name Wes-Con stands for Western Containment. It was selected to emphasize the positive aspects of the operation. The company

intentionally stayed away from such names as refuse disposal, hazardous waste disposal, and industrial waste disposal, which were considered to be psychologically less appealing to the public than the name Wes-Con.

Wes-Con is an Idaho Corporation composed of the following three major stockholders: the president (a former associate professor at the University of Idaho); a Twin Falls owner of a chemical supply company; and an attorney. When all start-up activities are completed they will employ six people at the Grand View site and plan to employ two persons at Bruneau. Although the sites are very similar the additional trench disposal at Grand View and greater mechanization at Bruneau account for the difference in employment. At the moment Wes-Con owns only the Grand View and Bruneau disposal sites. However, they are looking ahead to recycling and resource recovery operations as an adjunct to the disposal activities.

Owyhee County is a ranching and agricultural area with a population of approximately 7,600 persons and an area of approximately 7,000 square miles. Thus it is sparsely populated, with approximately one person per square mile. The people in the county are poor, with the poorest sector being the large number of senior citizens. Some of the land has been purchased by outside interests, mainly California investors, but they take little or no interest in local activities such as the waste disposal sites. The region used to be much better off economically. There was a major silver mining operation in the nearby Owyhee Mountains and many Basques used to have large sheep herding operations there. However, now the area exists on sugar beets, potatoes, alfalfa, hay and livestock.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

As of March, 1979 there were no state laws in Idaho specifically pertaining to hazardous waste disposal in Idaho. There was, however, proposed legislation which was modeled after RCRA, with the exception that Idaho might classify wastes by degree of hazard. There were no local permits or regulations which applied to either of the Wes-Con facilities.

Prior to the Wes-Con facility development, the state had no experience in hazardous waste disposal issues and none since the siting of these two operations. In issuing the conditional use permit, the state relied on its solid waste disposal laws and on the proposed federal hazardous waste regulations. They anticipate all future issues concerning hazardous wastes to be covered by federal regulations. The state also has no requirements for public hearings, leaving it up to the county commissioners to conduct local hearings and grant permission on waste disposal.

The concept of using abandoned missile silos for hazardous waste storage evolved in 1973. Wes-Con's president had had extensive experience in selling chemical products and as a university professor and an

agricultural extension agent familiar with pesticide uses and handling procedures. He implemented his idea with the creation of Wes-Con. He purchased the Grand View site in 1973 and prepared an environmental assessment as part of an application to the state.

Although it was not required under any applicable regulations, at the very beginning, Wes-Con discussed its waste disposal plan with the Owyhee County Commissioners and solicited and received their approval. According to Wes-Con, county approval reflected a strong local tradition of allowing one the freedom to do with one's land what one wanted to. In June of 1973 Wes-Con was granted a Conditional Use Permit for the Grand View site by the Idaho Department of Health and Welfare. The permit was fashioned out of existing solid waste management regulations and proposed federal hazardous waste regulations. Commercial operations started in November of 1973.

Wes-Con's management staff have been well known locals in the area for many years, and from the start of their operation they undertook an aggressive public relations campaign. Wes-Con donated steel stairs, valves, pipes and other materials salvaged from the site to local schools, farmers and private citizens. The company replaced a "no admittance" sign with "visitors welcomed" sign and invited local citizenry and representatives from universities, industry and governmental agencies to see the site and its operation. To avoid adverse publicity, Wes-Con intentionally stayed clear of nuclear wastes and nerve gases, even though the site was considered to be most suitable for the containment of such wastes. The company's public relations activities included hiring employees locally, accepting pesticides and other hazardous waste from area ranchers and local public facilities free of charge, providing free disposal services for emergency situations, allowing area ranchers to use free of charge Wes-Con's heavy equipment, supporting local charities, and providing first aid classes to neighbors.

As a result of its public relations program, Wes-Con's Grand View facility did not receive public opposition or major complaints from local citizenry, with the exception of the nearest neighbor to the Grand View facility. In this instance a woman residing about two miles from the site complained about odors and the inherent dangers associated with handling hazardous chemical wastes that had devalued her property. The State made a routine check of the odor complaints, but was unable to verify them. In time the woman sold the property to a ranch developer who improved the property and resold it. The property is now being ranched and no further complaints have arisen from this abutting neighbor. The sale, improvement, and resale of the property indicate that the nearby hazardous waste disposal facility has not adversely affected the value of the property.

In June of 1976, EPA, which had formed a special task force to coordinate Kepone disposal, recommended that the Wes-Con facility be used for those Kepone-contaminated materials that could not be

incinerated. Allied Chemical approached Wes-Con with a request to dispose of some of their Kepone wastes. Allied Chemical also contacted the state, which had to give its permission before Kepone could be added to Wes-Con's waste stream. The State Department of Health and Welfare recommended in favor of the Kepone disposal on environmental grounds; however, they conceded that it was a politically sensitive issue that should be decided by the governor.

A flurry of media attention was given to the Wes-Con facility over the possibility of Kepone disposal in Idaho. Much of this publicity focused on the fact that the governor had publicly campaigned against the disposal in Idaho of radioactive waste and nerve gas which would be brought from other states. Finally, in November of 1976, the governor issued a statement that he had asked Wes-Con not to accept the Kepone wastes, suggesting that there were numerous disposal sites closer to Baltimore (the source of the Kepone) which can encapsulate hazardous materials, thereby avoiding the danger and cost of shipping the wastes to Idaho. Wes-Con's refusal to accept the Kepone wastes saved the governor from an obvious political dilemma. Because most of the waste Wes-Con handled was from out-of-state he could not insist that only Idaho wastes be buried at Grand View nor could he argue against EPA's recommendation at the same time the people of Idaho were voicing strong opposition to the Kepone issue.

In the same statement over Kepones, the governor said that the state was conducting a technical re-evaluation of the integrity of the Grand View site and its operation but there was no evidence to suggest that the operation of the site needed to be changed drastically. This re-evaluation was instigated by several fires that had occurred in October at the Grand View site. In November public hearings were called in Owyhee County to investigate the operation of the site. It was theorized that the dropping of barrels into the 160-foot silo caused sparking and the possibility of fires. The revised conditional use permit issued in March of 1977 that resulted from this hearing ordered Wes-Con to lower the barrels by crane and to have on hand additional fire fighting equipment. The fire truck purchased to meet state requirements became an important public relations symbol since it was the only such truck available to local ranchers and farmers. Another important outcome of the re-evaluation was the requirement for Wes-Con to sign a consent decree. This consent decree meant that Wes-Con would cease operations and have its permit automatically revoked in the event of another fire, without any legal or administrative action on the part of the state. Similar consent decrees had been used by the state in air pollution control situations.

In the spring of 1977 Wes-Con decided to expand its operation by purchasing the Bruneau facility. This was an identical titan missile silo complex, although its geology was somewhat less favorable than that of the Grand View site. However, a consulting engineering and geology firm with over 30 years of local USGS experience was hired to investigate the possibility of hazardous wastes leaching into the

groundwaters. In the summer of 1977, Wes-Con submitted to the state an environmental assessment of the Bruneau site. Wes-Con again met with and secured the approval of the County Commissioners and civic leaders, who saw this as a simple extension to the Grand View operation, and applied to the state for a permit with another environmental assessment.

In July of 1978 public hearings were held in Bruneau prior to granting Wes-Con a permit. The hearings produced no local public opposition. There was some opposition from an outsider (Boise) but locals were willing to allow the site on the premise that state and federal laws would guarantee its safety. Thus, the state granted a conditional use permit. This permit adopted all the improved operating features of the Grand View site. Wes-Con also signed a consent decree covering the Bruneau site. In December Wes-Con applied for and received permission from EPA and the state to dispose of PCBs in the Grand View silos. Permission is still forthcoming from EPA and the state for a request to dispose of PCBs in trenches alongside the Grand View silos.

The Grand View site has been operating successfully with no public opposition since the Kepone incident and no opposition has surfaced regarding the proposed Bruneau site which will go into operation in the summer of 1979. However, Wes-Con feels that this lack of opposition could change suddenly if an accident occurred such as a truck accident spilling hazardous wastes along the highway. All of Wes-Con's good will built up over the years could easily be erased by such an incident, regardless of whether such a truck was leased to Wes-Con or belonged to a waste generator.

IV. CHRONOLOGY OF EVENTS

- 1973 -- An associate professor at the University of Idaho working as an agricultural extension agent conceives the idea of Western Containment (Wes-Con), Inc. His plan is to operate a hazardous waste management company using abandoned missile silos for the containment of agricultural and industrial wastes.
- 1973 -- A 17-acre missile silo and underground vault complex with a 100-acre buffer zone near Grand View is purchased.
- April, 1973 -- Wes-Con prepares an environmental assessment and applies to the State Department of Health and Welfare for permission to operate a pesticide and hazardous waste disposal facility at the Grand View site.
- 1973 -- Wes-Con receives approval from the Owyhee County Commissioners to operate a waste disposal site.
- June, 1973 -- Wes-Con receives a state conditional use permit to use the missile silos for the disposal of pesticide wastes, electroplating sludges, and laboratory wastes.

- November, 1973 -- Formal commercial operation begins at the Grand View site.
- 1974/1975 -- Abutter complains of odors and loss of property value. Her property is sold to ranch developer and complaints cease.
- June, 1976 --At EPA's suggestion Allied Chemical approaches Wes-Con on the disposal of Kepone wastes at the Grand View site.
- October, 1976 -- Several fires prompt the state to re-evaluate the operation of the Grand View site.
- November, 1976 -- Local and national news media cover the possibility of "ultimate" Kepone disposal in abandoned missile silos in Idaho. Governor asks Wes-Con not to accept Kepone wastes. The state holds a public hearing on the operation of the Grand View site.
- March, 1977 -- Wes-Con receives a revised state conditional use permit and signs a consent decree agreeing to cease operation in the event of another fire at the Grand View site.
- Spring of 1977 -- Initial payment on the purchase of approximately 100 acres of land including abandoned missile silos and underground vault complex near Bruneau, Idaho.
- July, 1977 -- Wes-Con submits an environmental assessment of the proposed operation at the Bruneau facility.
- Summer of 1977 -- Meetings with civic leaders in the Bruneau area to explain the future operation of the hazardous waste disposal site. Wes-Con extends invitation to the general public to visit the facility.
- July, 1977 -- Final payment is made on the land and missile silo complex, and application to the Idaho Department of Health and Welfare for permission to operate the Bruneau site is made.
- April, 1978 -- State approves the silo disposal of PCBs at Grand View site.
- July, 1978 -- EPA approves the disposal of PCBs in missile silos at Grand View. State holds public hearings in Bruneau to solicit public comment on proposed Bruneau site. Wes-Con receives conditional use permit from the state Department of Health and Welfare. Permit also includes a consent decree similar to the one signed by Wes-Con for the Grand View site.

December, 1978 -- Wes-Con applies to EPA and state for a permit to dispose of PCBs in clay-lined trenches adjoining the missile silos at Grand View.

March, 1979 -- State and EPA approvals expected on PCB disposal in trenches at the Grand View site.

Summer of 1979 -- Start of Bruneau operation.

V. ATTEMPTS TO SECURE SUPPORT

The first step in securing public support for the disposal operation was the elimination of nerve gas and radioactive materials from the proposed waste streams to be handled. These materials would have generated strong public opposition and the governor was campaigning to rid the state of these wastes. The wisdom of this decision was later proven when public opposition erupted over the arrangements to dispose of Allied Chemical's Kepone wastes. Cancelling the arrangement with Allied Chemical neutralized local public opposition and gained the support of the state government. The state government was in a difficult political dilemma over public opposition to the importation of Kepone wastes after EPA had recommended their disposal at the Grand View site.

Other attempts to secure public support were a series of public relations actions including:

- o Replacing a "no admittance" sign at the entrance of the facility with a "visitors welcomed" sign.
- o Hiring local employees and asking them to bring their relatives and friends to the site for tours.
- o Accepting for disposal free of charge the spent pesticide containers from local ranchers and farmers.
- o Providing free disposal services for local hazardous wastes from hospitals, county facilities, and educational facilities.
- o Providing free disposal under emergency conditions for materials within Idaho, including highway wrecks and flood disasters.
- o Providing access to the facility for state and federal experimental studies, demonstrations and training.
- o Volunteering the use of bulldozer and other heavy equipment to local residents.
- o Supporting local firefighting efforts with personnel and equipment.

- o Contributing to local fund-raising campaigns to help out residents in time of sickness and other personal disasters.
- o Paying the way for the children of local residents to visit 4-H camps and the 4-H Congress.
- o Organizing a local corporation with native and long-time residents in ownership positions.
- o Making no secret about the type of wastes to be disposed or their local and out of state origins.
- o Training local doctors on nature of hazardous waste and providing first aid classes for local residents.
- o Donating an ancient Indian cave to the university for archeological studies. Will also pay to publish the findings and donate them to a local museum.
- o Guaranteeing the bills incurred by workmen in local commercial establishments in the event that they skip town. (This was a prevalent problem during the construction of the missile silos.)

VI. SUMMARY EVALUATION

The most effective step in securing public support for both sites was the neutralization of public opposition that would have arisen over the handling of radioactive materials and nerve gas disposal and later the cancellation of the Kepone arrangements with Allied Chemical. The operator was aware of the political liability associated with these wastes, especially since the governor had campaigned to rid the state of such wastes. By anticipating the governor's dilemma over these wastes, the operator gained valuable political support on a statewide basis.

It is impossible to separately evaluate the remaining public relations actions of the operator in gaining the support of the community. However, it is safe to say that none of the extensive public relations activities hurt and taken together they all helped smooth the way through public hearings, permit re-evaluation and the issuance of conditional use permits.

There were five major factors which characterized the overall success of this operation:

Technical Adequacy -- The sites are obviously of superior structural design and physical surroundings. Built to extraordinary military specifications, the sites are more than suitable to contain hazardous wastes. The hydrogeology of the sites is excellent with water tables at approximately 2,000 and 3,000 feet below the silos. The 10 inches of precipitation versus 72 inches of evaporation are also ideal conditions

to minimize surface runoff. Finally, the sites are extremely remote from population centers in a county that has a population density of only one person per square mile.

Local Attitudes -- The people in the area have a traditional "live and let live" attitude. They respect the fact that if you owned the land you should be allowed to do with it what you wanted to -- even if it is to operate a hazardous waste disposal site.

Public Trust -- Local residents trust that the state or federal government or both will supervise and enforce the safe operation of the sites. This trust is reinforced by the governor's pressure to cancel the controversial Kepone disposal and the state's re-evaluation of permit conditions after the fires at the Grand View site. Public trust is also enhanced by EPA's endorsement of the operating Grand View site.

Demographic Characteristics -- This is a poor agricultural area with simple lifestyles. The hazardous waste disposal site is not perceived as a real and present danger. Most of the wastes at the sites are pesticide residues which local farmers have been handling long before it became fashionable to call them hazardous or persistent wastes.

Public Relations -- An extensive public relations campaign in a generally poor community helped to sell the operation of the sites. This campaign also served to guarantee the "good neighbor" image of the operator.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

Both the Grand View and Bruneau sites have been accepted by the local public. The Grand View site is in full operation, having passed a public hearing and complete re-evaluation of its operation following a few fires as well as a minor flurry of publicity over the possibility of Kepone disposal. The Bruneau site is now being readied for operation, having passed a public hearing for a conditional use permit. The factors that led to public acceptance are:

- o A traditional attitude in the area that if you owned the land you were entitled to do with it what you wanted to.
- o An existing history of public acceptance of an outside activity that posed a threat to the area -- namely, the missiles themselves. Also, many of the local citizens worked on the sites during their construction and were aware of their extreme structural integrity.
- o An extensive public relations campaign by the operator to become a good neighbor and to win the continuing trust of the community.

- o A pair of sites that had unquestionably good hydrogeologic and surface water characteristics as well as excellent structural features.
- o An operator who was a long-time resident of the area and intimately aware of the pesticide wastes generated in the area that are part of the operation's waste stream.
- o An operator who was politically astute and had a good working relationship with the state government. This political sensitivity lead to initial rejection of radioactive and nerve gas wastes and later to the rejection of Kepone wastes.
- o An operator who used his years of experience as a chemical products salesman to "sell" the public on his waste disposal operation.
- o Local public trust in the supervision of state and federal agencies which have endorsed the site.
- o An opportunity to rid pesticide wastes (e.g., spent containers) from the community's sanitary landfill.

VIII. RETROSPECTIVE VIEWS

With the exception of having been denied the opportunity to dispose of Kepone wastes, the Grand View and Bruneau sites are an operational success. The only thing the operator would have done differently is to put more emphasis on the use of a public relations firm. He would have used such a firm earlier in the planning process to anticipate problems rather than having to react to them. This was especially true for the Kepone incident, the intensity of which caught the operator unprepared. The operator would also have liked to have the federal government assume a stronger and more dominant role in hazardous waste issues, especially in siting facilities. He feels that state governments and certainly county governments are too easily intimidated by local political interests.

IX. GENERAL COMMENTS

The operator thinks that his sites are competitive in spite of their remoteness. However, he feels that there is insufficient federal or state enforcement on waste generators because of a lack of suitable sites, thus reducing the demand for existing sites or the incentive to create new sites.

SCA/EARTHLINE

BORDENTOWN, NEW JERSEY

I. INTRODUCTION

In the spring of 1978 Earthline, a subsidiary of SCA Services, submitted an application to the Solid Waste Administration (SWA) of the New Jersey Department of Environmental Protection. That application sought a permit to operate a small commercial landfill for the disposal of hazardous waste. In March of 1979 SWA denied that application.

Earthline's application sparked local concerns which in time evolved into strident opposition voiced by a broad range of public officials and private citizens. Of particular concern to the opponents were the site's proximity to a major aquifer and a high school; the credibility of Earthline, SCA and SWA; and numerous attendant potential social, economic, and cultural impacts.

Attempts to provide public information, to elicit public response, and/or to address concerns and issues were made by SWA and Earthline. The most salient of these was a two-day public meeting held by SWA; others included smaller informational meetings and debates. Ultimately these failed to make any significant impact on the opposition to the Earthline application.

II. BACKGROUND INFORMATION

The Earthline proposal called for the development of a five-acre secure landfill within the bounds of an existing operating 100-acre sanitary landfill. The site is located within Bordentown township to the west of U.S. 130. The site is across a local street from Bordentown Regional High School. That local street provides access to the existing sanitary landfill and would have also provided access to the hazardous waste landfill.

The sanitary landfill is within a larger area known as the Church Brick Clay Pit. That area is immediately underlain by four geologic formations -- the Pensauken formation, the Woodbury Clay, the Merchantville formation, and the Magothy-Raritan formation. According to reports prepared during the siting attempt, the Pensauken formation is uppermost of these and has been largely excavated as a result of historic site use. Where present, it is typically three to twelve feet thick and does contain perched water tables. The second stratum, the Woodbury Clay, which is zero to 40 feet thick and has a lab-tested permeability of 1.3×10^{-8} cm/sec. The third stratum is the Merchantville formation with an average thickness of 39 feet and a

lab-tested permeability of 1.8×10^{-6} cm/sec.¹ Beneath these three formations is the Magothy-Raritan formation (actually two interconnected formations) which is 330 feet thick. The Magothy-Raritan is a major aquifer used by industry and the public. In 1976 this aquifer provided 80 percent of the groundwater pumped in Burlington County.

As proposed by Earthline, five acres of the 100-acre sanitary landfill would have been developed as a secure landfill. The design called for five cells within the five acres to separate different types of industrial waste. Cells would have been separated by a clay berm minimally ten feet thick. Beneath the cells would be two feet of compacted clay, a 40-mil Hypalon liner, six inches of sand, and a minimum of ten feet of clay beneath the sand. The five-acre secure landfill would have been surrounded by a ten-foot-thick clay berm incorporated into the Woodbury Clay. Four monitoring wells on each side of the secure landfill were proposed. Provisions for long-term care were to be in conformance with state regulations. Those regulations are being revised to conform with anticipated RCRA requirements.

The secured landfill, as originally envisioned by Earthline, would have disposed of residuals from an Earthline hazardous waste treatment and

¹ The 39-foot figure was provided by the New Jersey Geological services. Earthline's application, based on data developed by Wehran Engineering for the 1976 application for the sanitary landfill, described the Merchantville formation as being 60 feet thick. The permeability figure is from the same 1976 application. In a 1976 letter to Wehran, SWA questioned the usefulness of the 1.8×10^{-6} cm/sec figure as the test was on a sample taken from the top of the formation and state geologists indicated the possibility of greater permeability at the bottom of the Merchantville formation. State reviews of geological data also cited evidence that when the Woodbury Clay was exposed to normal operations at the landfill the clay would dry out and porosity would increase. This would have potential, but uncertain, negative impacts on the integrity of the clay as a liner. Furthermore, reviews of the Earthline application by opponents' engineering consultants stated that permeability rates were based on the flow of water, not leachate. Citing the undefined nature of leachate's effect on these clays, the question was raised as to whether the lab-tested permeability rates had any significance in defining the site's ability to prevent groundwater contamination.

The point of this footnote is to illustrate part of one facet of the technical dispute that arose during this siting attempt and the lack of consensus on those data most easily quantified. As will be discussed in Section III the technical dispute was but one of many that arose.

processing facility in Newark. According to an attorney retained by Earthline, SWA had asked that other hazardous wastes generated in New Jersey be disposed of at the proposed facility. (Earthline agreed on the condition that those wastes be tested at the Newark facility to determine whether they were suitable for burial at the Bordentown site.) In any event the Bordentown facility was primarily designed to serve the New Jersey market area.

Earthline is a subsidiary of SCA Services which has hazardous waste management facilities in Illinois, New Jersey, New York, and South Carolina. SCA Services is one of the largest waste services companies in the nation. In fiscal year 1978, the company reported total revenues of over \$180 million. The majority of SCA operations are in the municipal and commercial waste management field.

The Bordentown area is located about ten miles south of Trenton in central New Jersey. Bordentown city has a population of about 5,000 and, according to the mayor, has a racial and economic profile reflecting the state as a whole. Bordentown township, which surrounds the city, has a population of about 8,000, almost totally white with somewhat higher incomes than those for the city. Both the city and township are within Burlington County (estimated 1977 population: 361,300). The employment base of the Bordentown area is broadly dispersed among economic sectors within the greater Trenton metropolitan area.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

The state of New Jersey preempts local zoning controls over special waste facilities. As a result there are no local permits or regulations applicable to these facilities. In planning for the hazardous waste landfill Earthline needed only a permit from the Solid Waste Administration (SWA). During the course of the approval process, SWA has other appropriate state agencies (e.g., air and water pollution control agencies) review the application.

The controversy surrounding the Earthline permit application has been connected to events surrounding two other facilities in the area: the municipal landfill owned and operated by Interstate Waste Removal and a chemical tank farm proposed by Dow Chemical. (Nationally publicized hazardous waste sites also have had an impact and will be discussed subsequently.) The siting and operation of the municipal landfill introduced SCA to Bordentown leaders and generated concerns among those leaders as to the integrity of the company. The Dow proposal was a major impetus for area residents to organize politically.

In mid-1977 Interstate Waste Removal began operating a 100-acre municipal landfill at a site across the street from Bordentown Regional High School. Area leaders had expressed some concerns during this

landfill's siting process and local jurisdictions sued the state on jurisdictional grounds. The suit argued that local jurisdictions should have control over solid waste management decisions. The courts ruled that SWA had authority in this area and could preempt local controls (i.e., zoning). The development of the sanitary landfill was deemed important because of the limited number of sanitary landfills in the area. Local leaders indicated that, in keeping with this reasoning, Interstate had promised the facility would always be used for municipal waste. A July, 1977 article in the Trenton Times claimed that the landfill would give SCA subsidiaries a significant advantage in bidding for municipal waste collection contracts in the Trenton area. Interstate also has had the contract to collect municipal waste in Bordentown city. In recent years the city and Interstate have been in court a number of times in connection with the contract. Interstate has sued to prevent the city from awarding the collection contract to firms submitting lower bids than Interstate's on the grounds that those bids were unresponsive. City officials claimed that Interstate has been guilty of mismanagement and poor service.

In discussing the city's problems with Interstate, the mayor of Bordentown city referred to articles on the New Jersey garbage industry in the Trenton Times. These articles described the city's legal fights with Interstate. They generally characterized that industry as increasingly centralized to the point of being monopolized in some regions of the state and as being dominated statewide by eight SCA subsidiaries. The garbage industry pursued "hard-nosed business practices" using "high-powered lawyers". Interstate, however, was specifically excluded from any links to the most strident charges. Although the articles referred to "reports of mob-style incidents," it did state that no indictments had been made in connection with these incidents. State regulatory agencies through ineptness and scarce resources were characterized in the articles as generally ineffectual in regulating garbage firms.

The significance of the articles was that they reflected the views of some local leaders. Prior to the Earthline permit application, an SCA subsidiary had generated anger and resentment in the Bordentown area. Local leaders perceived SCA as a high-powered, politically powerful firm that warranted little trust. The state was considered incapable of providing independent control and enforcing existing regulations.

In mid-1977, Dow Chemical announced plans for a chemical tank farm to be located on the Delaware River in Bordentown Township. Area residents opposed to the project organized Help Our Polluted Environment (HOPE) which currently claims a membership of 300 area residents. Supported by voluntary donations, HOPE spearheaded citizen opposition to the Dow proposal. A protracted debate ensued and opposition grew in size and sophistication. By June of 1978, HOPE held a non-binding referendum on the Dow proposal. According to HOPE almost 1,500 Bordentown residents

voted two-to-one against the Dow proposal. In August Dow sought a review of the proposed 52-acre facility by Bordentown Township to obtain a conditional use permit for the site. Within ten days the township passed an ordinance banning the facility. Newspaper reports at the time suggested that Dow considered suing the township to force acceptance of the facility. Dow, however, filed no suit and in December, 1978, reportedly elected not to renew an option on the proposed site.

By mid-1978 the Bordentown area had acquired a particular sensitivity to environmental issues. Furthermore, local citizens, including lawyers and scientists, had developed an organization (i.e., HOPE) that had acquired local political clout and a successful track record in mobilizing resources. Added to this was an established skepticism of the credibility of SCA. It was within this context that Earthline submitted its application to SWA for the secure landfill.

Earthline's planning for the secure landfill in Bordentown began in 1977 and is directly linked to an Earthline facility in Newark and the absence of commercial off-site landfills for hazardous waste in New Jersey.¹ Earthline's siting of the Bordentown landfill has been managed by an attorney retained by SCA. This attorney was instrumental in developing New Jersey's hazardous waste regulations when he was with the state attorney general's office and has had extensive experience with solid and hazardous waste management in New Jersey.

Earthline's Newark facility began operations in 1977. The facility is designed to process liquid chemical wastes and produces two residual products: a liquid effluent and solid and sludge residuals. The effluent is discharged into the sewage system after being tested by Earthline and approved for discharge by the company and regulatory officials. The solid and sludge residuals must be landfilled. Earthline has hauled these residuals some 450 miles to an SCA facility in Model City, New York. The desire for a more accessible facility was the impetus for developing a secure landfill in Bordentown.

In selecting a site Earthline surveyed existing municipal landfills. (An SWA official indicated about 30 sites in New Jersey had been investigated by Earthline.) Earthline felt that an existing municipal

¹ In 1976, NJDEP closed the 220-acre Kin-Buc landfill in Middlesex County because of extensive violations of state regulations. A small portion of the site had been used as a chemical waste landfill. In February of 1979, the U.S. EPA and U.S. Department of Justice filed suit against Kin-Buc, Inc., and seven other firms for operating an illegal disposal site. It was the first enforcement action under RCRA. With the closing of Kin-Buc, the state had no operating off-site landfills for hazardous waste.

landfill would imply initial public acceptance of waste disposal, thereby reducing potential public opposition. The major concern was the geology of potential sites, particularly sub-surface clay deposits. The lack of clay as a natural liner eliminated a large number of sites surveyed and the underlying clay formations were the primary advantage of the Bordentown site. That site had several other advantages including access to the New Jersey Turnpike and I-295, a location in the central area of the state, and an operating municipal landfill in place. Because the Interstate landfill had recently been sited, a substantial amount of data existed on the site's hydrogeology and an environmental impact statement had been prepared on the municipal landfill. In addition, Interstate is a subsidiary of SCA.

The Bordentown site then met Earthline's criteria for a secure landfill and was selected as the site. Earthline's lawyer stressed that the decision to develop a portion of the Bordentown site as a hazardous waste facility was independent of the original decision to develop the municipal landfill. If that had not been true he suggested that a much larger amount of land would have been purchased originally and that the municipal landfill would have been designed differently.

Earthline submitted its permit application to SWA on June 2, 1978. Materials (including the engineering report and EIS) that had been prepared for the Interstate landfill permit were upgraded and submitted as a part of the application.

Following standard procedures, SWA notified local officials and agencies of the application in a letter dated June 30. The letter indicated that the recipients would be allowed to make comments during a 30-day period. The letter, although the first formal notification to the community, did not necessarily represent the community's first knowledge of the proposed facility. HOPE's president stated that at least two months prior to the application's submittal HOPE had learned informally that Earthline wanted to develop a hazardous waste landfill at the Interstate landfill site.

Within two weeks the first request by a local official for an extension of the comment period was sent to the SWA director. The Burlington County Health Department in a July 13 letter requested a 90-day extension. SWA granted a 30-day extension. Subsequent to that request the Planning Board of Bordentown Township and the director of the Burlington County Board of Freeholders also asked SWA for a 90-day extension. In late July the state senator for the eighth district, which includes the Bordentown area, wrote the commissioner of NJDEP requesting a 90-day extension. In response to these requests, SWA extended the comment period for 90 days, through October 3. As a standard preparation for a public hearing on the permit application SWA also scheduled a meeting with local officials for September 29.

In early August the mayor of Bordentown City requested a 120-day extension of the comment period. At that time Betz Converse Murdoch Inc. (BCM), consulting engineers for the city, was studying the city's water system. The mayor's request sought time to have BCM assess the impacts of the proposed landfill on the city's water supply. SWA denied the request. As a result, the city sued SWA to stop the permit application review process until BCM completed the water system study. In an out-of-court settlement SWA agreed to receive comments on the application until December 15, 1978. This necessarily postponed any final SWA decision on the application until after December 15.

Also in August the New Jersey Turnpike Authority formally opposed the proposed facility. Because the site would be within close proximity of the turnpike, the turnpike authority felt the smoke from fires at the site could dangerously reduce visibility on the turnpike. Other concerns were that fire equipment would not be able to respond quickly to any fires, that SWA had insufficient staff to monitor on-site operations properly, and that truck traffic from the site would interfere with turnpike ramp traffic.

In the summer of 1978 the Earthline application had generated substantial concern among local officials whose major response was to seek additional time. Other events took place that summer which had no relation to Earthline's actions but which would subsequently have substantial impact on the opposition. As described above, local officials' actions in August effectively quashed Dow's plans for a chemical tank farm; these actions lent credibility not only to those officials' powers but also to HOPE which had played a lead role in opposing Dow. Also in August the trial concerning the Earthline hazardous waste landfill in Wilsonville, Illinois ended and the local judge ordered that landfill closed and its contents exhumed. While the exhumation order was subsequently stayed during the appeal of that judgement, the closing of the site was perceived as a major victory for the citizens of Wilsonville. Earlier in the summer the New York State Department of Health declared a health emergency in the area around Love Canal in Niagara Falls, New York. The publicity surrounding Love Canal has been nationwide and has dramatized the problems of improper hazardous waste disposal.¹

On September 18 one of Bordentown's state assemblymen introduced a bill into the state legislature. The bill called for a ban against the

¹ The disputes over Love Canal and Wilsonville are markedly different. Wilsonville has operated with a state permit from the Illinois EPA and has been supported by U.S. EPA, industry, and trade associations. Love Canal was closed in the early 1950's, 20 years before any state hazardous waste laws were enacted. It lacks most if not all of the precautions now considered necessary for the burial of hazardous wastes.

development of a hazardous waste landfill within 1,000 feet of a school. As written, the bill would have prohibited the development of the Earthline facility. Over the next four months, that bill would be substantially amended as it made its way through the state legislature.

On September 28 HOPE held an informational meeting attended by about 150 persons. HOPE's purpose in holding the meeting was to warn residents of the risks involved in Earthline's proposal. Speakers at the meeting included: 1) the assistant attorney general of Illinois who was in charge of Illinois' case against the Wilsonville facility; 2) the special attorney for Wilsonville residents in the same case; 3) members of the Love Canal Home Owners Association; and 4) local officials from Lewiston, New York who were opposing an operating SCA hazardous waste facility in Model City, New York. As reported in the Trenton Times the various speakers described the disabling health effects linked to Love Canal and campaigns against other operating SCA facilities. The assistant Illinois attorney general claimed that the Bordentown proposal was similar to the Wilsonville facility except that the Bordentown facility would overlay a water supply. The possibility of endangering a water supply was, he claimed, "insane."

In early October SWA asked EPA's Region II office to review the Earthline application. EPA agreed and arranged for Battelle Memorial Institute to perform the review. In subsequent interviews SWA and EPA officials stressed that EPA's review did not imply that EPA would play a major role in the decision to approve or deny the permit. According to the head of Region II's solid waste branch, that office's policy was that SWA was the permitting agency and therefore was responsible for the final decision.

On October 6, the Stevens Institute of Technology submitted its report on the Earthline application to Bordentown township and Burlington County, both of which had retained the institute. The report questioned the benefits to New Jersey of developing a small secure landfill and noted the inconsistency of the five-acre site size listed in the application's supporting documents and the 100-acre size found in the application itself. A large number of deficiencies in the application were discussed, including descriptions of existing conditions and vague or meaningless data on operating procedures, wastes accepted, liners, and monitoring provisions. Noting the proposed location over an aquifer, the report found an absence of soil tests and leachate generation estimates. The report recommended the development of an EIS, the correction of data inadequacies, and reconsideration of siting such a facility near an important aquifer.

About a week later, two Bordentown state assemblymen announced that they had petitioned New Jersey's governor to deny the application. They declared that "the tragedy of Love Canal cannot be permitted to repeat itself in New Jersey." They based their appeal on the potential risks

to the water supply of nearly one million people and deficiencies in the application cited in the Stevens Institute of Technology report.

Beginning in October, local jurisdictions and organizations began to communicate their formal opposition to the proposed facility. Based largely on the Stevens Institute, Bordentown township and Burlington County passed a joint resolution against the application. The resolution cited the proximity to the high school, the population density of the area, economic disbenefits, and a fear of Bordentown becoming the dumping ground for the state as well as other states. That resolution also sought local control over such sitings. The Board of Education of the high school also opposed the proposal. In addition to issues raised by the township-county resolution, the board of education cited "grievous" public health problems at other SCA facilities and the lack of guarantees by Earthline, the state, or any financially responsible party of the site's safe operation.

On October 23, SWA met with local officials as a standard procedure preparatory to a public meeting on the application. This meeting had been originally scheduled for late September but had been delayed because of the suit by Bordentown City against SWA. The meeting provided an opportunity for SWA officials to explain the application and regulatory procedures to local leaders. The next day SWA wrote to Earthline seeking more data for the application. (A second SWA request for more data was sent to Earthline in mid-November. By January of 1979, Earthline had responded to the first request, in part by providing more data, in part by reaffirming previously submitted data. According to an SWA official, Earthline had not responded to the second request.)

Earthline also tried to deal directly with local leaders. According to the attorney for Earthline, his offer to meet with local leaders was deferred several times and never agreed to. An offer by Earthline to provide some compensation to Bordentown in return for development of the facility was flatly rejected by local officials, according to an SWA official. Earthline's attorney also went on local radio and television shows to "debate" opponents of the facility. According to opponents these debates did little to change anyone's mind.

In November, opposition began to solidify and opponents escalated their tactics. The city, township, and county began to discuss openly the prospect of suing SWA claiming: 1) that the secure landfill fell within the jurisdiction of local solid waste management planning and was therefore subject to local controls; and 2) that SWA should not process applications until regulations required by RCRA were issued. Eventually a suit based on the jurisdictional dispute was filed, but the court's decision reaffirmed SWA's sole authority over hazardous waste facility siting.

In anticipation of the SWA-sponsored public hearing, HOPE organized a week of "anti-Earthline", "pro-people" events. On Sunday, November 12

HOPE organized a parade and rally complete with floats, banners, and a car caravan. It was reported to have lasted three hours. On the 14th and 15th, a film crew from ABC's "Close Up" news program filmed some of HOPE's activities against the Earthline proposal.¹ The following night (November 16) the local NBC affiliate also filmed local citizens' efforts to stop the facility. HOPE's other actions during the fall included a petition drive and the placement of ads in local papers.

Every available source strongly indicates that by the time of the hearing, area residents were intent on stopping Earthline. As the Trenton Times reported the morning of the first day of the hearing, "suddenly, almost everyone here (i.e., in the Bordentown area) has become an environmentalist." The article quoted a fairly broad spectrum of local residents, including student leaders at the high school, as being opposed to the facility and referred to a petition against the facility signed by almost 80 percent of the high school student body.

On November 17 and 18, SWA held the public hearing on the Earthline application at the Bordentown Regional High School. Over the two-day hearing approximately 50 persons in addition to SWA and Earthline representatives spoke. The hearings took a total of 13 hours, and the hearing record ran to 600 pages.

The hearings began with presentations by SWA and Earthline representatives. Earthline officials specifically declared that adequate provisions (i.e., the clay base and liners) had been made to prevent leaching into groundwater. What followed was a series of statements and presentations by a broad spectrum of public leaders and citizens from within and outside the Bordentown area. Speakers included the area's state legislators, local elected officials, HOPE's president, and members of the legal and engineering staffs of the Illinois attorney-general's office, some of whom had spoken at HOPE's September 29 meeting. All previously voiced issues were repeated during the hearing. The Illinois officials charged Earthline officials with mismanagement and misleading the public in connection with the Wilsonville facility. Pleas were made to SWA by state and local elected officials and private citizens to deny the permit. On the grounds that no relevant federal or state regulations were in place, HOPE's president claimed that industry was determining the nature of hazardous waste management practices. Consequently, he stated, SWA's decision on the application and the public hearing had no credibility. One state legislator announced he would seek a one-year ban on chemical landfill applications until state guidelines for application review had been established.

¹ The Bordentown siting controversy was included in a "Close Up" report on hazardous waste problems. That program was aired on March 29, 1979.

Outside the hearing, Earthline's attorney reportedly characterized much of the public testimony as emotional and fear-ridden because of distortions of real issues. He claimed that the technical design for the proposed facility was sound and that SCA would develop a perpetual care fund for post-closure maintenance.

Within two days of the public hearing, the New Jersey Senate passed by voice vote a resolution banning chemical waste dumps in locations where they endangered public water supplies. Specifically referencing the Bordentown proposal, the resolution termed the site "unacceptable". While the resolution had no legal standing, its sponsor hoped it would sway SWA's thinking. The same day, the commissioner of the Department of Environmental Protection, SWA's parent agency, announced that no decisions on any chemical waste landfill would be made until state hazardous waste regulations were issued. The commissioner indicated late January 1979 as the earliest possible decision date on the Earthline application.

Formal opposition to the Earthline proposal also continued to mount during November. The Burlington Township Environmental Commission and Wrightstown, a city in Burlington County about ten miles southeast of Bordentown, passed resolutions against the proposal. The Wrightstown resolution asked the governor to intervene in the decision, and argued that the profits that would accrue to Earthline could never compensate for the risks to the health and welfare of hundreds of thousands of people.

On November 30 BCM submitted its report on potential groundwater impacts to Bordentown city. The major conclusion of that report was that "unless it can be shown that leachate from the proposed landfill can never escape and contaminate the underlying aquifers, then it is our opinion that this in itself should be sufficient cause to reject the permit application." This conclusion overrode the BCM finding that the secure landfill would have little impact on the existing water supply and distribution system. The report covered much of the same ground and reached conclusions similar to that of the earlier Stevens Institute report. It also, however, analyzed more carefully the use of a hypalon liner and pointed out the potential for certain compounds to attack the liner material and seriously degrade the liner's integrity. From Earthline's application, BCM found that these compounds were within classes of wastes proposed for burial at the site.

In mid-December SWA responded to various officials who had communicated concerns to the state. In a letter to a local jurisdiction SWA explained the state's need for safe disposal facilities to accommodate the large volume of hazardous wastes generated by the state. SWA also explained the status of the application review to one of New Jersey's U.S. Senators who had been contacted by the Bordentown Regional Teachers Association. On December 15 the comment period for the Earthline application closed.

On January 12, 1979, SWA held hearings on proposed hazardous waste regulation. Representatives of HOPE and others active in the Bordentown siting controversy spoke at those hearings. Following state procedures, those regulations would be officially promulgated approximately two months after the hearings. Given the earlier statements of state regulatory officials, the date for a decision on the Earthline application was mid-March at the earliest.

By late January the state legislature had acted on the bill originally designed to ban hazardous waste landfills within 1,000 feet of a school. In the four months since its filing, the bill had changed substantially. In its final form, it placed a moratorium on state consideration of applications for hazardous waste landfills pending a state-developed comprehensive plan for siting such facilities. Such a plan would far exceed the scope of then proposed state regulations. In that form the bill was unanimously passed by both houses of the state legislature. SWA had lobbied the governor not to sign the bill.

Also in January EPA's Region II office released Battelle's review of the Earthline permit. That review, requested by SWA in October, was generally favorable and specifically commended the site's geological qualities and the use of liners to protect groundwater. The review did call for additional monitoring and safety provisions as well as an expanded EIS. SWA said they would add the report to the thousands of pages of technical and public comments received to date in making their final decision.

Field interviews were held in January, 1979. At that time no final SWA decision had been reached and the various parties were weighing options for the future. Earthline's attorney was confident that SWA would grant the permit; he dismissed most of the opponents' issues as emotional or specious. The feeling that SWA would grant the permit was shared by HOPE's president and at least some local officials. If SWA granted the permit, the mayor of Bordentown city said local jurisdictions would appeal. He indicated a willingness to spend up to \$250,000 for legal talent, to hire the "F. Lee Bailey of environmental law," that is, the best lawyer available. SWA would make no comment on how the decision would be made.

On March 23, SWA denied Earthline's application. In its five-page administrative order, SWA cited the following major reasons for the denial.

- o The secure landfill would reduce needed space already committed to use as a sanitary landfill.
- o The proposed facility would be inconsistent with and disruptive to the area's solid waste management planning.
- o No compelling need to bring hazardous wastes to the Bordentown site had been established.

- o Hazardous wastes, if disposed of at the site, would potentially threaten air and water quality and diminish future productive use of the site.
- o The application failed to delineate specific wastes to be disposed of, thereby raising serious uncertainties as to proposed site design and operations.
- o The application failed to supply adequate analysis of managerial and operational procedures, and of social, economic, and cultural impacts.
- o The ability of Earthline to operate the facility properly had not been demonstrated.

In discussing these reasons SWA cited the 1977 application for the sanitary landfill, specifically the "convincing evidence" presented therein to substantiate a "compelling public need" for a sanitary landfill. SWA stated that the site's proximity to the Bordentown Regional High School presented a "needless and unwarranted burden upon and risk to" the high school's students. In questioning the management and operations reliability of Earthline, SWA specifically referenced the trial judge's decision in the Wilsonville case. While SWA acknowledged New Jersey's need for environmentally sound hazardous waste disposal facilities, it declared the risks associated with the Earthline proposal outweighed any potential benefits.

Following SWA's announcement, Earthline's attorney indicated that the company would consider an appeal to the courts of the application's denial.

By late March the legislation calling for a moratorium on SWA review of permit applications until the development of a state comprehensive facility siting plan had not been signed by the governor. Bordentown residents reportedly speculated that a political deal had been struck. By taking no action to sign the bill, the governor would in effect veto the bill and the entire process of developing hazardous waste disposal facilities would not be derailed. In return, the Earthline application which gave rise to the bill would be denied.

IV. CHRONOLOGY OF EVENTS

The following chronology of events applies only to those stemming from Earthline's permit application. Other indirectly related events described in the previous section are excluded for the sake of clarity.

1977 -- Planning for Earthline facility begins.

February, 1978 -- HOPE first learns of Earthline's interest in developing a HWMF in Bordentown.

- June, 1978 -- Earthline submits permit application to SWA. SWA informs local agencies of permit application and of 30-day comment period for those agencies.
- July, 1978 -- The area's State Senator, the Burlington County Health Department and Planning Board of Bordentown Township, acting individually, seek 90-day extension of comment period. SWA grants 30-day extension.
- August, 1978 -- The Director of the Burlington County Board of Freeholders seeks a 90-day extension; the Mayor of the City of Bordentown seeks a 120-day extension so an ongoing city water study can assess impacts of proposed landfill. New Jersey Turnpike Authority formally opposes proposed facility. City of Bordentown files suit until city water study completed; out-of-court settlement extends comment period until December 15, 1978.
- September, 1978 -- Meeting between SWA and local officials scheduled and then postponed. HOPE holds public meeting in Bordentown to inform citizens of permit application. State legislation filed to ban HWMFs within 1000 feet of schools.
- October, 1978 -- EPA Region II submits permit application to Battelle for review. Stevens Institute Report submitted to SWA. Board of education of Bordentown Regional High School formally opposes facility, as does Bordentown Township. SWA meets with local officials prior to public hearing. SWA requests more data on permit application from Earthline. Area legislators ask Governor to deny permit.
- November, 1978 -- HOPE stages a week of events to highlight opposition to proposal. SWA holds two-day public hearing in Bordentown. SWA requests more data from Earthline. State Senate passes resolution against facility. Burlington Township Environmental Commission and Wrightstown formally oppose facility. SWA delays decision until state regulations are issued. BCM report to Bordentown city submitted.
- December, 1978 -- City, township, and county sue SWA claiming local authority over hazardous waste management. SWA writes to local jurisdiction explaining need for HWMFs in New Jersey and to U.S. Senator explaining status of permit review. Comment period closes.

January, 1979 -- State legislation to stop all permit reviews by SWA until full state hazardous waste plan developed sent to governor for his signature. Public hearing on state hazardous waste regulations held. EPA/Battelle favorable review of permit submitted to SWA. Local suit challenging SWA jurisdiction over solid waste management dismissed by court.

March, 1979 -- SWA denies Earthline's application for a permit.

V. ATTEMPTS TO SECURE SUPPORT

A clear distinction should be made between SWA's actions designed to inform the public about permit review procedures and general hazardous waste needs and Earthline actions intended to generate support or soften opposition to the specific proposed facility. Actions by both organizations are listed below.

- o SWA notification of local officials of the receipt of the Earthline permit application.
- o SWA's meeting with local officials preparatory to the public hearing.
- o Earthline's unsuccessful attempts to meet with local officials.
- o Debates between Earthline and opposition representatives aired by local radio and television stations.
- o The presentations by SWA and Earthline at the public hearing.
- o Communications by SWA to various officials either explaining the course of events or the general need in New Jersey for disposal facilities.

VI. SUMMARY EVALUATION

The March, 1979 decision by SWA is essentially irrelevant to the question of whether attempts to secure support for the Earthline proposal could in any way be termed successful. Even without that decision it was clear that there was no support for the facility locally nor was there any evidence of neutral parties. An approval by SWA would have been met with continued opposition.

It is certainly possible to suggest that the entire experience, including SWA's actions and perhaps even Earthline's, increased local support for environmentally sound solutions to hazardous waste disposal problems. Opposition leaders, however, clearly distinguished between their support for such solutions and the Earthline proposal. The role which the

attempts outlined in Section V played in this process is most likely minor compared with other actions which provided Bordentown area residents with information on hazardous waste problems and solutions.

Attempts to address issues raised by local opponents were relatively few. They were certainly made after opposition had solidified. The majority of Earthline's efforts focused on preparation and defense of its application and the provision of some additional data requested by SWA. These SWA-Earthline exchanges were quite distinct from the public response to the proposal and any attempts to react to that response.

A number of issues were raised by opponents and the major issues are summarized below. Among these issues some were clearly important and less susceptible to ambiguity in terms of strengthening the opposition and impacting SWA's decision. These issues can be characterized as pertaining to credibility, political sensibilities, and institutional factors. These issues, in combination with the broad-based political resources amassed by opponents, appear to have been decisive.

Credibility of Earthline and SCA -- Opponents claimed that Earthline and SCA could not prove that reliable development and operation of the facility would be guaranteed. This was largely based on company claims made during the development of the Interstate sanitary landfill and on the Wilsonville case.

Site location -- Location above an aquifer and proximity of the site to the Bordentown Regional High School were considered unacceptable risks.

Credibility of SWA -- Opponents doubted SWA's ability to make an independent, reasoned judgement on the application. This was based largely on assumptions that SWA was predisposed to approve the application (or at least be more concerned about waste disposal than public health), that SWA had no guidelines (particularly siting criteria) by which to judge the application, and that SWA's limited qualifications and resources prevented a thorough, independent review.

Technical suitability -- Opponents considered engineering and geological safeguards for the proposed facility insufficient to eliminate adverse impacts, particularly the contamination of the Magothy-Raritan aquifer. Technical studies by consultants to opponents supported this view while those prepared for Earthline and EPA's Region II office came to essentially the opposite conclusions.

Other impacts on the community -- Opponents did not want Bordentown to become the hazardous waste "dumping ground" for the state. They also feared that the site's development alone would create general economic disbenefits to the area.

Legal jurisdiction over solid and hazardous waste management -- Local officials claimed authority for waste management planning and therefore claimed a legal role in facility siting. This argument was dismissed by the court.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

The following are the major factors which led to the development and coalescing of opposition to the Earthline proposal.

- o A predisposition on the part of at least some local leaders to mistrust solid waste companies in general, and SCA subsidiaries in particular, based on prior experiences with these firms.
- o A history of local leaders and the general public opposing the siting of facilities considered to be objectionable.
- o Ultimately successful efforts to block the siting of the Dow tank farm, thus creating a successful track record and a loosely working coalition between local environmentalists and elected officials.
- o SWA's notification of local officials and agencies of the permit application.
- o National publicity surrounding Love Canal.
- o Numerous requests to SWA and a law suit by Bordentown City to extend the comment period.
- o The decision in the Wilsonville, Illinois case.
- o Actions by state elected officials to introduce legislation against the facility and to appeal to the governor.
- o HOPE's informational meeting in September.
- o The Stevens Institute report submitted to the township and the county.

It is probably impossible to determine when opposition reached a stage where maintenance of that opposition was at least as important as further growth. By late October, however, it would appear that most parties were irrevocably opposed to the proposal even if formal positions had not been taken. The following actions can then be said to serve as demonstrations of opposition and hence as sustainers of opposition.

- o HOPE's activities in the week prior to the public hearing.
- o The public hearing.

- o The Senate resolution against the facility.
- o The BCM report to Bordentown city.
- o The city-township-county suit against SWA on jurisdictional grounds.
- o The bill sent to the governor banning permit reviews until the development of a state facility siting plan.

VIII. GENERAL COMMENTS

The siting experience in Bordentown provided key participants with a wide range of insights and views on siting and other hazardous waste problems. These are described below.

One local elected official felt that the onus for disposal should be placed on hazardous waste generators. He had no faith in state or federal bureaucrats playing major roles because they lacked competence. Commercial disposal firms could either not be trusted or lacked financial resources commensurate with risks entailed. This left larger generators as the responsible implementors; these firms had sufficient assets to guarantee that any problems could be paid for. To pay for disposal, costs should be included in product prices. Finally, disposal techniques should stress rendering wastes harmless and avoid land burial of hazardous waste altogether.

A state elected official differed sharply on governmental roles. While questioning the usefulness of an expanded state role, he saw potential for major changes in federal and/or multi-state agency roles. One action would be for EPA to survey the state to determine if any areas are suitable for disposal sites. While his ideas were less fixed on ownership/ operation arrangements, he considered complete federal and/or regional agency control, or federal or regional agency ownership coupled with private operation as the two most viable options.

HOPE's president made both specific and general comments. Echoing the complaints of other opposition leaders, he felt that the costs to local governments and organizations for technical studies of the Earthline application were unfair. A mechanism needs to be developed to redress the imbalances in resources available to state agencies and private industry and those available to communities which are asked to live with the consequences of state agency/private industry decisions. Public input, he felt, was critical to siting because such scrutiny would more thoroughly test the viability of proposed facilities. To ensure that reasoned decisions are made, the state should develop siting criteria before analyzing any permit application. In the event of technical disputes by presumed experts, a scientific panel or "court" would be the best way to settle such conflicts. Site ownership should be in state

hands because states are more likely to make environmentally sound decisions on site selection than industry. States could then contract out operations to private firms. The federal government should promote "cradle to grave" monitoring of waste. Finally, the most critical need is for perpetual maintenance and monitoring of sites after site closure.

Earthline's attorney considered existing siting procedures to be satisfactory for the most part. He did feel that EPA should work to improve the integrity of state regulatory agencies so that the public will be more trusting of those agencies. On the other hand, he saw New Jersey's disposal problems as particularly severe because there are no commercial hazardous waste landfills and state and federal policies have increased the demand for these facilities. Thus new secure landfills must be found. He considered the Earthline application a demonstration project not only of a facility but of the state's ability to develop disposal capacity. During Centaur's interview he said that if the Earthline permit were denied, the state would demonstrate its inability to solve its hazardous waste problems.

State comments are included in the state program write-up elsewhere in this report.

ALLIED CHEMICAL
ROSSVILLE, MARYLAND

I. INTRODUCTION

Since 1974, the Allied Chemical Corporation has unsuccessfully attempted to establish its own private landfill in Rossville, Maryland. The proposed landfill would be owned by Allied but operated by the Maryland Environmental Service (MES), an agency within the Maryland Department of Natural Resources. The site would be used for exclusive disposal of chrome ore wastes generated at Allied's chrome plant in nearby Baltimore. Allied was forced to seek out the site when the Maryland Port Administration (MPA) announced early termination of its 40-year disposal agreement with Allied. Allied has been unable to develop the Rossville site to date because the county has denied Allied a special zoning exemption. Opposition to the landfill developed soon after the first public knowledge of Allied's intention. Opposition has centered on technical, operational, and political issues and has become deeply-rooted and strongly emotional. The opponents' fight against the facility has involved all major political leaders in the area as well as the governor and lieutenant governor.

Allied and MES have made concerted efforts to address publicly raised issues and/or to refute opponents' charges. While Allied has been credited with being open and forthright in dealing with opponents, these efforts have had little discernible effect on the opposition.

II. BACKGROUND INFORMATION

The proposed landfill site is located at the intersection of Philadelphia Road and Route 40, about five miles east of Baltimore. The land is currently zoned for light manufacturing and owned by the Arundel Corporation which operates a brick manufacturing plant on the location. All clay needed for the brick manufacturing operation is excavated from two large pits on the 60-acre property. The property is actually part of a several-hundred acre Arundel-owned plot which includes an immediately adjacent industrial park development. The site is bordered by several private homes. A hospital and community college are located within a mile of the brickyard.

The site has particular advantages for Allied. It is less than ten miles from Allied's chrome processing plant in Baltimore and is well served by highways and a rail line. The site had already been excavated for clay used in brickmaking thereby providing a 38-acre repository with at least 12 years dumping capacity (given Allied's yearly chrome production rates). Study showed that the clay lining and iron stone underlayers made the pits impervious to water. According to Allied's engineering consultants, the site is located on the Arundel Clay formation composed of two clay strata which would contain any leachate for a period of 335 years.

According to Allied's engineering plans, total waste confinement was to be achieved by complete encapsulation of each day's deposit of chrome ore refuse within an impermeable clay envelope. The bottom and sides of the pits provided at least five feet of clay lining and ten feet of rock. This would protect underlying groundwater from leachate contamination. Each day, the waste would be covered with clay to prevent saturation of the refuse and/or surface runoff. The waste material itself has a built-in safety shield, that is, an ability to hold considerable amounts of water without leaching. Finally, Allied proposed to install observation wells for monitoring leachate and holding ponds to capture any possible surface runoff caused by precipitation. Runoff would be confined there, tested for hexavalent chromium content and treated if necessary. Allied agreed to give WRA access to all monitoring and testing information. Allied also agreed to comply with the state's evolving hazardous waste management regulations regarding maintenance and closure. Included among these is a proposed \$100,000 a year permit fee for each year of operation. The fee would provide a contingency fund to help compensate for possible damages after the facility closed.

Allied Chemical is one of the nation's largest chemical manufacturers: in fiscal year 1978 it reported total sales of over \$3.2 billion. The company has a fairly extensive program to provide for its own waste disposal needs; however, not all plants have their own facilities. Allied operates one of the three chrome processing plants in the country. The chromium chemicals produced at Allied's Baltimore plant are used in a wide variety of industrial applications including metal finishing, leather tanning, pigment manufacture and oil well drilling. In most cases, chromium applications are considered vital and irreplaceable where used.

Rossville itself is a largely working class community of industrial parks, shopping centers and scattered homes about four miles east of Baltimore. The area has traditionally attracted manufacturing and processing operations otherwise unattractive to the metropolitan area. Recently, however, Rossville has experienced an increase in moderate to middle income housing development due to the area's affordable home and land prices. This growing trend is expected to continue accompanied by a local policy encouraging compatible industrial growth.

There are no incorporated cities or townships in Baltimore County (1977 population, 644,000). Rossville, therefore, simply refers to a small neighborhood or concentration of development under the direct jurisdiction of the county government. The county government consists of a locally elected council and an executive administrator.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

During the development of its plans Allied had to obtain regulatory approval from the state and from Baltimore County. State permits from the Water Resources Administration (WRA) included a groundwater

discharge permit and a facility permit. In addition to state permits, Allied also needed local zoning approval before it could operate the landfill. The Arundel property was zoned for light manufacturing. A special zoning exemption for heavy manufacturing was required for waste disposal. Baltimore County regulations for landfills also require sign offs by the fire department, the highway department, and the local health department once zoning has been approved. Finally, some local parties contend that a zoning change to heavy manufacturing would constitute a change in the county's solid waste master plan. This, in turn, would require formal review and approval by the County Council.

A by-product of chromium processing is an odorless, non-combustible refuse.¹ Allied's Baltimore plant produces approximately 93,000 cubic yards of this refuse per year. Its disposal is essential to the plant's operation. For years, Allied disposed of its chrome ore waste at an 85-acre landfill adjacent to the Maryland Port Administration's (MPA) Dundalk Marine Terminal. In 1967, Allied sold the parcel to MPA with the agreement that Allied would continue dumping up to 6 million cubic yards of refuse on the property. The agreement included financial penalties for Allied's failure to use the MPA landfill. MPA intended to use the filled land for expansion of Dundalk.

Disposal continued at Dundalk until mid-1974. At that time, MPA notified Allied it would no longer accept waste after January, 1975 due to curtailment of its marine terminal expansion plans. Allied, recognizing that someday it might need a contingency landfill site, had already negotiated with a private sanitary landfill in case of emergency disposal needs. Allied proceeded to use that landfill exclusively until MPA, under a remaining 32-year obligation to Allied, provided an alternate site at Hawkins Point in Baltimore City. The Hawkins Point site, however, only had two years remaining capacity. Allied was once again forced to consider alternative disposal arrangements. †

Allied began to look for environmentally sound sites suitable for long-term waste disposal as early as 1970. The search began in earnest in late 1974. Siting criteria included proximity to the

¹ Chrome ore waste has the consistency of a moist, heavy sand and contains about 20 percent water by volume. The material is principally a mixture of iron oxides, calcium, magnesium and aluminum. The waste material, however, also contains about 0.2 percent water soluble and 1.3 percent acid soluble hexavalent chromium. In its solid, damp state, the waste causes no problem. However, hexavalent chromium concentrations greater than 0.05 milligrams per litre render water unacceptable for drinking; concentrations greater than 0.1 milligrams per litre are harmful to aquatic life. The chromium ion therefore is considered a hazardous waste requiring special handling (i.e., prevention of leachate) in disposal.

Baltimore plant, transportation access and cost of site preparation. The most important criteria were proper soil type and amount for waste containment, adequate size to hold at least ten years of Allied refuse and overall availability for use. Of 60 sites considered, two appeared promising. One was eliminated because it required massive clearing and excavation and because the zoning department of the county in which it was located clearly opposed use of the land for waste disposal. The second site was Rossville.

Since Allied had recently suffered from \$20 million fines and bad publicity associated with Kepone contamination in Hopewell, Virginia, the company was particularly wary of any disposal method or site that demonstrated risk of environmental pollution. The decision to dispose of the chrome ore wastes in carefully constructed cells of impervious clay was made only after a thorough investigation by Allied and WRA of alternate means for handling and disposal. A number of methods to reduce the hexavalent chromium content of the waste through additional chemical treatment proved incomplete. Such processing resulted in new and significant amounts of chlorides which still needed land disposal. Ways of recycling the hexavalent chromium into alternate, commercially useful materials also proved infeasible. By June 1975, WRA agreed with Allied that landfilling the chromium waste was the most viable disposal method at least until another alternative became known.

This research underscored the importance of identifying the Rossville site for development as a landfill. Favorable technical reports by Allied's engineering consultants boosted Allied's interest and confidence in the site. Allied envisioned grading the site once filled then putting the land to higher use, possibly as an extension of the neighboring industrial park. By mid-1975, Allied had reached a purchase agreement (which to date has not been consummated) with the Arundel Corporation. The Arundel Corporation would retain an access strip from the road to the brickyard which it would continue to operate for some time. Allied, in turn, would receive rights to use the access roads to the highway, rail line and other area roads.

In July 1975, Allied sought a state discharge permit for the landfill. Typically, the Maryland State Health Department approves all landfill applications, but because the Health Department code does not specifically address hazardous waste disposal, Allied was referred to WRA.

WRA, a department within the Maryland Department of Natural Resources, is responsible for issuing NPDES (surface water) and state discharge permits to all point sources. WRA recognized Allied's need for a landfill site. It also recognized a state responsibility to assist Allied since another state agency (i.e., MPA) was partly responsible for the company's dilemma. WRA reviewed Allied's plans and determined that although certain technical problems still remained, the site appeared eligible for a groundwater discharge permit and a hazardous waste permit. WRA also suggested that Allied request the assistance of

the Maryland Environmental Services (MES) in developing a landfill at Rossville. WRA believed that MES's participation in the project would help ensure the technical quality of the operation and greater local acceptance of the landfill.

MES was established as a corporate utility agency of the state in 1970. The agency operates as a non-profit enterprise to assist local governments, industries and other state agencies in matters of waste management and water supply. Its purpose is to serve both public and private interests by supporting efforts to achieve environmental quality. MES recovers its costs through contract arrangements with its clients. MES has no regulatory functions or police powers and must conform to all regulations and decisions of other state agencies.

After several meetings in the summer of 1976, Allied formally invited MES to submit a proposal to assist Allied in developing a landfill. MES responded in September, 1976, thus becoming a partner in the venture. MES agreed to help Allied through the regulatory process, to supply technical review and advice where possible, and to operate the landfill facility once it was established.

A preliminary assessment by Allied and MES indicated no insurmountable problems in securing necessary permits and approval. Allied anticipated that its first request for a zoning change would be denied but that a special exemption eventually would be granted because the plans met all federal regulations and county requirements. The only major problem anticipated was securing county approval regarding the planned landfill's compatibility with the county solid waste master plan. On this point, Allied planned to contest a negative decision on grounds that the county plan did not provide for waste disposal beyond ten years.

Public response to Allied's proposed facility was strong and well-organized early in the regulatory approval process. Although rooted in emotional objections to the presence of a HWMF in their neighborhood, community opponents challenged the plans on the grounds of technical issues related to specific site characteristics. The opposition drew strength from unity among local community improvement groups and political clubs as well as the backing of local elected officials.

The public first became aware of Allied's landfill plans shortly after MES became involved in the project. MES encouraged Allied to meet with state and county officials early, both as a courtesy to them and to avoid announcing the landfill plans amidst the anxiety of a public hearing atmosphere. Allied took MES's suggestion and invited the state representative, senator and county councilman representing the Rossville area to discuss the plans with Allied. The officials seemed interested in the proposed landfill, especially since it offered eventual improvement of the unsightly brickyard pits and possible industrial/commercial development for Baltimore County. The state senator

suggested that a public meeting be held to present the plans to the greater public. The Greater Rosedale Community Council, an umbrella group representing 17 local groups, was contacted to notify other interested publics of the upcoming meeting.¹

The informational meeting was held in November, 1976. Approximately 80 people including local officials and representatives of community groups attended. MES introduced the agenda, discussed state involvement in the project, and outlined the project's lifespan and general operations. With the help of its consultants, Allied explained the nature of the facility (e.g., material to be disposed, safeguards, plans for future use) and the company's need for disposal. Throughout the discussion, Allied spoke candidly about potential problems and risks in operating the proposed landfill. The public was invited to ask questions to which MES, Allied and Allied's engineering consultants responded.

The impact of the meeting was somewhat greater than Allied or MES probably expected. Both parties anticipated some negative response, especially in view of the history of public reaction to hazardous waste management facilities, Allied's recent Kepone publicity and the presence of organized community groups. But by the end of the meeting, the audience had developed what the newspapers referred to as a "polite, yet antagonistic attitude toward representatives from the chemical company and an engineer from their consulting firm". The local county councilman who before the meeting indicated support for restoration of the Rossville site, spoke out in strong opposition to the landfill at the end of the evening. The councilman spoke of his desire to uplift the area rather than further degrading it with a "poison pit". The Greater Rosedale Community Council strongly supported the councilman's position in a membership vote taken immediately after the meeting. The state senator, although reserving comment until Allied answered technical issues raised, also showed some displeasure with the proposal. His displeasure would grow within a short time into adamant opposition to Allied's plans.

A number of technical concerns were raised by members of the attending audience. Primary concerns focused on risk of groundwater contamination, surface water runoff from precipitation, nuisance (e.g., dust, noise, traffic congestion) and safety factors associated with hauling seven days a week, and indefinite safeguards for future site development.

¹ Although the area is not heavily populated, a number of local political and neighborhood improvement groups have been organized in and around Rossville. These groups have lobbied successfully in the past for tax relief, road repair and other community concerns. In some cases, individual neighborhood groups have rallied under the umbrella organization to add focus and strength to their common efforts. The proposed landfill siting was the area's first experience with a controversial environmental issue of such magnitude.

Allied and its consultants offered assurances that the pits' clay lining would prevent leachate, that the holding ponds and monitoring provisions would deter surface runoff, that hauling hours would be adjusted to avoid disturbing neighboring residents, that tarp covers on trucks would eliminate blowing dust and that WRA's participation would ensure proper oversight of the landfill after closure. Despite these answers, the public felt Allied was speaking in generalities, unprepared to address some of the issues raised and unable to offer adequate reassurances to balance risks.

The audience drew parallels between Rossville and Norris Farms and Hart Miller Islands, two other landfills with serious leachate problems. Spokesmen for the Greater Rosedale Community Council complained of burdening Rossville with wastes generated in other communities just for the convenience of Allied. A number of people noted they were tired of getting everyone else's waste. Because of past and ongoing court situations depicting Allied as a "polluter", many residents simply did not want to take a chance with a landfill.

Following the meeting, the local press carried a number of articles and editorials highlighting the "hazardous" nature of Allied's wastes and the extent of public opposition to the landfill. The councilman and state senator petitioned the County Executive not to bring Allied's special zoning exception request to the council in hopes of frustrating Allied's siting attempts. The senator also petitioned the governor's office to oppose Allied's siting attempt. In January, 1977, the lieutenant governor issued a response noting that "the governor thought the entire undertaking should be abandoned". By that time, it was clear to the director of MES that although Allied's proposal was technically sound, the facility would never get off the ground unless the adjoining neighborhoods withdrew their objections.

Also, in January, the Greater Rosedale Community Council invited a representative from MES to speak about the landfill at a monthly meeting. The president of the Council made it known that although the organization was firmly opposed to the facility, it was willing to hear all sides. The MES representative's presentation was received better than Allied's presentation at the informational meeting, but was still incapable of swaying the public's position.

A month later the County Zoning Commission denied Allied's zoning petition on the basis of what it called "a contradiction of terms" arising from the stated water imperviousness of the clay and the need for the soil to pass a percolation test for establishing sewers. (Since more than four persons would be employed at the site, Allied was obliged to install sewer lines.) The denial of the zoning request was not unexpected. Indeed, Allied's attorneys, expecting such a decision, deliberately withheld expert testimony and special witnesses until the appeals process so that all testimony would be recorded and so that Allied could protect its position from premature attack. The Greater

Rosedale Community Council established a "Landfill Defense Fund" to fight Allied in its zoning appeals. The state senator became attorney for the group and the county directed the people's counsel to further assist the Rosedale group.

The area's state senator introduced legislation in February that would have prohibited the development of the Allied landfill. That legislation called for no hazardous waste landfills to be sited within 1,500 feet of a residence in Baltimore County. Within two months that legislation had passed both houses and was sent to the governor for his signature.

Allied appealed the zoning commission's decision and again tried to assuage public concerns. In March, Allied sponsored a second public information meeting regarding its zoning appeal. Stiff local opposition arose at this time. Neighboring residents testified that they witnessed water soaking into the soil at the site thereby challenging Allied's claim that the soil is impervious. A local pastor spoke about declining property values due to the landfill and lack of community control over the land. A local hospital spokesman voiced concern over possible health effects from chromium ore dust in hauling. The County Planning Board and the Industrial Development Commission also took stands against Allied's proposal for fear of contamination of nearby streams.

In April, Allied requested a special audience with the governor regarding approval of the senator's bill restricting hazardous waste management facilities near residences in Baltimore County. Calling to the governor's attention the employment and income effects that could result from closing the Baltimore plant, Allied urged the governor to veto the bill. The governor apparently reconsidered his position and did indeed veto the bill. The county executive was also opposed to the bill because of its possible effects on the county solid waste plan. The executive viewed the bill as a tool to phase out all landfills in the county.

Also in April Allied applied to WRA for a facility permit. A complete plan for the development and operation of the facility was submitted with this application. At Allied's request, WRA considered this application a continuation of the discharge permit application submitted in July, 1975.

The zoning appeals hearing began in September, 1977. At the first hearing the local communities challenged the validity of Allied's technical reports. Allied's engineers again restated proposed measures to assure protection of the groundwater. Allied also announced plans to fill eight acres in the northwest corner of the site during the first three to five years of operation. This area then would be developed as a park for community use. Allied reminded the audience that its Baltimore plant employed 350 people and that no suitable alternative to disposal by landfill had been found for chrome ore waste. The company's presentation did little to reduce public opposition.

The pattern established in the first appeals hearing continued through four subsequent hearings. Each time, the community (through the Greater Rosedale Community Council, individual spokesmen or elected officials) continued to challenge Allied on the basis of potentially harmful community effects. The Greater Rosedale Community Council hired its own consultants who claimed that although the clay at Rossville might prove adequate to prevent leachate, the site was actually spotted with sand lenses which permit seepage through the clay. In response, Allied hired another consultant--this time from the local university--who again supported their engineer's report favoring soil characteristics at the Rossville site. Another real estate broker was brought in to refute claims that local property values would decline. Allied also tried to appease the public by giving a greater role to public agencies in managing the landfill. At the third appeals hearing, Allied announced that MES would operate the landfill for five years after its closure. After that time, WRA would assume control over the facility thereby placing the site under public control.

All of Allied's retorts did little to sway public opinion. In March, 1978 by the end of the fifth appeals hearing, the Zoning Commission was no closer to approving the site. The County Planning Board and Board of Health began bringing in reports of visible chromium leachate from the Hawkins Point site on the Chesapeake Bay. This aroused greater public ire due to concern over regenerating the bay.

The same month that the appeals hearings ended, MPA announced, as a result of compromise legislation, that it would allow Allied to dispose of its chrome ore waste at Hawkins Point until July, 1979. Local papers reported that the MPA, WRA, and the area's state senator had reached this compromise so that disposal would not become a major constraint for Allied's processing plant.

The site visit occurred in January, 1979; at that time a decision on Allied's zoning appeal was expected in March, 1979. Although Allied continued to petition the appeals boards, a reversal of the Zoning Commission's original decision was considered highly unlikely. Allied has not produced conclusive data to refute the opponents' technical criticisms nor has it offered appropriate incentives to win the support of the public. Furthermore, local opposition has been too deeply rooted in emotional issues at this time to be appealed to through reason. Although it has supported Allied's proposed landfill the state has not been in a position to reverse the local ruling since the state does not have authority to preempt local zoning decisions. Allied and MES will continue the appeal to settle a number of lingering legal issues (e.g., does an industrial waste landfill have to be consistent with the county solid waste master plan) and to pave the way for other landfill sites in Maryland. Allied and MES have learned valuable lessons through this experience.

Compatibility of the proposed landfill with the County solid waste master plan was also still in dispute. Allied claimed that the facility

should be approved since the county plan did not adequately address industrial waste disposal -- a critical problem in the greater Baltimore area. The WRA notified Allied that permitting procedures would be suspended until the solid waste master plan question was settled. The question was moot however, until zoning was approved.

In the meantime, Allied continued to use a private landfill site. Disposal costs have tripled over the past year and the state estimated only three to five years of remaining disposal capacity in Baltimore County. MES, with the support of WRA, was still working with Allied to find a suitable landfill site. Since a negative or at least too tardy decision was expected on the Rossville zoning decision, Allied was proceeding with another survey of alternate landfill locations. Allied will present its development plans to selected candidate communities after MES conducts a technical review of the sites and makes its own recommendations regarding preferred suitability. Allied will then make a final site decision. Allied will solicit the public's assistance in developing site selection criteria and in making the final choice. The legislature is expected to be keenly interested in the activities, especially since highly developed areas will be considered. Ownership and operation arrangements had not been decided.

In April, 1979, the appeals board granted Allied the needed special exemption. This decision was appealed to the circuit court by the people's counsel. As of late May, 1979, the circuit court was expected to receive the complete files of the appeals board. When that was accomplished the court would begin to decide on hearing dates.

IV. CHRONOLOGY OF EVENTS

1974 -- MPA informs Allied that disposal at Dundalk must stop in January, 1975. Allied switches to private landfill until MPA provides for disposal at Hawkins Point. Allied begins concerted effort for disposal site.

June, 1975 -- Allied and WRA agree on rejecting non-landfilling options for chrome waste. Allied reaches purchase agreement on Rossville site.

July, 1975 -- Allied seeks state discharge permit from WRA which refers Allied to MES.

September, 1976 -- After a series of meetings, MES formally agrees to assist Allied.

November, 1976 -- Allied and MES attend local informational meeting.

January, 1977 -- MES attends Greater Rosedale Community Council board meeting. Lieutenant governor indicates that he and governor oppose facility.

February, 1977 -- County zoning commission rejects zoning change; Allied appeals to county board of appeals. Area's state senator introduces anti-facility legislation.

March, 1977 -- Allied attends second informational meeting.

April, 1977 -- Allied applies for state facility and appeals to governor for meeting prior to his action on senator's bill.

May, 1977 -- Governor vetoes senator's bill.

September, 1977 -- Hearings before county board of appeals begin.

March, 1978 -- Hearings end. MPA agrees to Allied's disposal at Hawkins Point until July, 1979.

April, 1979 -- County board of appeals granted special exemption.

May, 1979 -- People's counsel appeals decision to circuit court.

V. ATTEMPTS TO SECURE SUPPORT

The following major actions were taken by Allied and/or MES.

- o The November, 1976 informational meeting arranged by the area's state senator.
- o The MES presentation to the board of the Greater Rosedale Community Council.
- o The March, 1977 informational meeting sponsored by Allied.
- o Allied's appeal to the governor.
- o Amenities and technical data offered by Allied during the zoning appeals process.

VI. SUMMARY EVALUATION

The various actions taken by Allied and MES have failed to reduce public opposition. Indeed, that opposition has escalated during the controversy and for large numbers of area residents and officials appears to have become deep-rooted and unalterable.

Allied's piecemeal attempts to respond to public concerns put the company in a suspicious light. For example, no mention was made of covering trucks with tarp to prevent spreading chrome ore dust until the local opposition raised the issue. Similarly, truck scheduling at the site was not adjusted to hours agreeable to local residents until neighboring residents complained of anticipated traffic congestion,

noise and general nuisance. This approach made Allied appear unresponsive to community concerns. While MES' presentation to the Greater Rosedale Community Council was considered to be better (i.e., more informative), that agency was no more successful in changing local views than Allied.

Allied's legal strategy on presentation of data during the zoning approval process seems to have backfired. Allied's legal counsel advised the company to withhold detailed presentations until the hearing process when proceedings would be recorded. Unfortunately, this put Allied in a defensive position. The company did not anticipate a well-informed public armed with specific technical criticisms of the site.

This inability to sway opinions may be explained by the fact that in the final analysis, Allied's general approach demonstrated overall insensitivity to the community's self-image and priorities. For example, the community appeared to be developing into a bedroom community. As such, jobs in the community itself may not have been as important as would seem at first glance. Development would be particularly undesirable if new jobs brought in unsightly or dangerous industries. The community was trying to change its self-image away from the "dumping grounds of Baltimore County". Even though Allied promised to restore the brickyard to original grades, the intermediate steps to fill the land (i.e., trucking in hazardous material) did not complement the community's improvement plans. Nor did the promise of a park since new homes in the area have adequate land for backyards and since clean fill could be brought in to fill the clay pits at less risk. Allied's overall inability to determine community priorities made it impossible for them to determine local motivations and appropriately corresponding incentives.

Finally, Allied failed to fully capitalize on its support from the state. A more active role by the Water Resources Administration may have helped allay public fears about groundwater contamination and damage liability after site closure. As an impartial regulatory agency, WRA could have helped settled conflicting technical reports about site suitability.

Allied was not totally without success. It would appear that the company's appeal to the governor contributed to a complete reversal of the governor's position on the landfill. Gaining the support of the governor, however, had no discernible impact on local sentiment.

The unexpected decision by the appeals board to grant Allied the special exemption has given the siting attempt new life. Regardless of the outcome of the appeal to the courts, the overwhelming evidence suggested that opposition will not be overcome. Should the landfill be developed, it will be developed without community support or approval. The

Rossville case illustrates the strength and stamina of public opposition once it has formed. Community groups and their leaders have been able to mobilize a sizeable number of political, financial, and technical resource when local interests have been threatened. While the technical issues raised by citizens can be said to be merely tactics to support emotionally-based concerns, they cannot be easily resolved or refuted.

The protracted opposition has centered around a number of major issues that are summarized below.

Allied's credibility -- National publicity regarding Kepone poisoning at Hopewell, Virginia had surfaced shortly before Allied's first local meeting in Rossville. Fear of a similar disaster in Rossville was therefore a primary public concern. Despite Allied's direct statements to the contrary, the public suspected Allied might secretly haul in Kepone from Virginia. Furthermore, even if Kepone was not imported, chromium ore still bore the label "hazardous waste." As such, chrome wastes were assumed to have the same possible effects on the public as Kepone no matter how Allied proposed to handle the waste.

Site suitability -- Allied engineers seemed unable to refute contradicting technical reports prepared by the opposition's engineers. The latter reports referred to sand lenses throughout the site's clay formation as well as stress patterns which might disrupt the sealed encapsulation effect. The reports therefore supplied ample fuel for the opposition's position and grounds for denying the zoning permit. The basic fear has been that groundwater would be contaminated.

Operational procedures and provisions -- Traffic in and out of the site has been seen not only as a nuisance but also a safety hazard because of traffic congestion and the potential for spilling chrome ore waters. Procedures for preventing surface water contamination for runoff were seen as unreliable. Allied was able to respond some of these concerns.

Post-closure provisions -- The facility was thought to present long-term problems which would render the site unsuitable for industrial development. This conflicted with an expressed community goal of developing employment opportunities.

Community image -- The landfill was seen as one of a series of objectionable facilities being sited in an area with more than its fair share of such projects. Residents did not want to see the area further degraded to suit Allied's disposal needs. Moreover, the community has recently experienced more residential development, thus making the landfill increasingly in non-conformance with area development trends.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

The following contributed to and sustained opposition.

- o A local history of political organization and activism particularly with regard to projects perceived as unacceptable.
- o Allied's severely tarnished environmental reputation following the Kepone controversy.
- o Allied's first notification to local leaders of the proposed facility after the company was committed to the site.
- o The inability of Allied or MES to respond effectively to an exhaustive number of questions and concerns raised at the informational meetings.

VIII. RETROSPECTIVE VIEWS

Local leaders and officials were pleased with the course of events up through the time of the site visit. They felt the community and its political representatives had done an effective job of raising concerns and organizing to fight the landfill. Local leaders expressed a desire for continued local control over siting in the future.

Allied and MES have learned valuable lessons through this experience. The company still needs a disposal area for its chrome ore wastes. In developing an alternate site, Allied planned to consult with local committees earlier in the process to iron out problems before the plans reach the public hearing stage. Allied advocated more state control in siting hazardous waste facilities so as to introduce a regional perspective in the regulatory process. In the absence of this change, however, Allied plans to work closely with MES and WRA in selecting and developing a new site.

STATE OF MINNESOTA

I. INTRODUCTION

In 1974 EPA requested proposals for the development of a chemical waste landfill as a demonstration of the best available technology for land disposal of hazardous wastes. The grant was awarded to the Minnesota Pollution Control Agency (MPCA) in 1975, but the facility was never sited, and the grant was terminated by mutual agreement in 1978.

The proposed facility never received the support of the public, local officials or industry. This was primarily due to the press coverage the project received before any of these groups had been involved in the siting process, and before the public information program had begun.

Subsequent attempts to secure the support of these groups were unsuccessful, largely because the agencies involved with the project and the siting process itself had little credibility after the initial announcement.

II. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

All solid waste disposal sites in Minnesota are required to have a Solid Waste Disposal Permit which is issued by the MPCA. Initially, it is recommended that the prospective permittee discuss the scope and nature of the project with MPCA staff. Next a preliminary application must be submitted to the MPCA. This must include data on the proposed site, facility design and engineering, access, clientele, type of wastes, and some estimate of the environmental impacts of site development and operation. The MPCA then responds to the preliminary application and suggests changes which are incorporated into the final application. In addition to the MPCA, the final application must be approved by the Metropolitan Council if the proposed facility is in the seven-county Minneapolis-St. Paul region, and the Minnesota Environmental Quality Board must review it to determine whether an Environmental Impact Statement is required. If the application is approved by all parties, the MPCA must give public notice, and can hold a public hearing at its discretion if one is requested. A permit authorizes the development and operation of a facility for the life of the site, given that monitoring and reporting requirements are met. Once the site has been developed, a statement is required from a registered professional engineer that the site has been developed according to the permit.

No other state agencies require permits for hazardous waste management facilities, but a number of counties and towns in Minnesota do so, especially those in the Minneapolis-St. Paul metropolitan area. Within the seven-county metropolitan area, the MWCC can preempt city and county zoning in siting hazardous waste facilities. Elsewhere in the state, counties can preempt local zoning for this purpose.

In 1974, the Office of Solid Waste of U.S. EPA requested proposals to develop a demonstration chemical waste landfill. The request was limited to state, regional and local authorities. Of the 24 initial responses, eight were selected to present detailed final proposals. The grant was ultimately awarded to the Minnesota Pollution Control Agency. The bases for this award were: the State of Minnesota had in existence laws governing the storage, transportation and disposal of hazardous industrial wastes; the Minneapolis-St. Paul area had a good cross-section of industry and thus of industrial wastes; and the grantee had available the required 25 percent matching funds.

The objectives of U.S. EPA in sponsoring this demonstration project, as noted in the "Chemical Waste Landfill Facility Plan" (Henningson, Durham and Richardson), included the demonstration and evaluation of siting criteria and the siting process; of site development; and of site operation, including technical procedures, economics, and other impacts. It was intended that the site be operative before U.S. EPA would begin developing its own regulations covering the storage, transportation and disposal of hazardous industrial wastes. The facility was to provide information to be used by EPA in the development of programs for the Resource Conservation and Recovery Act.

Certain constraints were put on the project. These included that the site should be a chemical waste landfill, that it be in a metropolitan area, and that it would require technical upgrading to meet standards (i.e., that the site not necessarily be geologically ideal).

The grant was awarded in June, 1975. The Minnesota Pollution Control Agency (MPCA) was the grantee. However, since the MPCA is a regulatory agency, it was obligated to subcontract with another (operating) public body or agency to do the work. Initially, this public body was to be Hennepin County, one of the several counties which make up the Minneapolis-St. Paul metropolitan area. However, about this time the Minnesota state legislature transferred the power to site hazardous waste landfills in the metropolitan area from county government to the Metropolitan Waste Control Commission (MWCC). The MWCC then became the subcontractor for the MPCA for this grant, and agreed to acquire and be responsible for the operation of the proposed facility. The MWCC in turn contracted with a local consulting engineering firm to develop the criteria for siting the landfill and to select several sites. The MPCA remained responsible for project administration and the public information program.

The MPCA was interested in developing regulatory expertise. However, it was largely concerned with state needs. The MWCC wanted a hazardous waste landfill that would serve as a disposal site for wastes which because of industrial pretreatment standards could no longer be disposed of in sewers. They were primarily interested in the capability of the facility to meet the needs of the metropolitan area.

The first siting attempt began in June, 1975. The siting procedure was the same in all three attempts.¹ Site criteria and the data base were developed first. Then, a number of "search areas" were identified in the region. These are areas with conditions generally favorable for the siting of hazardous waste landfills. The Minnesota Land Management Information System (MLMIS), a computerized land use data base which contains information on each 40 acres of land in the Minneapolis-St. Paul metropolitan area, was used in this part of the analysis.

Next, the search areas were subject to an in-depth analysis and candidate sites were selected. The number of candidate sites was then narrowed down to three or four on the basis of site visits. The final site was selected based on further analysis, in particular, of site geology and access.

Site selection criteria used to develop search areas in the first siting attempt were limited to information available for the MLMIS system. These included: 1) land use, 2) hydrology, 3) topography, and 4) geology.

Based on these criteria, 45 search areas were identified in the region. Twelve candidate sites were identified in these search areas by applying the following additional criteria: 1) accessibility, 2) land availability, 3) availability of utilities, 4) air quality and climatology (wind direction and area dispersion characteristics), 5) natural ecosystems, and 6) site-specific topography, soils, geology, topography and land use. Four of these sites were located in each of Scott and Carver Counties, two in Dakota County, and one in each of Hennepin and Washington Counties, for a total of 12.

Each of the twelve candidate sites was visited, and additional data gathered. Four sites were selected for further investigation. All were located in agricultural areas. These sites were:

- o Bongards
Section 29, Benton Township
Carver County

- o Dahlgren
Section 17, Dahlgren Township
Carver County

¹ While no locally acceptable sites were found during the demonstration project, eight individual sites were proposed at one time or another. In all, there were three attempts to select a site and two sets of selection criteria. The second set of criteria was used with some modification for the third as well as the second attempt.

- o Sutton Lake
Section 26, Sand Creek Township
Scott County
- o Castle Rock
Sections 23 and 24, Eureka Township
Sections 18 and 19, Castle Rock Townships
Dakota County

On December 16, 1976, the four candidate sites selected for further on-site analysis were presented by the engineering firm to a joint staff meeting of the MWCC and the MPCA. The meeting was open to the public and there were members of the local press in attendance. The next day, December 17, local newspapers provided residents of the metropolitan area with their first information of any kind about the demonstration project and the siting process. Local reaction to the project and the process was uniformly negative, and this was especially true in areas in the vicinity of the proposed sites. Local residents and officials were outraged that they had not been contacted prior to the release of this information to the press and that such a dangerous facility should be located in their vicinity.

The public participation program for the siting process did not begin until late 1976. A public relations consultant had been hired by the MPCA in early December, 1976. However, the consultant withdrew from the project shortly after the unexpected press release. A slide show and brochure explaining Minnesota's hazardous wastes program and the siting process were developed by MPCA, but these were not released until September, 1977.

In January, 1977, in reaction to severe criticism in the press and from local officials, the MPCA held three public meetings in the vicinity of the four candidate sites. These meetings served only to allow local residents to express their opposition to the proposed sites, and did not succeed in ameliorating public opposition. In addition, the Carver County Board passed a resolution opposing siting a chemical waste landfill on prime farmland and criticizing the siting process, and the Scott County Board passed a resolution opposing siting the landfill in their county. Furthermore, the Metropolitan Council¹ and the Metropolitan Inter-County Council² demanded greater involvement in the project and in the reevaluation of the site selection process.

¹ The Metropolitan Council is the regional planning agency for the Minneapolis-St. Paul metropolitan area.

² The Metropolitan Inter-County Council is comprised of the commissioners of the seven counties which make up the Minneapolis-St. Paul metropolitan area.

In early February, the MWCC announced that it had decided to postpone indefinitely its planned inspections of the four candidate sites until the counties and the Metropolitan Council were able to review the site selection process and recommend new criteria. Officials of the three counties concerned had told the MWCC that attempts to gain access to the sites would be met by landowner resistance.

The main objections to the initial criteria were: 1) they did not take cognizance of Metropolitan Council development policies; 2) they did not necessarily take into account local land use plans; and 3) not enough emphasis was placed upon siting the facility away from commercial agricultural areas.¹ There was also strong objection to the lack of public and local official input to the siting process. Development of agricultural land is a particularly strong political issue in rural areas of Minnesota, especially development which is perceived as being largely for the benefit of urban residents.

A second site selection process was developed to take into account issues raised in previous public hearings and the development policies of the Metropolitan Council. In response to an MWCC request, the staff of the Metropolitan Council prepared a memorandum outlining a site selection procedure based on their policies.

During March and April, 1977, public meetings were held in each of the seven counties to gather local public input on siting process and criteria. Using these suggestions, a new set of criteria was developed with which to define the "search areas". These criteria defined areas in which the hazardous wastes landfill could not be located, as follows: 1) floodplain, 2) wetlands, 3) water courses and water bodies, 4) groundwater recharge areas, 5) erodible slopes, 6) commercial agricultural region, 7) land with soil suitable for cropland, 8) regional parks and open space (existing and proposed), 9) existing and authorized state lands, and 10) 1975 metropolitan highway system.

The main difference between the two sets of selection criteria was the extent of their reliance on existing state and regional regulations. In the absence of any state hazardous waste siting regulations, the first set of criteria was based solely on technological and physical considerations. The second set of criteria, developed in response to the critical public and official reaction which greeted sites selected according to the first criteria, took cognizance of state and regional regulations and policies. These regulations and policies included in particular regional and local land use and development plans, rather than hazardous waste regulations per se.

¹ The Metropolitan Council's Development Policies are designed to, among other things, protect the region's rural areas from development pressures. The Commercial Agricultural Region is that part of the Metropolitan Region where development is discouraged.

Potential search areas were identified based on these criteria. However, when local planning constraints were also taken into account, the entire metropolitan area was found to be unsuitable for landfill development.

The criteria were then reviewed to determine if any criteria could be eliminated. Since the groundwater recharge map was not considered accurate, this constraint was removed as a search area criterion, and groundwater recharge applicability was instead evaluated on a site-by-site basis.

In the meantime, at a joint meeting held on February 25, 1977, MWCC board members had blamed the MPCA for the premature announcement of the selected sites. The MPCA had in return faulted the MWCC for not using Metropolitan Council site selection procedures and criteria. Mutual recriminations continued throughout the life of the project.

In early May, 1977, the MPCA staff asked its board to approve transfer of total project responsibility to the MWCC. However, the MWCC board felt strongly that the MPCA should stay on the project. The MPCA board voted to continue administering the project but to hand over public relations responsibilities to the MWCC. At the same time, a joint ad hoc committee was set up, comprised of three members from each of the boards of the MPCA, MWCC and Metropolitan Council. This committee was to mediate between the three agencies and to exercise overall control over the landfill project.

The MWCC assumed responsibility for public education and involvement programs in August, 1977. The demonstration project was publicized with a brochure previously developed by the MPCA, in articles in the MWCC newsletter and in periodic informational letters to elected and administrative officials and other interested persons. A talk and slide show explaining the hazardous waste problem was given throughout the region during September and October, 1977.

During the summer, EPA had announced that it was considering withdrawing its support from the project because of the delays in the site selection process. In September, however, EPA announced that it had decided to continue supporting the landfill project. In agreeing to continue the funding, U.S. EPA required the MPCA and MWCC to follow a firm timetable --three or more sites were to be identified by December 15, 1977; the final site proposed by April, 1978; and operations begun by October, 1978.

Based on the revised set of criteria, six new search areas were identified by early October, 1977. Two of these, the Chanhassen/Eden Prairie and Pine Bend/Cottage Grove search areas, were supposedly recommended because an industrially oriented area would constitute a more compatible land use rather than a rural, less populated area.

However, the major factor in their selection was that they were the only areas outside the Commercial Agricultural Region.¹ Public and media reaction to this attempt to find a site was no less favorable than to the previous one. For example, a newspaper article about the selection of the six search areas was headlined "Landfill Site for Poisons Sought." Major factors underlying the opposition included the perception by rural parts of the metropolitan area that their land was being used as a dumping ground for wastes generated in urban areas; the belief that since this was a "federal demonstration project" it would be experimental and would have to accept wastes from all over the country; and the fact that siting criteria had been changed midway through the project. Other issues which were raised included the lack of provisions for compensation for loss of tax revenues and for services demanded by the facility; and the fact that the state had only a general idea of the quantities and types of wastes produced in the region.

On November 10, 1977 it was announced that the search areas had been narrowed down to two--Chanhassen/Eden Prairie and Pine Bend/Cottage Grove, which had been recommended in the previous report. Three public hearings were held in these areas. Again, reaction from the public and local officials was uniformly unfavorable. They continued to express the same concerns. At the Cottage Grove meeting on November 15, approximately 1,900 people came to voice opposition to any site in their vicinity. The strong public reaction again prompted officials to consider further delay in siting the landfill. The ad hoc committee decided to seek the advice of the state legislature. It was recognized that this further delay might have prompted U.S. EPA to pull out of the project.

A meeting of the ad hoc committee with a committee of state legislators, held on December 21, succeeded in gaining the support of urban legislators--whose constituents included hazardous waste generators--but not of rural legislators in whose districts the facility might be sited. The legislative committee as a whole advised the ad hoc committee to continue the search for a site. The ad hoc committee decided to delay the choice of the final group of sites past the December 15 deadline. The final four candidate sites were announced on January 19, 1978. These were located in the towns of Rosemount, Roseport, Cottage Grove, and Eden Prairie. On February 13, 1978 the ad hoc committee, members of the staffs of MPCA, MWCC and the Metropolitan Council, consultants, members of the news media and other interested persons were taken on a bus tour of these sites. They were met by protesters at each site.

¹ The Metropolitan Council's Development Policies are designed to, among other things, protect the region's rural areas from development pressures. The Commercial Agricultural Region is that part of the Metropolitan Region where development is discouraged. Use of this criterion forced the proposed site to be less than geologically optimal. Preferred geological areas were all located in the Commercial Agricultural Region.

Public meetings were held in each town in late February and early March. Public reaction was again negative, based on the same concerns as before. At the Rosemount meeting, the Director of the Minnesota Geological Survey stated that none of the proposed sites were geologically suitable. The 3M company, which owned the land on which the proposed Cottage Grove site would have been located, threatened to take legal action to prevent the siting if necessary.

The Metropolitan Council decided on March 10, 1978 that all four sites were inadequate, and that the search for a landfill site should not resume until the state adopted regulations for hazardous waste management. Responses cited by the Council in announcing their decision included the inappropriate geological characteristics of the sites, the proximity of all four sites to national parks or wildlife refuges, and the likelihood that urban growth would reach all four in 20 years. The ad hoc committee on siting the landfill agreed to abandon the search on March 13, and on March 28, the staff of the MPCA recommended that the agency terminate the U.S. EPA grant. The U.S. EPA concurred with this action. A final report, Chemical Waste Landfill Facility Plan, which describes in detail the siting process and the proposed facility, was prepared by the consulting engineers and issued in September, 1978.

III. BACKGROUND INFORMATION

No single site was ever decided upon during this project. This section therefore briefly describes the four final candidate sites that were most seriously proposed, and the proposed facility. Although no facility was constructed during the demonstration project, the U.S. EPA grant called for a hazardous waste landfill which was to be designed to handle the following wastes:

o	Cyanide Wastes	13,600 gal/month
o	Acid Wastes	26,400 gal/month
o	Alkaline Wastes	47,600 gal/month
o	Heavy Metal Wastes	31,700 gal/month
o	Miscellaneous and Unidentified ¹	85,000 gal/month

The five-year life of the landfill was stipulated in the grant. Other stipulations of the grant were that the facility not compete with existing chemical waste management operations and that the waste stream be pretested before landfilling.

The area of the proposed site was to be approximately 200 acres. This would have included a landfill area of 90 acres and a 73-acre, 300-foot wide buffer zone. The remaining acreage was to have been used for processing facilities and landfarming of wastes. There would be three

¹ Mostly paint and other sludges.

buildings on the site--for the laboratory and administration, for receiving and storage, and for pretreatment processing. Proposed treatment processes included the following: (1) equalization, (2) neutralization, (3) ozone/ultraviolet process, (4) chemical precipitation and clarification, (5) sulfide process. Provision would also have been made for the treatment of wastes for these processes.

A landfill capacity of 30 acre-feet was estimated to be sufficient for the five-year period of the demonstration grant. The landfill would be underlain by a double liner and a leachate collection system. The capital cost of the facility (1975) was estimated at \$3.75 million; the annual operating, maintenance and capital cost was estimated at \$0.8 million. The facility would have been operated by the Metropolitan Waste Control Commission (MWCC).

Closure and long-term care procedures were not specifically defined, except that they would be in accordance with MPCA and/or EPA regulations. Currently, proposed MPCA regulations would require that as part of the permit procedure the facility owner/operator must provide a plan for closure and long-term care. The latter is not necessary if the state decides to assume liability.

A large number of sites were considered for the facility during the siting attempt. Before the siting attempt was abandoned a final group of four sites had been proposed. These are described in Table 1.

The Minneapolis-St. Paul Metropolitan Region is comprised of seven counties--Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington--and has an area of approximately 3000 square miles. Nearly 45 per cent of the land is in agricultural use, another 20 percent residential and commercial, and the remainder is open space, forest, or water. The population in 1976 was 1,993,245 and the 1980 population is projected to be 2,031,400. The region's industrial base is quite diverse, such that the largest industry employs three percent of the labor force.

IV. CHRONOLOGY OF EVENTS

1974 -- Office of Solid Waste, U.S. EPA, requests proposal to develop a demonstration chemical waste landfill.

June, 1975 -- Grant is awarded to MPCA, which subcontracts with MWCC to perform the work (with the exception of public relations). The MWCC in turn hires an engineering consulting firm to develop siting criteria and select three or four candidate sites.

December, 1976 -- Public relations consultant hired by MPCA.

Table 1

LOCATION AND DESCRIPTION OF THE FINAL FOUR CANDIDATE SITES

COTTAGE GROVE

Eastern portion of Section 27, T.27N, R.21W., north of Chicago, Milwaukee, St. Paul and Pacific R.R., east of Chemolite Road and south of U.S. Highways 10 and 61, Washington County.

- Pros - . Highway access is good.
 . The site is well buffered on three sides.
 . The topography is good for landfill development.
 . Erosion potential is minimal.
 . The site is adjacent to the 3M Chemolite plant and is zoned industrial.
 . There are no homes on site or in the immediate area.
 . The depth to ground water is probably greater than 50 feet.
- Cons - . The area is underlaid by sand and gravel.
 . The site is south of a regional park.
 . The land is classified as good agricultural land by Cottage Grove.
 . Pumping from the 3M Chemolite Plant may affect ground water movement.
 . The southern half of the site is in the Mississippi River Corridor Critical Areas and has been designated a Rural Open Space District.

EDEN PRAIRIE

Southwest 1/4 of Section 28, T.116N., R.22W., north of U.S. Highways 169 and 212, south and west of Flying Cloud Airport, Hennepin County

- Pros - . Highway access is good.
 . Depth to ground water could be over 50 feet.
 . A 120 foot thick clay layer is located approximately 75 feet below the surface.
 . The area is not cultivated.
 . The site is adjacent to the Flying Cloud Airport.
 . The site is well buffered.
 . The property was for sale.
- Cons - . Highway congestion could be a problem.
 . The site is just north of a National Wildlife Area.
 . The site is underlain by sand and gravel.

Table 1 (Continued)

ROSEMOUNT

Eastern portions of Section 19 and western portions of Section 20, T.115N., R.18.W., north of County Road 38 and southwest of Minnesota Highway 55, Dakota County.

- Pros - . Highway access is good.
 . The site is adjacent to the Rosemount Treatment Plant.
 . The topography is good for landfill development.
 . The site is adjacent to the North Star Chemical Company and is partly zoned industrial.
 . The site is not cultivated.
 . The population density in the surroundings area is low.
 . The property is for sale.
- Cons - . The site is underlain by sand and gravel.
 . The ground water flow could be affected by irrigation well pumpage found in the area.
 . The site is one-half mile from Spring Lake Park.
 . The area is planned by Rosemount as a "Neighborhood Center".

ROSEPORT

Western portion of Section 13 and Eastern portion of Section 14, T.115N., R.19.W., east of Rich Valley Blvd., west of the Chicago and North Western R.R., and south of the Rosemount village boundary, Dakota County.

- Pros - . The site is adjacent to Koch Refining.
 . Depth to bedrock is nearly 200 feet.
 . Depth to ground water is probably greater than 50 feet.
 . The residential density is low.
- Cons - . The area is underlain by sand and gravel.
 . The ground water system is probably the most complex of the four sites.
 . The site would be visible to local residents.
 . Three pipelines cross the site.
 . The site is zoned agricultural.
 . There is one house on the site.

Source: Henningson, Durham and Richardson, Chemical Waste Landfill Facility Plan, v.7, p. 433-434

December 16, 1976 -- Four candidate sites are presented to joint staff meeting of MPCA and MWCC. Press is in attendance.

December 17, 1976 -- Newspapers provide region with first news of siting process. Local reaction is uniformly negative.

January, 1977 -- Three public meetings are held in the vicinity of the four candidate sites. These have no positive impact on local reaction.

February, 1977 -- MWCC announces it has decided to postpone indefinitely its planned inspections of the four candidate sites until the counties and the Metropolitan Council review the site selection process and recommend new criteria.

March/April, 1977 -- Public meetings are held in each of the seven counties in the Metropolitan Region to gather local public input to the siting process and criteria.

May, 1977 -- MPCA board approves the transfer of public relations responsibilities to the MWCC. First site selection attempt based on new criteria fails to find any suitable areas in the Metropolitan Area.

June 1, 1977 -- Ad Hoc Committee on the landfill, comprised of three members of the MPCA, MWCC and the Metropolitan Council, hold first meeting. Committee is formed to alleviate management problems due to large number of parties involved in all decisions. First decision is to relax groundwater constraint and try again to find a site.

September 7, 1977 -- U.S. EPA, which had considered withdrawing from the project because of the delays, announces it has decided to continue supporting it. However, U.S. EPA requires the MPCA and MWCC to follow a firm timetable--three or more sites must be identified by December 15; the final site proposed by April, 1978; and operations begun by October, 1978.

October 13, 1977 -- Six new search areas are named.

November 10, 1977 -- Two search areas - Chanhaseen/Eden Prairie and Pine Bend/Cottage Grove - are selected for further study.

November 14, 1977
through
November 17, 1977 -- Three public meetings are held in the two search areas. Public reaction is no less unfavorable -- 1,900 people show up at the meeting in Cottage Grove to oppose any site in that area.

December 1, 1977 -- Ad Hoc Committee votes to postpone selection of candidate sites past U.S. EPA deadline due to public opposition.

December 12, 1977 -- Ad Hoc Committee meets with legislative committee to seek advice; are told to proceed with landfill siting.

January 19, 1978 -- Final four candidate sites are announced.

February 13, 1978 -- Ad Hoc Committee, staff of MPCA, MWCC and Metropolitan Council, consultants, news media, etc., tour four candidate sites, and are met by protesters at each site.

February 20, 1978
through March 6, 1978 -- Public meetings are held in the vicinity of each site. Public response is still very unfavorable. At the Rosemount meeting, the Director of the Minnesota Geological Survey states that none of the proposed sites are geologically suitable.

March 10, 1978 -- The Metropolitan Council decides that all four candidate sites are inadequate, and that the search for sites should not resume until the state adopts plans and regulations for hazardous waste management.

March 13, 1978 -- The Ad Hoc Committee agrees to abandon the search for the site.

March 28, 1978 -- MPCA agrees to terminate U.S. EPA grant, and U.S. EPA concurs.

V. ATTEMPTS TO SECURE SUPPORT

Prior to the appearance of newspaper accounts of the siting process and the four candidate site (December 17, 1976), virtually no attempt had been made to secure support for the proposed facility. The subsequent adverse response from elected officials and the public did result in efforts to secure such support. However, this task was made that much more difficult by the initial adverse publicity. Attempts to secure support included:

- o Public meetings
 - to discuss the first four candidate sites;
 - in each county in the metropolitan area to get public input to the siting process and criteria;

- to discuss the Chanhassen/Eden Prairie and Pine Bend/Cottage Grove search areas;
- to discuss the final four candidate sites
- o Meetings with county environmental officers and representatives of the Metropolitan Inter-County Council to inform them of the second set of site selection criteria.
- o Efforts to involve industries which generate chemical waste in the process.
- o A talk and slide show on the hazardous waste problem in Minnesota and the siting process given throughout the metropolitan area.
- o A brochure explaining the problem and the siting process.
- o Articles in the MWCC newsletter, letters and press releases on the siting process and its progress.
- o A meeting of the ad hoc committee with members of the state legislature succeeded in gaining the support of urban legislators, but not of their rural counterparts.

VI. SUMMARY EVALUATION

It is clear that actions taken by the MPCA and MWCC to regain public support after the initial publicity given the siting effort were not always well-advised. However, it is questionable whether any sequence of actions after this publicity would have succeeded in regaining public confidence in the siting attempt.

Public meetings seem to have had little if any impact on public attitudes toward the sites. Efforts to involve county officials in the development of new site selection criteria were successful, but it was not possible, given the preceding events, to obtain their support for the facility itself. Local industries, mindful of the bad publicity the siting attempt was receiving, were reluctant to become involved. Urban legislators whose constituents included industries which generate chemical wastes and in whose districts the facility was not likely to be sited gave it their support. However, rural legislators, who perceived the facility as being primarily for the benefit of urban residents, and in whose districts it might well have been sited, remained opposed to the facility.

In the opinion of the agencies involved, however, there were other problems inherent in this project. One in particular was that U.S. EPA, MPCA and MWCC each seem to have had different reasons for pursuing the project and therefore different expectations regarding it. The U.S.

EPA's objective in funding this project was to demonstrate site selection, development and operating procedures; and to analyze economic and other social/institutional aspects of hazardous waste management. They therefore imposed a number of constraints on the process which made the siting somewhat more difficult. The MPCA like the EPA was interested in developing regulatory expertise. However, they were largely concerned with state, rather than national problems, and were interested in meeting the statewide need for such a facility. The MWCC wanted a hazardous waste landfill so that they could enforce their pretreatment regulations and clean up the sewers, which were then the primary means of disposal of solid wastes. Therefore, they were primarily interested in the capability of the facility to meet the needs of the metropolitan area.

Finally, the project was hampered because:

- o there were no applicable state regulations;
- o there was no state plan for hazardous wastes management;
- o state and regional agencies had only a very general idea of quantities and types of wastes produced in the region.

Local officials and the public raised a number of other issues and concerns during the siting process. These included:

Need for the facility -- In part because the public information program began so late in the siting process, and in part because this was a "federal demonstration" project, the public was never convinced of the need for the facility.

Site suitability -- Due to the constraints imposed first by U.S. EPA as part of the grant conditions, and then by the Metropolitan Council, the agencies concerned were never able to tell the public that they had chosen the "best" site.

Development of agricultural land -- Use of agricultural land for other purposes has become a political issue in Minnesota, particularly development which is perceived as being largely for the benefit of urban residents (e.g. high-voltage power lines). Rural residents were opposed not only to the facility itself, but also to the industrial development which it might have attracted.

Facility operations and long-term maintenance -- Concerns were frequently expressed over the possibility of environmental pollution either as a result of facility operations or after closure.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

Public opposition to this siting attempt seems to have developed as the result of the following:

- o Underestimation, by all parties involved in the siting attempt, of public concern about chemical wastes and chemical waste disposal sites.
- o The fact that this was a federal demonstration project.
- o The fact that the agencies involved were not expecting public input until their process called for it; and that the initial siting criteria did not recognize the political nature of the siting process.
- o No information was provided to the public about the siting process or proposed sites until the first four candidate sites were "announced" in the local press.
- o Lack of accurate public information. The information "vacuum" led to press accounts which stressed local residents' emotional response, and general acceptance by the public of incorrect information.
- o Siting criteria were no longer perceived as objective when it became apparent that political pressure could change them, and thus the location of the facility.
- o MPCA/MWCC were not experienced in public relations. When public information efforts began, they educated the public primarily about the negative aspect of hazardous wastes.
- o The public was never convinced even of the need for such a facility, and this siting attempt was perceived as an ad hoc effort.
- o U.S. EPA's need for a less than perfect site was never fully explained to the public. The public expected the state to come up with the best possible site. The informed public--a vocal minority--favored geologically suitable sites over those which had to be engineered up to standard and treatment/recovery over landfilling.
- o Perception by rural parts of the metropolitan area that their land was being used as a dumping ground for urban-generated wastes. Urban development of agricultural land is a sensitive political issue in Minnesota, and it was felt that the proposed facility would attract industry.

- o The fact that no provision was made for compensation of local residents for loss of tax revenues and for services demand (e.g. roads, fire protection) by the facility.

VIII. RETROSPECTIVE VIEWS

In retrospect, officials of the 3M Company (on whose land was located one of the four final sites) and the Metropolitan Council cautioned that it would be short sighted to regard the project as an utter failure merely because a site was not found. They felt that one possible result of any siting process, especially when geographical, time and other constraints are imposed, should be that there is no suitable site.

A new, long-term effort to site a hazardous waste management facility is currently underway in Minnesota. In many ways this attempt reflects what the agencies involved in the previous effort -- particularly the MPCA -- feel are the lessons to be learned from the experience. State comments and these revised plans are discussed in the state program report elsewhere in this study.

IX. GENERAL COMMENTS

The agencies involved in the siting process and local officials stressed the need for some sort of compensation for communities in which such facilities are located and a provision of such compensation may be included in the planned siting process. Types of compensation proposed included payments in lieu of taxes, direct payment for services demanded (e.g., roads, fire protection), and fees per unit volume of waste processed.

Without exception, the parties involved in the siting attempt indicated that they think U.S. EPA should confine its involvement in the siting of industrial hazardous waste management facilities to giving technical assistance. It was felt that the states, with or without private industry, are capable of carrying out the other aspects of siting. An official of the MPCA did suggest that the siting process would be made easier if RCRA regulations distinguished different degrees of hazardous waste. In that case, he suggested, there might be a need for a few EPA-managed regional sites for very hazardous waste (and perhaps also "political wastes" such as PCBs).

Both the MPCA and the Metropolitan Council perceived a need for national, regional (multi-state) and state planning before hazardous waste management facilities are sited. The EPA would be involved in planning for national facility needs, but regional and state coordination could be accomplished by the states themselves.

STARR INDUSTRIAL SERVICES

STARR COUNTY, TEXAS

I. INTRODUCTION

Starr Industrial Services, a private disposal company, is currently seeking state approval of a proposed hazardous waste landfill in Starr County, southern Texas. The Texas Water Quality Board denied Starr Industrial's initial permit request primarily on the basis of local public opposition to the facility. After the Texas District Court struck down public opposition as insufficient grounds for permit denial, Starr Industrial resubmitted its application. Starr County has appealed the lower court's decision in an effort to sustain the Board's original ruling against the site. The Board's second decision will be issued pending the appeals court decision, which is expected to be handed down in summer, 1979.

Starr Industrial approached political and business leaders of the community before the permit hearing took place. Company representatives explained the nature of the facility, reasons why the area was selected and employment benefits that would accrue to the community. Although the community leaders were initially open to the proposed hazardous waste facility, unified opposition materialized just before and at the time of the hearing. Opposition focused on possible contamination of the Rio Grande River (the area's major water supply), explosions or fires at the landfill site and political issues such as further degradation of the area and discrimination against Mexican-Americans. Although the state approved the site on technical criteria, local opposition was strong enough to pressure denial of the initial permit request. Despite additional attempts by Starr Industrial to gain local support, opponents working through the county are still hoping to defeat the landfill in an appeal to overturn a lower court ruling in favor of the permit. Because the technical merits of the site are so strong and because Starr Industrial is determined to establish the facility, it appears that the landfill indeed may be developed despite opposition.

II. BACKGROUND INFORMATION

The site for the proposed landfill is a 40-acre parcel rented by Starr Industrial from a local rancher. It is part of a larger 800-acre parcel which the company hopes to develop in stages. Land surrounding the site is undeveloped and is used as grazing land. The closest town is El Sauz (population 85), two miles to the north; Rio Grande City is eight miles to the south. Access to the site is by state highways. The proposed site has ideal geological formations, reportedly found nowhere else in the state. It has soft sedimentary rock with clay minerals extending 800 feet below the surface. Such rocks containing large amounts of clay minerals not only have low permeability but they have the added advantage of being flexible or plastic enough not to be permanently cracked, fissured or faulted by minor deforming forces. Even if

earthquakes, land flexures, compaction and settling, or any other minor deforming force changed the shape of the soft clay-rich sedimentary rock body, its permeability would remain low.

The particular clay at the Starr County site is montmorillonite, which has adsorptive and swelling properties especially favorable for hazardous waste containment. Whenever water and/or many other polar liquids come in contact with montmorillonite, the liquid is attracted to the mineral surfaces, causing the flat plate-like crystals to be separated or pushed apart. Any small amount of pore space originally contained in the rock is reduced by this swelling. The permeability of the soil is thereby further reduced, sometimes to the point of zero permeability.

The proposed landfill is removed from groundwater sources and major wells. Groundwater in the area is only sufficient to support the sparse population and grazing cattle. Rainfall is low (i.e., about 18 inches per year) while the evaporation rate far exceeds precipitation (approximately 102 inches). The area's topography is dominated by gently rolling surfaces sloping from southwest to northeast, away from the Rio Grande River. The grade minimizes water infiltration while avoiding excessive erosion. The site is located outside of the flood-prone area of the Rio Grande and the closest arroyo. There have been no recorded earthquakes in Starr County. Indeed, many geologists consider the county the most seismically stable region in North America.

Starr Industrial proposes to landfill drummed and bulk Class I wastes. According to state waste classifications, Class I includes all commercial and industrial wastes including PCBs. Most of the waste Starr Industrial expects to treat and dispose will come from petrochemical manufacturers and oil drilling operations, primarily in the Houston area.

The proposed disposal method consists of mixing wastes with soil in a 5:1 ratio then burying the waste in cells covered with more of the impervious native clays. Those wastes which might become odiferous, explode or self-ignite when exposed to the atmosphere will be buried in 55-gallon drums. Each drum will be placed in a separate trench with sufficient clay encapsulation to achieve the same 5:1 soil-to-waste ratio if and when the drum corrodes or otherwise releases its contents. Waste oils and oil sludges will be received in a tank from which gravity-separated oils can be reclaimed. Sludges, cleaning/processing water and inorganics will be moved to a slurry tank where they will be blended with oil and buried. Incompatible wastes will be deposited in separate cells. All solvents and volatile hydrocarbons will be tested for compatibility with the clay liner prior to burial.

Rainfall in potentially contaminated areas will be captured within levees and drained to the slurry mix tanks from which it will be landfilled in the manner of bulk liquid wastes. A three-foot high berm and drainage ditch will serve to control surface runoff from the site. Facility design allows all-weather entrance and exit by way of gravel roads. A six-foot fence will surround the site to prevent stray entry

of children, animals, etc. The gate entrance will be supervised and shipping tickets will be received from incoming trucks for recordkeeping purposes. Site supervisors will be responsible for overall safety.

The topography of the area is such that surface waters originating outside the site can easily be controlled by diversion ditches and berms. Drainage will be to an unnamed creek adjacent to the site, thence into Los Almos Creek, thence into the Rio Grande River.

For safety precautions, Starr Industrial proposed six monitoring wells and eight lysimeter wells for monthly pH and total organic carbon content checks. The presence of pH changes or hydrocarbons indicates leachate movement from the filled cells into the surrounding soils. If such leachate movement is detected and determined to constitute a significant threat to the environment, Starr Industrial proposed to either discontinue use of the cell, excavate the cell and move the contents to a second cell or install a wellpoint system for capture and subsequent treatment or disposal by other means. Starr Industrial also proposed periodic on-site testing of wastes, rainfall runoff content, etc., to ensure proper handling and burial.

The proposed landfill has a projected life of three to four years -- the time estimated to reach disposal capacity of 13 million gallons of liquid waste. Upon closure of the facility, Starr Industrial has offered to fertilize, seed and irrigate the site and to return it to a state visually compatible with the surrounding land. The area would be fenced and marked off to prevent unauthorized trespassing and possible site disturbance and/or contamination.

Original impetus for a Starr County landfill came from the Alice Specialty Company which has been involved in hazardous waste handling for a number of years. During this time, the company became concerned with illegal dumping practices of truckers and waste disposal companies. These practices not only damaged the environment but also hurt the ethical trucking companies' competitive position. "Outlaw" firms merely poured wastes indiscriminately or hauled them to illegal sites. This allowed these dealers to charge lower rates for waste removal. Companies like Alice Specialty had to charge more (or at least incurred greater expenses) because of the care they took in handling wastes and in selecting well-managed disposal facilities. Inspired by corporate self-interest and environmental awareness, associates of Alice Specialty created an independent disposal company: Starr Industrial Services. Major stock holdings were retained by the owner of Alice Specialty. The new company's purpose was to establish an environmentally sound landfill for safe hazardous waste disposal.

The city closest to the proposed landfill is Rio Grande City (population 5,720¹), the largest community in Starr County. Starr County occupies

¹ Population estimates from the 1973 Texas Almanac.

a 1,211-square mile area with a total population of 19,600. The population is predominantly low-income Mexican-Americans whose principal source of employment is low-yield farming and ranching. Population density in the area is among the lowest in the state. This is due to the scarcity of water and the very low agricultural productivity of the land. With the exception of Rio Grande city there are only two communities with more than 1,000 people in the County. These are located miles away from the site on the Rio Grande.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

Under Texas law, commercial-industrial waste sites, if not owned and operated by and located within 50 miles of the waste generator, must receive a permit from the Texas Water Quality Board. The law also requires public hearings on such commercial-industrial waste disposal permits. The discharge permit issued by the Board is the only state permit required in developing a commercial landfill. No local permits or approvals are required, because Starr County does not have zoning regulations.

Starr Industrial began its siting efforts in mid-1975 with a costly statewide search for the most technically and demographically appropriate landfill location. Studies were conducted by Starr Industrial's engineering consultants from Houston and a geologist from the University of Texas. The search was guided by siting criteria proposed by the Texas Water Quality Board. The criteria call for a site with impervious soil, little or deep groundwater sources, low rainfall, high evaporation, low population concentration, and low or non-existent flood or earthquake risks. Such a site was found in Starr County.

In late 1975 and early 1976, approximately six months prior to the Starr Industrial Services' application for an industrial waste disposal permit from the Texas Water Quality Board, active steps were taken to explain the facility to local public and private groups. Meetings were held with city, county, Chamber of Commerce, and council of government officials both in the county where the site was to be located and downstream from the site in adjacent counties along the Rio Grande River Valley. The company's consultants presented technical descriptions of the waste facility and the extraordinary environmental suitability of the local area. Although the proposed site would handle wastes from the Houston area, several hundred miles away, Starr Industrial representatives explained that a thorough environmental analysis of environmental criteria had resulted in the selection of the Starr County site. Furthermore, the majority stockholder in Starr Industrial was a waste materials hauler who assured the county safe and reputable transportation services.

During these early meetings discussion centered on the technical operation of the site and the suitability of the physical surroundings. Little mention was made of benefits to the area and its inhabitants from

the operation of the hazardous waste facility. There was little evidence of public opposition at this time. The general attitude of the public, as represented by the local officials, was one of wait and see.

Starr Industrial submitted a permit application for a 40-acre facility to the Texas Water Quality Board in June, 1976. The Starr Industrial permit application was reviewed by the Board's technical staff and a review committee made up of other state agencies. The Board staff conducted an on-site inspection in July. The proposed landfill met with the staff's overall approval on technical acceptability and site suitability. The staff introduced several concerns that were later included as special provisions in the draft permit. These provisions included maintenance of a bond or other financial assurance (not less than \$40,000) for proper and adequate closing of the facility and a \$15,000 trust fund for surveillance, repairs and monitoring during the proposed 36-month closure period. Other provisions referred to specific waste handling and monitoring details. The staff report to the directors of the Texas Water Quality Board suggested that if Starr Industrial adhered to its proposed plan of activities and to the special provisions in the draft permit, no environmental damage would result from the landfill's operation.

The technical staff of the Board indicated that the permit application was one of the best received to date. The credentials of the geologic consultant, a professor of geology from the University of Texas, were considered impeccable. Furthermore, the major stockholder of Starr Industrial, an industrial waste hauler, had a good reputation among state agencies for proposing a manifest system for disposing of hazardous wastes and in helping to make the state aware of haulers who clandestinely dump their hazardous wastes along highways, drainage ditches and other unauthorized places. The result of the Board's technical staff review and the state agencies review committee was a proposed permit which was presented in a public hearing in Starr County in September.

Opposition to the site surfaced after the permit application. There was considerable confusion among local officials and residents over exactly when the opposition was started and by whom. The opposition seems to have been spearheaded by the County Judge and the Court of County Commissioners. (The Judge is the elected executive of the county, serving a four year term along with four district commissioners. The County Court of Commissioners is the executive and administrative head of the county.) The County Judge is one of a very small handful of medical doctors in the area, highly respected by the local inhabitants and by his peers, who in 1977 gave him a nationwide AMA-sponsored Bicentennial Award for public service. His opinions on the matter of hazardous waste are widely respected because of his medical training and because he is one of the few doctors serving the mostly poor Mexican-American community. Regardless of the origin of the opposition, the county commissioners announced opposition to the facility in a letter sent to the Texas Water Quality Board in August.

During the summer, opposition was also voiced by the Chamber of Commerce, Industrial Foundation, Rotary, Kiwanis and a local women's study group. The thrust of the opposition was the emotional issue of hazardous wastes from outside the county being disposed of in their "back yard". Starr County, in the minds of its inhabitants, has the image of being a community of poor, second class citizens that is generally being "dumped-on". Local officials said that this image is reinforced by the bad publicity the county receives over the reputed drug traffic across the Mexican border, and cited a national magazine, which recently rated Rio Grande City as one of its choices for the "ten meanest towns in America." The public hearing record referred to a 1975 EPA report on the "Quality of Life Indicators" which ranked the surrounding area between Laredo and McAllen as having the lowest economic and political qualities of 95 SMSAs under 200,000 in population. Starr County inhabitants have an average per capita income that is approximately one third of the state and national average. The elected officials as well as those trying to increase the economic prosperity of the area saw the introduction of a hazardous waste facility as contributing to this bad image and as a further sign of being "dumped-on". These groups were opposed to the image of a waste dump as well as the inevitable risks in transporting, disposing and final site closure associated with hazardous wastes. They were also opposed to the fact that their county would be used as a dumping site for Houston's wastes. The Chamber of Commerce and Industrial Foundation were eager to have the community's economic base grow in conjunction with the increasing prosperity of their neighbors in Mexico. The hazardous waste site, however, would be inconsistent with these plans.

Opposition from organizations and agencies in Rio Grande City and Starr County was manifest by the end of August. In early September, the Texas Water Quality Board published notices of a public hearing on the permit application. The hearing, a standard part of the Board's permit review process, was scheduled for late September.

Opposition to the proposed landfill expanded. The opposition was not restricted to Starr County. Letters were received in response to the public hearing notice from neighboring counties, towns and citizen organizations that felt threatened by the site and its potential hazard to agriculture in the Rio Grande River Valley and their water supplies. The concerns expressed in these letters were over the impact on drinking water supplies, funding to pay for possible damage, more technical information as to the dangerous mixing of chemical substances, and more information on long-term soil stability. One of the letters, representing several women's groups summed up this opposition: "We are aware that this group (Starr Industrial) is a group of responsible people well-versed in safety procedures for the handling and disposing of the wastes produced by their businesses; but we do not want these wastes transported to, much less disposed of, in Starr County... We know that safety procedures are set up to operate in every instance when they are needed, but we do not want to live with that potential hazard in our

area. Our soil may be impermeable, and the chances of waste products escaping into our underground water may be slight, but we do not want this hazard here, however slim this hazard may be described."

By the time of the public hearing, there were no letters or other documents favoring the site other than the original application for a permit.

The public hearing held in Rio Grande City was attended by 81 opponents, 30 observers, 12 proponents and 10 members of the Board. Starr Industrial alleged that the majority of those attending were local, county, city and school district employees. Of those in favor of the application, all had direct Starr Industrial connections.

Representatives of Starr Industrial presented a technical description of the site and its operation. During the expert testimony of Starr Industrial's consulting geologist it was pointed out that "based on the factors earlier set out regarding geology and rainfall, and based on the fact that other suitable sites are surrounded by more densely populated areas, the proposed site is the best in the State." In connection with a question as to whether the applicant had adequately informed the local citizenry, it was pointed out that of the abutting landowners one was agreeable to selling a right-of-way easement, one wanted to develop a similar facility, one would not sell (but indicated no objection to the facility) and one would sell a piece of property to Starr Industrial. The applicant also testified that several meetings had been held with the Chamber of Commerce and the Rotary Club. Both a citizen and a local geologist pointed out that these limited meetings were inadequate from the point of view of informing the public at large and furthermore, there was still a question as to why this site was chosen over other suitable geologic sites that exist in the state.

Several other witnesses appeared at the hearing, either in a representative or individual capacity, to testify against the site. One adjunct landowner opposed the site proposal based on his fear of fires, explosions and possible spills or migrating wastes which could ruin water wells or kill crops. During the hearing it was pointed out that a flood protection and recreational reservoir in the area of the proposed disposal site had been in the planning stages for some time. Although it was felt that this would be a higher valued use of the land, no specific decisions had been reached, or for that matter were pending, on the construction of the dam.

The County Commissioners made the statement that they should have been made officially aware of the Starr Industrial proposal much earlier in the planning process. In addition the Commissioners stated that they did not believe that this type of industry would encourage other industrial growth which would employ more people in the area, and that there would be present and long-term problems from fires, traffic mishaps or flooding. The commissioners felt that although there was good technical preparation for this hearing and that the applicant was a

reputable businessman, the problem with the proposed site was mainly a "people issue". Since much of the wastes to be disposed of come from the petrochemical industry around Houston they should be disposed of there and not in Starr County, hundreds of miles away.

Following the public hearing opposition to the proposed facility continued to be registered. In October the county commissioners passed a resolution opposing the facility and a state senator from a district adjacent to Starr County stated his opposition. The senator based his opposition on the questionable reliability of data on long-term soil characteristics, the impacts of buried wastes on those soils, inadequate bonding provisions, and the potentially limited liability of Starr Industrial. He was also generally concerned about long-term impacts on agriculture in the area.

In December, a summary of the September public hearing was released by the Board. In that summary, the hearing the Hearing Commissioner found that the proposed site met all the technical and legal requirements of the Texas Water Code, Texas Solid Waste Disposal Act and the rules and procedures of the Texas Water Quality Board. However, the Hearing Commissioner questioned whether, if an applicant wants to use his land in a legal and safe manner and is ready to proceed, the Board should deny such use based on some speculated future use of land and water in the area; and whether the Board should deny the proposal because the wastes proposed for disposal would not be generated in the area but would have to be hauled several hundred miles to the site.

Because of these remaining policy questions, the Hearing Commissioner did not make a recommendation to the Board on the proposed site. However, in an addendum to his report, the Hearing Commissioner pointed out to the Board that the Board had previously denied a permit in a similar situation on the basis that the inhabitants of the county, some of whom lived in the general area of the site, believed that the future development of their county was incompatible with having in their county a major industrial solid waste disposal site, especially one where the wastes were derived from activities remote from the county.

In January, 1977, as a result of the hearing report and the later addendum, the Board denied the permit. The denial was based primarily on their finding that "the adamant local opposition to the application for a proposed industrial solid waste management site (is to the effect that) the granting of a permit would be contrary to the welfare of the people in the area."

In March, 1977 following the Board's denial, Starr Industrial attempted to gain the county commissioners' approval and thus pave the way for a rehearing with the Board. They presented petitions of citizens in favor of the site, more evidence and physical demonstrations of the disposal practices as well as the economic benefits of the site. The benefits would be four jobs on site plus "many" opportunities for entry into the waste hauling business through owner-operated trucks in conjunction with

the site. The County Commissioners again voted a resolution against the proposal.

Starr Industrial then appealed the rejection of their application to the Texas District Court arguing that the permit denial was based not on the facts but on a not-so-similar site in another part of Texas which had received over 6,000 letters opposing it. In January of 1978, the court ruled in favor of Starr Industrial stating that adamant local opposition to the permit application does not constitute a proper legal basis for the Board order denying the permit. There were several other minor technical points regarding the proposed site to which the Board had objected and these were also dismissed by the Court.

The Board dropped out of the case after its findings were overruled. However the County Commissioners have taken up an appeal to the court order. They are still opposed to the site. Several new Commissioners have recently been elected, including a new County Judge. Although the County Judge campaigned on the basis of opposing the site, he has stated that he will keep an open mind on the proposal till shown its risks and benefits. In March 1979, however, the new County Judge flatly refused to reconsider the county's appeal of the court decision. This reaffirmation was prompted by yet another appeal to the county court by Starr Industrial. The retired County Judge has reiterated his position that no benefits can be worth the risks posed by the proposed site. Starr Industrial is continuing its effort to obtain a permit for this site to protect its investments to date as well as to set a precedent for future sites that will otherwise face similar obstacles.

The current procedural and legal status of the proposed hazardous waste facility is in limbo. Having been overruled by the State District Court in its denial of a permit on the basis of adverse public opinion, the Texas Water Quality Board has withdrawn from the case. Presumably the Board can now issue the permit, although it has chosen not to act at this time pending the County's appeal to the court ruling. The County Commissioners have taken up the appeal to the Judge's ruling hoping to reinstate the Board's original denial of the permit. Starr Industrial on the other hand is planning to oppose the county commissioners in an attempt to defend against the upcoming appeal and thus have the permit granted. Starr Industrial is also trying to persuade the County Commissioners, outside of court, from proceeding on the appeal and let the Judge's ruling stand.

The court's decision on the county commissioners' appeal which had been expected in February, 1979 was later postponed until the summer of 1979. Thus the earliest conceivable date for granting Starr Industrial a permit would also be summer, 1979, approximately four years after it began the siting process.

IV. CHRONOLOGY OF EVENTS

- 1975 -- Starr Industrial Services is founded and the statewide search for a technically and demographically appropriate hazardous waste landfill site is begun.
- Winter, 1975 -- Starr Industrial meets with public officials and businessmen from towns downstream from Rio Grande City to discuss the proposed facility.
- February, 1976 -- Starr Industrial makes a presentation describing the proposed facility to the Rio Grande City Chamber of Commerce.
- June, 1976 -- Starr Industrial files an application for a permit for an industrial waste landfill with the Texas Water Quality Board.
- August, 1976 -- The Texas Water Quality Board receives letters from the Starr County Judge, County Commisisoners and the Rio Grande City Chamber of Commerce stating their oppositon to the propsed facility.
- September, 1976 -- Board receives letters from downstream city and county leaders opposing the facility. Board holds public hearing on permit application in Rio Grande City. Local residents without exception express opposition to the facility.
- October, 1976 -- Starr County commissioners pass a resolution opposing the facility. State senator opposes facility.
- December, 1976 -- Hearing Commission's report is published. Starr Industrial becomes aware that decision on permit may be made on other than technical grounds; unsuccessfully attempts to gather political support.
- January, 1977 -- The Texas Water Quality Board denies the permit.
- March, 1977 -- Starr Industrial attempts to get support of the Starr County commissioners for a rehearing. When this fails, they initiate legal action against the Board.
- January, 1978 -- Court rules in favor of Starr Industrial, stating that adamant local opposition to the permit applications does not constitute a proper legal basis for denying the permit. The Board drops out of the case. However, the Starr County commissioners appeal the court order.
- Summer, 1979 -- Expected date of appeals court ruling on the Starr County appeal.

V. ATTEMPTS TO SECURE SUPPORT

The only attempts to secure support for the Starr Industrial facility were made by the Company and its consultants and the technical staff of the Texas Water Quality Board. These include the following:

- o The Company held meetings with local elected officials and community leaders prior to submitting their permit application to the state. At these meetings the unique environmental suitability of the site was presented as well as the technical operations of the facility. Attempts were also made to indicate the potential employment opportunities connected with the site.
- o Following the Texas Water Quality Board's denial of a permit, Starr Industrial again sought the support of local elected officials with additional technical presentations and demonstrations in the hopes of getting a rehearing with the Board.
- o Support from the Board staff was primarily in terms of their favorable technical review of the permit application.

VI. SUMMARY EVALUATION

Attempts to secure support have been successful on some points but overall have failed to secure any significant support from local leaders for the proposed facility. At least some opponents have acknowledged that Starr Industrial is a responsible and reputable company. Moreover, some major technical aspects of the proposal have not been disputed. Yet, opposition to the facility has not waned.

Starr Industrial expects that their permit application will ultimately be approved. They feel that they have a technically, financially and legally superior proposal. Furthermore, they believe that something has to give in the growing dilemma between waste disposal siting and citizen opposition. They feel that the constantly increasing amounts of industrial wastes generated and the need for a reputable and responsible hazardous waste operator will tip the scales in their favor. Furthermore, Starr Industrial feels that hazardous waste disposal is a good business and worth waiting for. They pointed out that many waste-generating industries in the Houston area are warehousing their wastes until such time as disposal provisions can be made.

The County Commissioners, on the other hand, have indicated their willingness to continue the fight against the proposed site. They see environmental and public risks as well as the continuing deterioration of the county's image if the site is developed. They also fail to see any real benefits to the community. The Chamber of Commerce, the leading organization looking out for the business interests of Rio Grande City, is backing the Commissioners in this fight.

The conflict over the proposed Starr Industrial hazardous waste site is not yet over. The final court appeal has yet to be heard and the final decision by the Texas Water Quality Board as to the permit has yet to be handed down. However, to date very little has been done to resolve local conflicts, especially those over technical misunderstandings, the lack of community benefits to offset risks, and the risk to the community's self image posed by the hazardous waste site. Both Starr Industrial and the state's technical staff tried to let the proposed site sell itself to the local officials and Texas Water Quality Board on the basis of its technical merit. Very little was done to deal with the intense local political pressure that developed over dumping Houston's hazardous wastes in Starr County.

There were no mediation efforts by respected neutrals on the scene. It appears as though the protagonists for the site, members of Starr Industrial, and antagonists, the county commissioners and business leaders, are at a stalemate with no indication of possible compromise. Furthermore, the stalemate can probably be broken only by direct order of the courts or an entirely new approach by Starr Industrial to provide Starr County with data about direct or indirect benefits to offset the negative image and minor risks of the site.

There are four broad areas of conflict over the proposed siting of the Starr Industrial Services hazardous waste site. First, there is the inevitable controversy over technical issues with "expert" witnesses on either side of the question. Second, there is concern over appearances and the self-image of the county, the disposal site and the operator. Third, there is the question of whether the site would provide sufficient local benefits to offset the risks. Fourth, there is confusion over the legal standing of public opposition in the denial of a permit. Highlights of each of these areas of conflict are listed below:

Technical -- Site selection appears to have been carried out in a thorough and straightforward manner. The site met all of the environmental and safety criteria established by the Texas Water Quality Board. However, in spite of scientific evidence presented by Starr Industrial and the Board, expert witnesses for the county have questioned the environmental and public safety of the site.

Local Image -- County elected officials and businessmen believe that the proposed facility would have a negative impact on the area's image. These spokesmen describe the community as the unwilling recipient of Houston's industrial wastes. Starr Industrial, on the other hand, sees the waste disposal facility as a good business opportunity for both themselves and community residents.

Benefits vs. Risks -- Local residents feel that the risks associated with the facility far outweigh any benefits. In fact, very few benefits would be provided by the facility. Technical evidence was presented which verified the environmental and public safety of the site. However, the public seems to be demanding that the site be built only if there is absolutely no risk, a condition which cannot be met.

Legal Status of Local Opposition -- Opponents claim that the proposed facility is not in the interest of local residents and that this is a legally valid ground for denying Starr Industrial's permit. The Texas Water Quality Board, in denying the permit, clearly gave substantial consideration to this contention. The court just as clearly found this arbitrary and capricious. The current appeal of the court's decision hinges in substantial part on this issue.

VII. FACTORS LEADING TO PUBLIC OPPOSITION

The following were the major factors leading to the continuing opposition.

- o Initial information on the proposal provided by Starr Industrial to public and private agencies.
- o Expert witnesses with conflicting testimony on both sides of the issues.
- o Abundant technical misinformation on site characteristics and facility operations.
- o Inability on the part of the company to convince locals of site benefits to offset risks.
- o Image of a hazardous waste site unnecessarily contributed to an already poor community self-image held by local business leaders.
- o Administrative misinformation on correspondence dates, origin of petition lists, and meeting attendees added to confusion and site opposition.
- o Short-term permit required by the state for the first of many proposed tracts contributed to site operators' hit-and-run image.

VIII. RETROSPECTIVE VIEWS

The major participants in the Starr Industrial proposal to site a hazardous waste management facility were asked what if anything they would do differently if given the chance. The local business leaders and local elected officials said that their opposition has been steadfast throughout the conflict. They see no way of having conducted their opposition differently within the confines of their authority over siting issues.

The position of the technical staff of the Texas Water Quality Board is similar to that of the local officials. They have steadfastly approved the site on technical considerations but had no authority to consider the issue of public opposition.

INDUSTRIAL ENVIRONMENTAL SERVICES

KIRKSVILLE, MISSOURI

I. INTRODUCTION

In late February, 1979, Industrial Environmental Services (IES) withdrew a permit application for a hazardous waste disposal site. The withdrawal was made after a particularly long and heated public meeting held in Kirksville. By that action, IES scuttled work to develop the site that had been in progress for over 18 months.

Opposition arose from many major groups within the area and was based on a broad range of issues. County officials, faculty and students at Northeastern Missouri State University (NMSU), state elected officials, and abutters were among those that expressed outright opposition or major concerns about the proposed facility. These concerns covered the site, its design, and facility operations as well as the credibility of Missouri's Department of Natural Resources (DNR), which regulates hazardous waste management and the hazardous waste management industry.

IES and, to a lesser extent, DNR attempted to generate support and to allay public concerns by providing more information to the community. While these attempts did address some concerns, they did not produce any significant change in the public response. On the contrary, most of those interviewed, on both sides of the dispute, felt that these attempts only increased problems with public opposition.

II. BACKGROUND INFORMATION

The IES proposed site was about three miles north of Kirksville, Missouri just off U.S. 63. The total land area under IES control was 682 acres, of which 33 acres were designed for a municipal landfill and 192 acres were designed as a secure landfill for hazardous waste. The secure landfill was bounded on some or all of three sides by a one-half mile strip of undeveloped land owned by IES's president or by the municipal landfill. Surrounding land use is primarily agricultural. The soil directly underlying the site is Kansas till which IES bores indicated was over 150 feet thick. Tests showed the till's permeability to be in the 10^{-8} 10^{-9} cm/sec range. The Missouri Geologic Survey indicated no usable groundwater within Adair County, although the possibility of small perched aquifers beneath the site existed. IES's consulting engineers concluded that the site was "well suited for its proposed use" and any anomalies at the site could be corrected by engineering.

The facility plan called for a three-stage development. In the first phase, 20 disposal trenches would be developed with a net capacity of 24 million cubic feet and a projected life of approximately six years.

A service road, a 2,640-square foot building, and holding lagoons would also be constructed. The building would include laboratory facilities for spot checks of incoming wastes. Eight monitoring wells would also be installed. The entire area would be fenced. The second phase would involve the development of an additional 13 trenches and four monitoring wells. This would extend site life by six to seven years. In the third phase an additional 11 trenches and five monitoring wells would be developed and site life would increase by about five years. Total site life was estimated at 18 to 20 years and total capacity at 2.5 million cubic yards of hazardous waste. The development plan stated that post-closure monitoring and maintenance would be done "in accordance with governing rules and regulations."

Personnel for the site included a site manager, a chemist responsible for on-site analysis of wastes, and a minimum of five additional staff for site operations and administration. A consulting engineer would be retained. On-site records would include generator and hauler descriptions of wastes accepted, receipt logs, and locations of wastes buried on-site.

IES, the facility sponsor, was incorporated for the specific purpose of developing this facility and as a corporation has had no other experience in hazardous waste management. IES is an independent corporation not connected with other firms. IES's president, however, owns and operates Missouri Dispose-All, a solid waste collection and hauling company in Kirksville, and had formerly operated a sanitary landfill in the Kirksville area. IES intended in addition to offering disposal services to act as a broker for hazardous wastes which could be reclaimed or recycled, to haul hazardous waste, and to develop in the future some treatment capacity on-site. The anticipated market area for the site was Northeastern Missouri, the St. Louis area, and possibly the Kansas City area.

The city of Kirksville has a current estimated population of 19,000, and serves as a trade center for a multi-county area in Northeastern Missouri. Kirksville is about 220 miles north of St. Louis and 165 miles northeast of Kansas City. The area is predominantly agricultural, although several industries in Kirksville employ almost 2,000 persons. Kirksville is the home of NMSU and the Kirksville College of Osteopathic Medicine. Because of the presence of these institutions, and because of the town's role as a regional service center, the city has a disproportionately high number of professional and technical workers.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

In the state of Missouri, a HWMF requires a permit from DNR before it may operate. Under the 1973 Solid Waste Management Law, a HWMF must be issued a special operating permit which is based on case-by-case negotiations between DNR and applicants. As of March 1979, new hazardous waste regulations were in draft form and final promulgation

was scheduled for October, 1979. DNR's regulations and authority do not overrule local zoning. Adair County, however, has no zoning. Thus, IES required only the DNR permit to operate.

Two major incentives gave rise to this project: first, IES had determined that a market existed for a HWMF in the Kirksville area; second, the development of a municipal landfill at the site would complement Missouri Dispose-All's collections and hauling business and reduce problems related to the city-owned municipal landfill. While these facilities would be two distinct operations, revenues from the HWMF were expected to subsidize the operation of the municipal landfill. Without the HWMF, IES's president felt that the sanitary landfill would not be economically feasible.

Planning for the project began in July, 1977. The first ten months were spent in selecting the site, acquiring options on the site, and seeking preliminary approval of DNR. The site was selected on the basis of accessibility to U.S. 63, proximity to Kirksville, and the geology of the level. Other sites were not considered. By May, 1978, options had been acquired on the 682-acre site. At that time, IES applied to DNR for preliminary approval of the site.

Preliminary approval entailed an initial site investigation by DNR. Using secondary materials and some field work (e.g. test bores) DNR staff analyzed the site's geology and accessibility. These analyses indicated no geological conditions which would exclude further consideration of the site as either a solid or hazardous waste disposal facility. With preliminary approval given in August 1978, DNR indicated that IES must make a formal application complete with a detailed engineering plan.

In June 1978, in anticipation of DNR's preliminary approval, IES retained Environmental Engineering, Inc., to prepare the detailed engineering plan. Environmental Engineering had previous experience in both solid and hazardous waste engineering including the engineering design of the Earthline facility in Wilsonville, Illinois.¹ Field work began that same month with additional test bores at the site. Work continued through the fall and by December the permit application was ready for submission. On December 12, 1978, the permit application was made and a four-part engineering report (development plan, operating plan, geology and hydrology, and municipal landfill plan) with appendices was submitted. DNR received that application and requested additional data which Environmental Engineering forwarded to DNR on January 22, 1979.

In December 1978, IES approached the city of Kirksville to discuss the proposed facility. IES and the city focused on the proposed municipal

¹ See the case study for Earthline/Wilsonville, Illinois elsewhere in this appendix.

landfill. Relatively little attention was given to the HWMF although IES told the city that revenues from the HWMF were needed in order to make the municipal landfill economically feasible. The city was quite receptive to the proposed municipal landfill. The city manager explained that although the city-owned landfill could be expanded at its current site, the city would be happy to get out of the landfill business. The landfill, which serves a multi-county area, is a costly operation to the city and a continuing source of management problems including problems with meeting DNR regulations. An IES municipal landfill would receive a majority of the city's refuse, thus reducing the need for and justification of the city-owned facility. The proposed IES facility would have been a major benefit to the city. IES asked city officials to hold these discussions in confidence until DNR's public notice was issued. The city agreed to this request; however, some local leaders had already learned of the proposed municipal landfill through informal channels.

On January 3, 1979, DNR publicly announced that the permit application had been received, and invited citizens to comment on the proposed facility. Comments were to be accepted until January 26. The notification listed wastes which would be accepted at the "industrial waste disposal site" as "wastewater treatment plant sludges, industrial sludges, industrial liquids and other potentially hazardous wastes". The announcement briefly described existing state regulations and the fact that DNR approval was required for each type of industrial waste accepted by the HWMF. It also stated that if requested or considered necessary, DNR would hold a public meeting in Kirksville before making a final decision on the permit.

DNR's announcement was the first public knowledge of the proposed facility, and it generated an immediate response from area residents. In January, DNR received eight letters of concern and opposition, many from owners of land near the proposed site. On January 25, DNR responded to those individuals and announced that a meeting would be held February 22 at NMSU. The meeting would allow for public comment, and representatives of DNR, the applicant, and the applicant's engineer would be present to answer questions about state regulations, facility design and facility operations. The letter also stated that DNR had investigated concerns that disposal operations had already begun at the site. No operations had in fact begun. DNR publicly announced the meeting on February 3.

DNR's public announcements touched off a general, increasingly heated discussion of the proposal in the Kirksville area. The first major public forum was a local radio station's morning "talk show" which asked listeners to phone in with comments and concerns. The proposed site sparked heated discussions. People spoke of their concerns and fears, and solicited the support of others to fight the site. According to some of those interviewed, information disseminated by the show inflamed area residents, particularly the possibility of nuclear and radioactive wastes being accepted by the facility. During one show, a resident

suggested that a petition against the facility be circulated, and volunteered to be responsible for the petition. By the time of the public meeting (about one month later), over 3,000 signatures had been collected.

In early February, the pace of events quickened and opposition began to solidify. Within a week of the announcement of the public meeting, the Adair County Court (i.e., the elected officials of the county) passed a resolution formally opposing the HWMF, although the court did indicate its support for the municipal landfill. Faculty and students at NMSU began to review the permit application and other materials pertaining to hazardous waste disposal. (Because of public pressure, DNR made a copy of the permit application available to the public at its Macon office, about 35 miles south of Kirksville. When interviewed, some local residents charged that the application could not in fact be photocopied, and that only handwritten notes could be made of its contents.) Research by opponents included discussions with farmers familiar with the area's land and older residents who had worked in shaft mines in the county in the 1930s. Two county-level special purpose government agencies in the area--a water district and a soil conservation service--went on record against the facility primarily because of fears of water supply and soil contamination from leachate. The city of Kirksville never took a formal position, although like the county court, it supported the proposed municipal landfill.

On February 13, the Community Betterment Council held a meeting at the city hall to present issues surrounding the proposed facility. The council is one of a number of such councils set up across Missouri. Its city-appointed members review a broad range of community concerns, seek to inform the public of these issues and advise elected officials. In pursuit of its goal of public education, the council invited IES's president and a representative of the opposition to speak at the meeting. At the meeting, IES's president acknowledged the public concerns that had been raised and stated that residents should be concerned because of the nature of wastes to be handled. He also stated that he felt community support was necessary for the project and that without such support he would not pursue his plans. He qualified his statement by saying that he did not want to give up the project because of emotional objections which were not based on substantive issues. At the meeting he explained the project and its safeguards, state regulations including the required DNR approval for each hazardous waste accepted, his intention to serve the northeastern Missouri market, and another IES project. (That project is a planned waste-to-energy facility that would produce steam for a local customer.) The project opponent expressed concerns about the facility including the fear that buried drums would leak and potentially threaten water supplies.

After this meeting, a local radio station invited IES's president and two NMSU professors opposed to the facility to speak on a local radio program. All three accepted the invitation and discussed the project and responded to listeners' questions phoned in during the show. The

meeting and the radio show were the two major opportunities for IES and opponents to discuss and debate issues prior to the public meeting. While those interviewed felt that these discussions led to some positive response (e.g., the option of illegal dumping was raised in general support of the IES proposal), the general consensus was that the more people heard, the more they objected. As more information became available, more questions were asked and more information was requested. Information made available was considered too vague, too incomplete, and un reassuring.

On February 18, the Kirksville Daily Express, in continuing its coverage of the proposed site, ran an article entitled "Proposed Waste Disposal Site Becomes Heated Controversy." The article served to describe the sense of the community prior to the public meeting. The manager of the local Chamber of Commerce indicated initial support for the project as a local business. During the site visit the manager explained that the position reflected the Chamber of Commerce's general support for local business development. He did indicate that the statement was made conditioned on an assessment of the environmental impact of the facility and that the Chamber had taken no formal position on the matter. Most local and state elected officials, while expressing concern over environmental impacts, adopted a "wait and see" posture which deferred to the public response at the upcoming public meeting. The presiding county judge (i.e., the most senior county elected official) was concerned over the lack of letters the county judges had received. The judges wanted documentation of residents' feelings about the facility and had received only five letters by that time. The article mentioned that the presiding county judge had contacted state elected officials to determine what legal resource citizens could use to stop the site.

On February 22, DNR held the public meeting at the NMSU student union. DNR officials from the solid waste program, a state geologist, IES's president, and representatives of IES's consulting engineers attended, as did a representative of EPA's Region VII office. (EPA had no official involvement in the permit or the meeting and was present as an observer at the invitation of the area's state representative.) Also in attendance was a standing-room-only crowd of several hundred local residents and officials.

The public meeting provided the most visible evidence of public opposition. Given IES's publicly professed desire for local support, the meeting marked the facility's demise. DNR officials explained both the permit application procedures and the technical qualifications of the site. The state geologist explained that any new geological data presented at the meeting would be considered before a final decision was made. The public response involved four hours of prepared statements followed by several more hours of "questions and answers."

It would appear that every issue of concern to local residents was raised and that these covered every conceivable issue that could be raised. They ranged from those questioning the legitimacy of the site's

geology to those attacking the integrity of DNR and IES. Opponents pointed to experiences at an area mine and a quarry which suggested the existence of substantial underground water supplies. The permeability of soils was questioned based on the area's history of leaky ponds. NMSU faculty members criticized the permit application for being incomplete, vague and too open-ended, particularly in terms of wastes (i.e., application listed in effect all organic and inorganic materials as being acceptable). Because many opponents felt that DNR had endorsed the IES application even though no formal DNR decision had been made, the very vagueness of the application was considered a clear sign of DNR's inability to understand hazardous waste management and the implications of this particular proposal. (During the site visit, an official of the Community Betterment Council indicated that DNR had a tarnished record with some local leaders who felt DNR had not been an effective environmental agency. She indicated that this perception compounded DNR's credibility problems during this siting attempt.) Local officials charged that wastes would leach into public water supplies and demanded 100 percent assurance that this would not happen. They felt that the monitoring provisions proposed for the facility were inadequate. Added to these and other technical concerns were fears of property devaluation and the notoriety of being known as the "dumping ground" of the Midwest. Opponents' reviews of the permit application led to the belief that nothing would prevent out-of-state wastes from being brought in. They felt the site's large capacity would guarantee a multi-state market area. Comments were not confined to technical, political, or economic issues but also personally attacked IES's president and state officials.

While those interviewed differed dramatically in their views on how well the meeting was handled by DNR, all agreed that the meeting produced a fierce and emotional opposition to the project. The response was heightened by a sense of powerlessness on the part of local officials and residents. They felt, according to some of those interviewed, that DNR would make a decision regardless of local response and "ram it down the throats" of local residents. Over 3,000 of those residents had signed a petition against the facility, and by the time of the public meeting 215 local residents had written the county judges opposing the facility. At one point a vote was taken, and virtually all opposed the facility. None supported it. During the meeting, DNR announced that it would accept public comment on the permit application until March 6.

The day following the public meetings, IES announced that the application would be withdrawn. The opposition at the public meeting convinced IES's president that there was no public support. He also announced that the land for the proposed site would be sold. During the site visit IES's president said that if DNR had approved the application, public opposition would have probably continued and increased. He would have anticipated legal action to close the facility and ongoing harassment by opponents.

The withdrawal of IES's application stopped the siting process. DNR took no further action. Several public and private agencies (e.g., the city and Chamber of Commerce) which had not taken a formal position for or against the facility were relieved of the need to do so.

Representatives of those agencies, however, felt that they almost certainly would have passed resolutions against the proposed facility. One long-term impact of this experience may be countywide zoning which the county judges are considering as a means of increasing local control over development in the county.

IV. CHRONOLOGY OF EVENTS

July, 1977 -- IES begins facility planning and site acquisition procedures.

May, 1978 -- Options acquired on site; IES seeks preliminary approval for facility from DNR.

June, 1978 -- Field work by IES's consulting engineers begins.

August, 1978 -- DNR gives preliminary approval and go-ahead for formal application.

December, 1978 -- IES submits formal permit application with detailed engineering plan. IES discusses facility with city officials.

January, 1979 -- DNR announces receipt of permit application and public comment period and receives additional engineering data for application. Opposition voiced during local radio talk show and by some local officials.

February, 1979 -- The attempts to discuss publicly the issues for and against the facility add to the already growing opposition. DNR holds public meeting, in which overwhelming public opposition is displayed. IES withdraws permit application. The siting attempt is stopped.

V. ATTEMPTS TO SECURE SUPPORT

The following are the major attempts to secure support for the proposed facility:

- o IES's discussions with Kirksville city officials stressing the advantages to the city of the proposed municipal landfill and the economic necessity of the HWMF.
- o The Community Betterment Council's meeting, where IES and opponents presented arguments and explanations for and against the facility.
- o The radio talk show debate during which IES argued in favor of the facility and against claims of opponents.
- o DNR's making the permit application available in its regional office following public demands for information.

- o The public meeting at NMSU designed to provide DNR with technical data previously overlooked.

VI. SUMMARY EVALUATION

The attempts to generate support for IES's permit application failed completely. Indeed, the argument can be made that most of these attempts only added to the opposition. The more IES or DNR tried to anticipate concerns or to respond to questions, the more they became mired in the increasingly widespread and vehement opposition. The one major exception to this is the favorable response city and county officials gave to the proposed municipal landfill. The issues surrounding the HWMF, however, overwhelmed any advantages that the municipal landfill may have lent the overall project.

The failure of these efforts is undoubtedly the result of numerous interrelated causes and conditions. A number of these, however, stand out. Opposition began and quickly developed prior to any major attempts by IES or DNR to discuss or explain in detail the proposal and state regulations. Opposition then began on the basis of limited information, and appears to have mushroomed because of unanswered fears. Some accusations (e.g., that nuclear waste would be accepted by IES) were completely unfounded, but nevertheless had the apparent effect of solidifying a deep-rooted opposition. IES and DNR were then in the position of defending (as opposed to explaining) the proposal by the time they responded publicly. Although IES's president went to some lengths to explain the restrictions that DNR would place on the site's design and operation, opponents were not satisfied. They either raised questions unanswered by those regulations or placed different interpretations on them than those made by IES or DNR. The fact that DNR's regulations were pending and that the same was true of U.S. EPA regulations intensified public unease. From the local perspective, information that was made available was belated, unwillingly shared, and most importantly, incomplete. In spite of this information, too many "what if's" remained unanswered.

The public response and attempts to address issues were made in an atmosphere lacking in dialogue and compromise. A reconciliation of divergent viewpoints appears never to have been seriously considered by all the interested parties. Coupled with this was the absence of a trusted and knowledgeable party with no direct interest in the result of the conflict. For the most part, each party was seen as having its own ulterior motive.

A great many issues were raised by opponents. Those described in Section III were not exhaustive as they excluded the most stridently expressed. These emotional objections were not instructive because they did not specifically pertain to the siting and operation of the proposed facility. They did, however, reflect the general hostility that (regardless of justification) people felt toward the facility sponsor

and regulatory agencies. That hostility became a concrete factor in the controversy which characterized the siting process.

The major issues raised by opponents were the following:

Suitability of the site -- Opponents questioned the soil's ability to contain wastes and the claims that there was no significant underground water supply beneath the site. They feared contamination of public and private water supplies and of the soil itself.

Operational risks -- Opponents objected to the range of wastes that IES wanted to handle and to the importation of wastes from outside the northeastern Missouri Region. They feared that containerized wastes would leak from containers and pollute soil and water. They felt that monitoring of the facility was insufficient.

Impact on local image and land values -- Opponents did not want Kirksville to be known as the Midwest's hazardous waste dump and felt that the proposed size of the facility guaranteed this result. They felt land values, particularly those of land adjacent to the site, would fall.

Credibility of the hazardous waste management industry -- The notoriety of Love Canal and the publicity associated with Wilsonville, Illinois, as well as other information, contributed to a local image of the hazardous waste management industry as irresponsible. Locals also saw public information as vague and euphemistic and thus they saw the industry as being secretive and evasive.

Credibility of regulators -- For some residents, DNR was seen as a previously ineffectual agency which would not do its job of regulating IES properly. While not all felt that DNR had a bad track record, many saw DNR's performance with respect to the IES application as inept, and indicative of a staff without sufficient qualifications to judge the applications or the resources to do a thorough job regardless of qualifications. DNR's information was seen as being just as vague and un reassuring as that provided by IES.

Status of regulations and research -- Coupled with the previous issue was the fact that neither DNR or EPA hazardous waste regulations were promulgated. This gave rise to a sense that DNR had no basis for permitting or regulating IES and, for some, a feeling that there would be no controls over the facility. Opponents also questioned the state-of-the-art of hazardous waste disposal technology which they saw as environmentally unsound. Present knowledge about the nature of hazardous waste (e.g., the degree of hazard and length of time specific wastes would be hazardous) was considered uncertain and therefore un reassuring.

Local powerlessness -- The lack of any local regulatory power angered some local officials and residents.

VII. FACTORS LEADING TO PUBLIC OPPOSITION /ACCEPTANCE

Opposition arose primarily because of the following factors, listed in essentially chronological order.

- o DNR's announcement that the application had been made provided the first public information and basis for opposition.
- o A local radio talk show provided a public forum for opponents to discuss their concerns and enlist general support.
- o Early information, some of which was completely incorrect, generated fears before IES or DNR responded publicly.
- o Two forums to "discuss" the proposal increased the amount of information available. This only provided opponents with more issues of potential concern.
- o The strong emotional and political reaction brought together traditional political rivals (e.g. the city, the county, NMSU).
- o To this force, the intellectual and technical credibility of NMSU faculty was added. Some residents felt the respect accorded these professors was the critical factor in the opposition.
- o The public meeting provided an opportunity for opponents to mobilize at once their considerable political and technical resources against the proposal.

VIII. RETROSPECTIVE VIEWS

Comments from those interviewed concerning the siting process were primarily concerned with information made publicly available. Local officials and leaders invariably felt that more information should have been available earlier in the process. This would have helped to reduce concerns that the public was not being fully informed and that sufficient time was not available to study the proposal carefully. Had this been available, some felt that there might have been greater opportunity to discuss the IES proposal in a reasonable non-adversarial manner.

The public meeting was the most dramatic event in the siting process. It was praised by opponents because it allowed all opponents to express their concerns and because it was conducted reasonably well given the highly emotional atmosphere. On the other hand, it was criticized by the city and IES for its lack of a sense of order and reason (i.e., it was felt that the meeting was allowed to get out of control).

Kirksville's city manager felt that the meeting's purpose was never made clear and that the issues to be discussed should have been clarified before public comments were made. The timing of the meeting was also criticized. Opponents felt that not enough time elapsed between the announcement of the meeting and the meeting itself. IES's president felt the meeting should have been held much earlier in the process, at the time of DNR's preliminary approval, so that any information on anomalies of site hydrogeology would have been available prior to developing detailed engineering plans.

IX. GENERAL COMMENTS

Comments also touched on more general siting issues. A number of opponents of the IES proposal felt that if sites served local needs they would be more acceptable to the public. This line of reasoning contemplated more smaller sites and a rationale emphasizing an area's responsibility for solving its own problems. The fact that available land may not be the most suitable land for disposal was seen as a major flaw in current siting procedures. Most interviewees felt that sites should be in extremely remote settings where potential impacts on people would be minimized.

Views differed widely on the question of appropriate roles for EPA, the state, or the private sector in this process. A minority of interviewees (e.g., IES, the Chamber of Commerce) felt that hazardous waste management should remain largely a private business with no increase in governmental involvement. According to this view, the private sector should initiate public relations which "sell" a site by demonstrating safety and potential benefits. More local officials and leaders, however, envisioned greater governmental involvement, particularly for EPA, because hazardous waste is a national problem and because EPA has more expertise than state agencies. In this view, the potential for federal disposal sites and for EPA management of RCRA was stressed.

A major role contemplated for EPA by an NMSU faculty member was to advance the state-of-the-art in hazardous waste management and to publicize these advances. EPA was seen as creating problems by defining hazardous waste problems, but failing to define and/or to demonstrate that there were solutions to those problems (e.g., environmentally safe disposal sites). A number of local leaders felt that further research would reduce problems in several ways: first, by changing manufacturing processes in ways designed to reduce the volume of hazardous wastes; second, by developing new treatment procedures, whereby hazardous wastes could be rendered less hazardous or non-hazardous; third, by defining degree of hazard, whereby EPA could help the general public define risks associated with hazardous waste disposal and thereby better judge new sites such as IES.

State comments focused on the public's perception of DNR's role and the outcome of the siting attempt had IES not withdrawn the permit. A DNR official felt that opponents had wanted DNR to criticize IES during the meeting, whereas DNR saw the meeting as a means of getting public input of a technical nature. Had IES not withdrawn its application, this official speculated that pressure might have been placed on the governor to delay any decision until state regulations were issued.

IT CORPORATION

BRENTWOOD, CALIFORNIA

I. INTRODUCTION

The IT Corporation in 1973 and 1974 attempted to site a hazardous waste management facility near Brentwood, California. The attempt was unsuccessful, due to opposition from the local public and officials and from the Shell Oil Company.

Local opposition to the facility was based on IT Corp.'s image among local residents as an irresponsible and technically inept organization. This image was due to IT Corp.'s operations at a facility in Antioch, California, five miles north of Brentwood. It should be noted that state and EPA Regional officials believe IT Corp. to be one of the best qualified hazardous waste management firms in California. Shell Oil Company's opposition was based on their contention that the proposed facility would have been incompatible with the company's high-pressure gas producing operations. Shell has operations that are within the bounds of the proposed IT Corp. site.

The facility was supported by local industry--in particular by hazardous wastes generators including the Shell Oil Refinery in Martinez--and labor unions. Other than presentations which were made to community organizations, the corporation made no attempt to inform or involve the local public outside of the required public hearing process.

II. BACKGROUND INFORMATION

The IT Corp. "Oil Well" facility, as it came to be known, would have been located on a 160-acre site two and one-half miles west of Brentwood, California. The northeastern half of the site is a plain bisected by Sand Creek; the southwestern half, two parallel ridges and the valley that separates them. In the area proposed for waste disposal use, slopes ranged up to 20 percent. The southwestern part of the property--in which disposal operations would have been located--is underlain by beds of claystone and does not contain any good groundwater supply. The northwestern part of the property is underlain by clayrock bedrock, which is eroded and overlain by alluvial sediments. These alluvial sediments might comprise important groundwater sources in some places,¹ and therefore would not be suitable for hazardous waste disposal. A study conducted for IT Corp. by an engineering consulting firm indicated that the Tertiary Deposits in the southwestern section would meet all Class I requirements of the Regional Water Quality Control Board.

¹ Communication from Professor Irwin Remson of Stanford University to the Contra Costa County Planning Department, March 21, 1974.

The site had been used as low-order grazing land and to grow feed grains, but at the time of the proposal there were no surface uses. However, it contained seven oil and gas wells and was under lease to Shell Oil Company for subsurface oil production; an underground Pacific Gas and Electric natural gas pipeline across the southwest corner of the site; and Contra Costa powerlines across the northeast corner of the site. Although oil wells were located on the adjacent properties to the north and east, the predominant use of these properties was as agricultural land (rowcrops and orchards). Northwest of and contiguous to the site was the Brentwood yard of the Shell Oil Company, which served as the center of that company's small oil-production activity in the area. Adjoining land on the south and west was in its natural grassland state and was sometimes used for grazing.

The site was zoned A-3, Heavy Agricultural, by the Contra Costa County zoning ordinance. The A-3 district restricts uses to agricultural and related activities. Access to the proposed site could be gained from California Route 4 between Brentwood and Antioch. Direct access was along Sand Creek Road. The latter was a minor, two-lane rural road.

Development plans for the proposed Oil Well site included areas for chemical processing, solar evaporation, biodegradation, and trench burial. Initial operations would have included development of the burial and biodegradation areas, a small laboratory and an evaporation pond. Later phases would have included closed reaction tanks with associated equipment, tanks, and covered storage areas. Interconnecting pipes would have made it possible to transfer wastes from one area or process to another. The phasing of site development would have depended upon how rapidly the firm's Antioch site was phased out.

It is estimated that the proposed facility would have handled approximately 30,000 barrels of liquid wastes per month (bbl/mo). Of this, approximately 4000 bbl/mo would have been biodegradable materials; 4500 bbl/mo, oil and water; 15,000 bbl/mo, acid waste solutions; 5000 bbl/mo, waste basic solutions; and 1500 bbl/mo, other materials. The latter would include approximately 100 drums of containerized liquids. The site would not have handled pesticides, radioactive wastes or "political" wastes (i.e., controversial wastes such as PCBs). In addition, Bay Area Air Pollution Control District regulations would have effectively prevented the acceptance of such wastes as solvents, concentrated acids, and light hydrocarbons.

At the time of the siting attempt there were no regulations, state or otherwise, governing closure or long-term maintenance. Currently, however, State Department of Health Services regulations state that the operator is liable for proper closure and long-term maintenance. No specific provision is made for funding liability.

The projected life span of the facility would have been 50 years, plus or minus ten years. The long life of the site is due to the fact that chemical processing, evaporation and biodegradation, which were planned to be the primary methods for dealing with hazardous wastes in this

facility, do not require as much land as conventional landfilling. Only sludges from treatment processes require landfill disposal. Drum burial would have only been a very minor part of operations (about 100 drums per month).

The proposed facility would have served only industries located primarily in Contra Costa County. The county is the heavy industrial center of northern California. Major industries include petrochemicals and primary metals (e.g., steel fabricators). Although employment in these industries has declined over the last two decades,¹ the heavy industrial sector is still among the largest in the county's economy. Most of the industries served would have been located within 20 miles of the proposed facility, and all within the nine-county San Francisco Bay Area.

In addition to its hazardous waste processing and disposal operations, IT Corporation is active in the transportation of solid and liquid products and wastes and in heavy-duty cleaning of industrial tanks and related facilities. IT Environmental, a subsidiary of IT Corporation, operates hazardous waste management facilities in Martinez and Benicia, California (complementary facilities) and a hazardous waste collection and transfer station near San Jose. They are presently attempting to site a hazardous waste management facility near Saugus (in Los Angeles County). As noted above, IT Environmental's hazardous waste operations are thought--by Federal and state officials--to be among the best in the state, both in terms of the relatively sophisticated technology used and the competence with which these activities are undertaken.

The proposed project site was located in the eastern portion of Contra Costa County, in an area whose primary type of land use is agricultural. The surrounding communities of Oakley, Brentwood and Byron were small farm communities with developing residential areas extending into the farmlands. The population of the City of Brentwood in 1975 was only 3,662;² median annual household income was \$9,778 in 1975, as compared to the Contra Costa County median of \$15,026.³ The East County Planning Area in which the facility would have been located contained approximately 40 percent of the County's agricultural land. During recent years however, there has been a reduction in the acreage

¹ One factor underlying this decline has been the difficulty in siting such industries in the county in recent years. For instance, an attempt by Dow Chemical to site a major petrochemical facility near Pittsburgh in Contra Costa County was abandoned after extensive public debate and considerable difficulty in obtaining necessary permits.

² Contra Costa County Planning Department, Contra Costa County - A Profile, October, 1977.

³ Ibid.

devoted to agriculture in the area--farmland has been turned to residential and recreational uses. This trend is continuing.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

In order to develop and operate a hazardous waste management facility in California, at least three permits are needed. These are: 1) land use permit, 2) Regional Water Quality Control Board Waste Discharge Requirements (permit), and 3) Department of Health Services permit. The land use permit, which is issued by the local city or, in unincorporated areas, county planning board, certifies that development and operation of the proposed facility would not conflict with existing land use or land use plans. In practice, it indicates that the facility has local political support. A significant factor in gaining this support is facility compatibility with local land use. This permit is a precondition for the granting of the other two permits. The decision of the local planning board can be appealed to the local board of supervisors.

The Regional Water Quality Control Board Waste Discharge Requirements specify what kinds of wastes the facility may receive and what measures must be taken to prevent groundwater pollution. These requirements are in effect a permit since they will not be issued if the geology and/or hydrology of the site are inappropriate. The Department of Health Services permit is for the most part based on the existence of proper procedures for above-ground handling of chemical wastes. These procedures must include a contingency plan in case of "an accident or accidental discharge."¹

In addition, two other permits are often required, depending on the particular types of storage, processing or disposal of chemical wastes that are proposed. If hazardous wastes are to be disposed of with municipal solid wastes, then the state Solid Waste Management Board must grant a permit for the facility. This permit regulates the disposal of residential and commercial refuse so that nuisances are not created. The power to grant this permit can be granted by the Solid Waste Management Board to local political entities, such as the local city or county government.

If some sort of evaporation, neutralization or incineration process (or any other process which will produce a significant amount of atmosphere emissions) is proposed, a permit will be required from the Regional Air Pollution Control District. Evaporation ponds, for instance, are treated as emission points. Depending on existing air quality in the region, this permit can be very restrictive as to types of processes

¹ California Department of Health Services, Hazardous Waste Regulations, Chapter 2, Article 4, "Hazardous Waste Permit".

and/or wastes accepted. Permits may also be required from agencies such as the Coast Regional Commissions if the proposed site is located in any of the areas which are under their purview.

The proposed IT Corp. facility at Oil Well required a land use permit and permits from the Regional Water Quality Control Board, the Department of Health Services and the Regional Air Pollution Control District. In this case, permits from the state Solid Waste Management Board and the Coast Regional Commission were not required.

In the late 1960's the zoning of property adjacent to IT Corp's Antioch, California facility was changed from heavy industrial to residential despite IT Corp's opposition. Subsequent to this change, housing developments were built fairly close to the facility. Public opposition to the facility began, and increased as residential areas encroached upon the site. In 1970 the Antioch City Manager contacted IT Corp. and requested that they consider moving to another site in order to avoid a conflict with these developments. Public opposition continued to mount with the support of the local media.

During the early 1970's, then, IT Corp. began looking for a new site for a hazardous waste management facility. In June, 1971, they became involved in an unsuccessful attempt to site a facility on a 480-acre parcel of land in Ginochio, California. This proposal -- which involved disposal of municipal as well as industrial wastes -- was ultimately unsuccessful because it became entangled in a long series of hearings and studies about the garbage disposal needs of eastern Contra Costa County.

Renewed attempts to identify a new site to replace the Antioch site were begun in late 1972/early 1973. A number of possible sites in eastern Contra Costa County were evaluated. Parameters in this evaluation included geology, access, site development and zoning, adjacent land use, and distance to markets. Six sites were thus selected for further study.

On April 5, 1973, IT Corp. officials and members of the Contra Costa County Planning Department staff toured these sites. The planning department, in a letter dated April 25, 1973, identified two of these sites as the "least objectionable". One of these two was being held in trust and was not available for development. The other, the "Oil Well" site, was ultimately leased by IT Corp. for the purpose of developing an industrial waste disposal facility. This lease was contingent upon IT's obtaining the necessary permits for this facility. An application for a land use permit for the proposed facility was submitted by IT Corp. to the Contra Costa County Planning Department on October 1, 1973. More than 25 letters from area industry -- including one from the local Shell Oil refinery -- in support of this application were received by the planning department during the next few months.

IT Corp. submitted a preliminary Environmental Impact Report (EIR) on the site to the planning department at the same time as the land use permit application. The planning department decided, however, that in order to obtain an impartial evaluation of the environmental impacts of the proposed facility it would be necessary to hire an outside consulting firm to prepare the full EIR. A consultant was hired by the department in January, 1974. (The consultant's fee was paid by IT Corp.) Also during January, a full-scale geologic investigation and report on the site was completed by a consultant hired by IT; and IT filed for Waste Discharge Requirements with the Regional Water Quality Control Board in Sacramento.

In March 1974, the Regional Water Quality Control Board announced that dumping of Group 1 liquid industrial wastes¹ at the IT Corp. Antioch facility would be prohibited after October 1, 1974. This of course increased the pressure on IT Corp. to find a new site. The Board also issued tentative discharge requirements for the Oil Well site. Final discharge requirements could not be issued until IT Corp. received a land use permit from the county. However, the issuance of tentative requirements was tantamount to the granting of Board approval of the site.

During the Spring of 1974, officials of IT Corp. gave presentations to community associations such as Rotary in the Brentwood area, stressing the need for such facilities and IT's competence in operating them.

The EIR was completed in July, 1974. It identified 21 adverse impacts which it predicted would be associated with the development and operation of the proposed facility. Major possible impacts included the "eventual contamination of the groundwater in Lone Tree Valley and the alluvial plain to the east", odors emanating from evaporation ponds and biodegradation impacts, and "corrosion and crop damage from acidic vapors from evaporation ponds". The EIR also concluded that the operation of the proposed facility "will demand a level of capability in the fire protection service that is probably beyond the resources of the Brentwood (volunteer) Fire Department."

¹ Group 1 wastes are defined to include those wastes which consist of or contain toxic substances. Group 2 wastes consist of or contain chemically or biologically decomposable material which does not include toxic substances or those capable of significantly impairing the quality of useful waters and includes municipal solid waste. Group 3 wastes consist entirely of non-water soluble, nondecomposable inert solids (California State Water Resources Control Board). A Class 1 landfill can accept wastes in Groups 1, 2, and 3, a Class 2 landfill Groups 2 and 3, and so on.

IT Corp. officials subsequently responded to the EIR. They noted that a highly impenetrable layer of material underlay the site and that this layer would severely limit if not eliminate the potential for ground-water pollution; that plans for the site included berms around the storage tank area and the placement of a positive hydraulic barrier around the levees to detect and retain any sub-surface migration of wastes; and that the company would work with the local fire department in developing an adequate system of men and equipment for fire prevention and response.

In late July, the IT Corp. Martinez facility was named by the Bay Area Air Pollution Control District as the source of foul odors which had intermittently plagued northern Contra Costa County. IT Corp. officials were quoted as blaming a mechanical breakdown for the problem. This received extensive coverage in the local media, in particular in the vicinity of the proposed site.

On August 23, 1974, the Planning Commission of the City of Brentwood adopted a resolution opposing the proposed facility. This was the first of many such resolutions adopted by boards, commissions and organizations in the Brentwood-Antioch vicinity. The Brentwood City Council, for instance, passed a resolution declaring its opposition on September 10. The resolutions cited the issues raised by the EIR and preemption of local land use planning as reasons for the opposition.¹

The planning department staff recommended to the planning commission on September 13 that approval of the land use permit would be "premature", and that the application should be deferred until after the East County Review Committee had made its report. This committee, which was made up of local residents and officials, was at that time studying the general land use plan of the eastern part of Contra Costa County. If this option were not pursued, the staff then recommended that the application should be denied.

The first public hearing on the project was held five days later before the Contra Costa County Planning Commission. The purpose of this hearing was to consider both the EIR and IT Corp.'s land use permit application.

Approximately 250 people attended the hearing. Speakers in favor of granting the permit included representatives of local unions and industry. Residents from the Brentwood-Antioch area spoke against granting the permit. The planning commission decided to hold a second public meeting on October 1 to allow for further debate on the issue.

On September 27 the Regional Water Quality Board, in response to the delay in the land use permit application decision, granted IT Corp. a

¹ Although the proposed site was outside the Brentwood city limits, it was within the area covered by Brentwood's proposed general land use plan. The proposed future land use for the site was residential.

90-day delay in the closing of its Antioch facility. However, it also required that that site no longer accept any odor-producing wastes or any acids greater than 15 percent concentration.

The second hearing on October 1 again focused on the EIR and the land use permit. Conflicting testimony was presented by experts for the two sides. The one important change was that the production division of Shell Oil Company, who owned and operated a number of oil and gas wells on the site (see above, Section II), indicated that they might be opposed to such a facility in close proximity to these wells, but that they had not yet made a determination. The EIR hearing was closed at this meeting to give the planning commission staff 60 days to prepare written answers to questions raised about the EIR. The land use permit hearing was continued until December 3 with IT Corp's consent. At the end of this meeting the commission announced the receipt of a letter from another waste disposal firm, requesting delaying the Oil Well decision until a decision had been reached on the Ginocchio site. IT Corp. officials later speculated that the purpose of this request was solely to attempt to defeat their proposal. The request was subsequently denied on the grounds that the Ginocchio site proposal was no longer viable.

The Shell Oil Company announced in late November, 1974, that it would oppose the development of a hazardous waste management facility on the Oil Well site. A Shell official was quoted in the Pittsburgh (California) Post-Dispatch as saying that "a thorough investigation of the Industrial Tank Inc. proposal... has disclosed that it would not be compatible with the high pressure gas producing operations at the Brentwood Field site."

The final hearing on the land use permit application was held on December 3. Again, expert testimony was provided on both sides of the permit application issue. Shell Oil officials testified that a chemical waste dump on the site would hamper their oil and gas drilling operations and that chemicals dumped might corrode Shell wells and lines. Furthermore, they stated that it was their position that Shell had exclusive right to use the land under the terms of its lease. The planning commission then voted to deny the permit. The main reason cited was that the site was technically unsuitable.

Shortly thereafter, on January 2, 1975, the IT Corp. Antioch facility was closed by the Regional Water Quality Control Board. IT Corp. subsequently indicated its intent to appeal the planning commission's decision to the County Board of Supervisors. However, in the face of increasing opposition from local residents and Shell Oil, the firm withdrew its application and cancelled the appeal in May of 1975. IT announced at the same time plans for upgrading and expanding its existing Martinez site.

IV. CHRONOLOGY OF EVENTS

Late 1960's -- Zoning of property adjacent to IT Corp.'s Antioch facility is changed from heavy industrial to residential.

Housing developments are later constructed close to the facility, and public opposition to its continued operation develops.

- 1970 -- Antioch City Manager requests that IT Corp. consider moving its operation to another site.
- June, 1971 -- IT becomes involved in an ultimately unsuccessful attempt to site a facility in Ginochio, California.
- Winter, 1972 -- IT Corp. search for a new site for a hazardous waste management facility begins.
- April 5, 1973 -- IT Corp. officials and Contra Costa County Planning Department staff tour six proposed hazardous waste management sites.
- April 25, 1973 -- Letter to IT Corp. from the Planning Department identifies two "least objectionable" sites.
- October 1, 1973 -- IT Corp. submits an application for a land use permit for the "Oil Well" site to the Planning Department.
- January 24, 1974 -- IT Corp. files for Waste Discharge Requirements with the Regional Water Quality Board.
- March, 1974 -- Regional Water Quality Board prohibits dumping of Group 1 liquid industrial wastes at IT Corp.'s Antioch site after October 1, 1974; this in effect closes the site as of that date.
- March 20, 1974 -- Regional Water Quality Control Board issues tentative discharge requirements for the Oil Well site. These requirements cannot be finally acted upon until IT Corp. receives a land use permit from the county.
- July 18, 1974 -- The draft version of Environmental Impact Report on the proposed facility, prepared by an independent engineering consulting firm, is completed and released.
- July 23, 1974 -- IT Corp. Martinez facility is named as source of foul odors plaguing north Contra Costa County.
- August 23, 1974 -- The planning commissioners of the city of Brentwood adopt a resolution opposing the proposed facility.
- September 10, 1974 -- Brentwood City Council passes a resolution declaring its opposition to the facility.
- September 13, 1974 -- The staff of the Contra Costa County Planning Department recommends that approval of the land use permit would be "premature" and that approval be deferred, or else denied.

- September 18, 1974 -- The first public hearing on the EIR and the land use permit is held before the Contra Costa County Planning Commission. The hearing is continued until October 1.
- September 27, 1974 -- Regional Water Quality Control Board defers closing of the Antioch site until January 1, 1975. The board requires that the site not accept any odor-producing wastes or acids greater than 15 percent concentration.
- October 1, 1974 -- Second public hearing on the EIR and the permit application. The EIR hearing is closed and the planning department staff directed to prepare answers to questions on the EIR. The hearing on the permit is continued until December 3.
- November 25, 1974 -- Shell Oil Company announces that the proposed facility is incompatible with the company's high-pressure gas producing operations, and that it will oppose the facility.
- December 3, 1974 -- Contra Costa County Planning Commission votes to deny land use permit application; IT Corp. announces it will appeal the decision to the County Board of Supervisors.
- January 1, 1975 -- Antioch facility is closed.
- May 20, 1975 -- IT Corp. withdraws its application for a land use permit for the Oil Well site; cancels its appeal of planning commission denial of the permit; announces plans for upgrading and expanding its existing Martinez site.

V. ATTEMPTS TO SECURE SUPPORT

Few attempts were made by IT Corp. to secure support for the Oil Well facility. These attempts include:

- o Involving the County Planning Department in the initial site selection process.
- o Requesting the support of the local industry and labor groups during the land use permit application evaluation.
- o Presentations to community associations (e.g., Rotary) in the Brentwood area stressing the need for such a facility and the care with which it would be operated.

VI. SUMMARY EVALUATION

With the exception of IT Corp. officials, the consensus of opinion on

this siting attempt seems to be that the problem was not so much with the siting process as with the site itself. The site may well have been technically suitable but it was, in a broad sense, politically unsuitable. The site was approximately five miles from IT Corp.'s Antioch facility, which had already achieved a certain notoriety.

IT Corp. has indicated that its corporate philosophy at the time of the siting attempt was to keep as low a profile as possible. IT approached the permitting process through official channels and the news media were not informed of the intention to site such a facility nor of the progress of siting. Neither were any public information or participation options considered, other than presentations to a few selected community associations.

The public hearings on the EIR did provide substantial information on the pros and cons of the facility to the interested public. However, by this time public attitudes toward the site were already fixed, and this information had little if any effect on them. The hearings allowed the County Planning Commissioners to gauge the direction and extent of public feeling on the issue, a not insignificant factor in their final decision. Thus, even though the proposed site was on unincorporated land, local residents were able to provide some meaningful input to the Planning Commission decision. Local public opinion was that they would not have succeeded if they had not had Shell Oil Company on their side.

The issues and concerns raised by the public reflected those raised in the EIR. These are listed below.

Site suitability - Questions about site suitability focused on the impact of the facility and surrounding agricultural and residential land uses, as well as on the permeability of soils underlying the site, and the likelihood of contamination of groundwater supplies.

Facility operations - Because of similar problems associated with other IT-operated sites, odors from the facility were a concern. Air pollution from evaporation ponds and other processes was also mentioned as a possible adverse impact.

Access - Site access would have been along a minor two-lane rural road. Fears were expressed about the possibility of spills.

Contingency plans - Particular concern was expressed over the presumed inability of the local (volunteer) fire department to cope with the fires at the facility. This concern was based at least in part on adverse experience with IT Corp.'s Antioch facility.

Land use planning - Although the site was outside the city limits of Brentwood, it was classified as a future residential area in the Brentwood proposed land use plan. Local officials and residents saw the siting attempt as an attempt to preempt local land use control.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

Only those who would have benefited from the facility (e.g., local unions and industry) accepted this particular facility, although nearly all concerned claimed they were aware of the need for this type of facility in Contra Costa County. Factors leading to public opposition included:

- o Public recognition and/or perception of problems with IT Corp.'s Antioch and Martinez facilities.
- o Proximity of the proposed facility to the Antioch facility.
- o Lack of public information supporting the proposed facility.
- o Efforts by Brentwood City Council and other local public bodies to organize public opposition.

VIII. RETROSPECTIVE VIEWS

Facility opponents stated they would not have done anything differently. An official of IT Corp., on the other hand, felt that the siting process had two principal shortcomings. The first was IT Corp.'s failure to make substantive efforts to involve the public in the siting process before a definite site was chosen and public opinion formed. The second was the California permit process. He indicated that it would make more sense to evaluate the site on technical grounds first and then, if the site were technically acceptable, to use this information as an input to the final, political decision of whether to allow the facility to be constructed on that site. Currently, the political decision (which seems to include the most opportunity for substantive public input) precedes the technical decision. In his mind, the key factors in siting a facility are the developer's technical competence and his ability to communicate this competence.

IX. GENERAL COMMENTS

Industry and local officials were united in their feeling that there was no need for EPA to play a role in the siting process. Negotiation, mediation or arbitration were not thought to have any useful role to play in this process. This is both because no necessarily neutral parties were perceived to exist and because it was felt that the system could be made to work properly without this (if it did not already work properly).

PADRE JUAN

VENTURA, CALIFORNIA

I. INTRODUCTION

The Ventura Regional County Sanitation District (VRCSD) attempted in 1974, for the third time in three years, to site a landfill which would accept both hazardous wastes and non-hazardous solid wastes. The proposed site was located in the area around Padre Juan Canyon, northwest of the City of Ventura. After an Environmental Impact Report (EIR) was prepared and a series of public hearings held, the VRCSD Board voted to abandon the siting attempt.

Rather than attempt to develop support for the facility among constituent groups which could be expected to support it, VRCSD's effort seemed to have been directed toward alleviating concern about the facility among the residents in the vicinity of the proposed site. These efforts were largely unsuccessful. Local residents were able to muster sufficient political support to defeat the siting attempt.

II. BACKGROUND INFORMATION

The proposed Padre Juan facility would have been located in Ventura County, California, approximately 45 miles northwest of Los Angeles and seven miles northwest of the City of Ventura. The entire Padre Juan Canyon area lies over the Ventura oil field, an active oil-producing area.

Access to the area is gained via U.S. Highway 101, to either the Solimar Beach exit or the Seacliff exit to Pacific Coast Highway (old Highway 101). At the time of the siting proposal, the route to the area was via the Padre Juan overcrossing of U.S. 101 to an oil company road. However, the project as proposed would have included an interchange on U.S. 101 which would have provided direct access to the facility. Across U.S. 101 from the proposed site are a number of expensive summer homes which faced the Pacific Ocean.

The Padre Juan facility would have been owned and operated by the VRCSD. It was primarily intended to receive hazardous wastes from Ventura County, although it was anticipated that it would have also served Santa Barbara County (located directly to the northwest of Ventura County). Ventura County is among the most rapidly growing counties in the nation. The county population increased by 21.4 percent between 1970 and 1977. Ventura County's leading source of income is still agriculture, which is a source of some chemical wastes (e.g., pesticides). Major industries include electronics and other high-technology sectors.

The facility would have included up to four separate disposal sites. These four sites are discussed and compared in the Environmental Impact Report (EIR) which was prepared for the Padre Juan facility.¹ The area, expected lifetime, and capacity of each site are shown in Table 1.

The permeability of the soil underlying these sites ranges from 10^{-3} to 10^{-5} cm/sec. Average slope in the proposed landfill areas of the sites ranges from 8 percent in Site 2 to 20 percent in Site 4. The area as a whole is located in Zone III (high severity) of the Maximum Expectable Earthquake Intensity Region for California. Sites 1 through 3 were covered with natural vegetation. Site 4 was a highly disturbed area polluted by oil sludge with large bulldozed areas, and covered by degraded, non-native vegetation.

The Padre Juan facility was never designed since the site was abandoned prior to this step in the process. Nevertheless, the EIR does include a general description of the processes that would have been used. The facility would have been a Class I sanitary landfill,² very similar to the existing VRCSD facility in the Simi Valley. Three disposal methods were in use at the latter facility; soil blending, soil spreading, and pit methods. Oily wastes, aqueous liquids, and semi-liquid wastes would have been spread on and blended with soil. All other wastes would have been buried. Containers of less hazardous wastes would have been emptied into a prepared pit, while more dangerous containerized wastes would have been placed in such a pit directly. These materials would then be covered by three to four feet of soil. Hazardous wastes would not have been mixed with Group 2 wastes³ (e.g., municipal solid waste) as is currently the practice in some other California sites. Group 2 and 3 wastes would be disposed of separately at this facility. It is estimated that the facility would have received on the order of 40,000 gallons per day of liquid Group 1 wastes. These wastes would have reportedly been similar to those accepted at the Simi Valley facility, of which approximately 70 percent was paint sludge and purifax sludge.

¹ Ventura Regional County Sanitation District, Padre Juan Canyon Class I Sanitary Landfill, Ventura County, California: Final Environmental Impact Report and Technical Appendices.

² "Class I disposal sites are those at which complete protection is provided for all time for the quality of ground and surface waters from all wastes deposited, therein, and against hazard to public health and wildlife resources". California State Water Laws, Subchapter 15, Article 1.

³ Group 1 wastes are defined to include those wastes which consist of or contain toxic substances. Group 2 wastes consist of or contain chemically or biologically decomposable material which does not include toxic substances nor those capable of significantly impairing the quality of useful waters and includes municipal solid waste. Group 3 wastes consist entirely of non-water soluble, nondecomposable inert solids (California State Water Resources Control Board).

Table 1

Site Area, Lifetime and Capacity

<u>Site</u>	<u>Area</u>	<u>Lifetime</u>	<u>Capacity</u>
1	28 acres	1 year	200,000 cubic yards
2	135 acres	25 + years	250,000,000 cubic yards
3	51 acres	10 + years	4,000,000 cubic yards
4	125 acres	25 + years	26,000,000 cubic yards

Sites 1 and 2 were within the drainage of the Padre Juan Canyon; Site 3, part of Jovan Canyon to the west; and Site 4 in Faria Canyon to the east. All four sites are within two miles of the Pacific Ocean. Although so close to the coastline, the area is an oil producing area, and in this sense was in industrial use. There were no producing wells within any of the sites proper, but wells did border each of the sites.

Other than these oil-producing operations, land immediately adjacent to the sites was undeveloped. However, land immediately to the north of the area was in agricultural use, and land along the coastline in residential use.

The VRCSD proposed to develop Site 1 as a short-term facility to be utilized while one of the larger sites was being developed. Ultimately, three or all four of the sites would have been developed. However, the sequence of development was not determined prior to the abandonment of the siting attempt.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

In order to develop and operate a hazardous waste management facility in California, at least three permits are needed. These are: 1) land use permit; 2) Regional Water Quality Board Waste Discharge Requirements (permit); and 3) Department of Health Services permit. The land use permit, which is issued by the local city or, in unincorporated areas, county planning board, certifies that development and operation of the proposed facility would not conflict with existing land use or land use plans. In practice, it indicates that the facility has local political support. A significant factor in gaining this support is facility compatibility with local land use. This permit is a precondition for the granting of the other two permits. The decision of the local planning board can be appealed to the local board of supervisors.

The Regional Water Quality Control Board Waste Discharge Requirements specify what types of wastes the facility may receive and what measures must be taken to prevent groundwater pollution. These requirements are in effect a permit since they will not be issued if the geology and/or hydrology of the site are inappropriate.

The Department of Health Services permit is for the most part based on the existence of proper procedures for aboveground handling of chemical wastes. The procedures should include a contingency plan for "an accident or accidental discharge."¹

In addition, two other permits are often required, depending on the particular types of storage, processing or disposal of chemical wastes that are proposed. If hazardous wastes are to be disposed of with municipal solid wastes, then the State Solid Waste Management Board grant a permit for the facility. This permit regulates the disposal of residential and commercial refuse so that nuisances are not created. The power to grant this permit can be granted by the Solid Waste Management Board to local political entities, such as the local city or county government.

If some sort of evaporation, neutralization or incineration process or any other process which will produce a significant amount of atmospheric emissions is proposed, a permit will be required from the Regional Air Pollution Control District. Evaporation ponds, for instance, are permitted as emission points. Depending on existing air quality in the region, this permit can be very restrictive as to types of processes and/or wastes accepted.

¹ California Department of Health Services, Hazardous Waste Regulations, Chapter 2, Article 4, "Hazardous Waste Permit".

Permits may also be required from agencies such as the Coast Regional Commission, if the proposed site is located in any of the areas which are under their purview.

The Padre Juan facility would have required permits or approvals from the following agencies:

- o Ventura County Planning Commission
- o Ventura County Board of Supervisors
- o Regional Water Quality Control Board
- o California State Department of Health Services
- o California State Solid Waste Management Board
- o South Central Coast Regional Commission
- o California State Highway Commission
- o California State Utilities Commission

The approval of the last two agencies would have been required for the VRCSD to construct an interchange, which would have in turn necessitated the moving of a railroad right-of-way. In the case of the Padre Juan facility, a permit from the Regional Air Pollution Control District would not have been required.

The responsibility for disposal of solid wastes in Ventura County was transferred by the County Board of Supervisors to the VRCSD on July 1, 1972. As noted above, Ventura County has been one of the fastest growing areas in the country over the last decade and the VRCSD recognized that it faced a critical solid waste problem. In addition, it was at that time anticipated that the Santa Clara landfill in Ventura County--which accepted Group 2 and 3 wastes--would be closed in 1976 in compliance with a Ventura County ordinance which prohibits renewal of land use permits for privately operated landfills. The only existing site for the disposal of Group 1 (hazardous) wastes was a landfill located in the Simi Valley, over 30 miles from the Ventura City area. Therefore, the VRCSD felt it necessary to site a new facility for the disposal of both hazardous and other wastes in the latter area.

In the summer of 1972, the City of Ventura and VRCSD filed for and received a grant from U.S. EPA to develop a model sanitary landfill. However, the site chosen for this landfill--known as the Lake Canyon site--was shown to have environmental problems that could not be mitigated. In particular, trucks going to and from the facility would have had to travel through a residential area and by a school. As a result, there was intense public opposition to this site. The opposition was initially expressed at meetings held by the VRCSD to receive local public input to the siting process. Local elected officials played a significant role in having this siting attempt abandoned. This was accomplished when the City of Ventura, the "Lead Agency" for the EPA grant, decided to abandon it.

The VRCSD then retained a consulting firm to evaluate other potential landfill sites in the vicinity of the City of Ventura. The report prepared by this consultant indicated that a site in Welden Canyon would

be the most suitable for use as a landfill for hazardous and municipal solid wastes. However, a subsequent investigation by VRCSD revealed that the area had "groundwater development potential and...was potentially suitable for housing".¹

It was therefore decided to remove this site from consideration. The search for sites was then moved away from the City of Ventura to the coastal area northwest of the city to avoid conflicts with existing residences and residential development. This decision was made in-house at VRCSD and was not subject to public review. Officials of VRCSD have indicated they felt that the proposed landfill would not be incompatible with existing oil producing activities. The Padre Juan Canyon area was identified as a potential site, and studies of its geological and geotechnical feasibility were conducted for VRCSD by consulting firms. These studies indicated that there were suitable sites within the canyon area for a Class I landfill.

During the Spring of 1974, while the search for a site along the north coast was still going on, VRCSD sought a citizens group to talk to. This was done in order to try to head off public opposition, a lesson learned during the Lake Canyon siting attempt. During the Lake Canyon attempt it was found to be very difficult to elicit public concerns outside of the formal and often adversarial public hearing process. However, there was no citizens group in the Padre Juan area. Therefore, VRCSD called a public meeting at a local school. At this meeting they described the siting process and the type of facility they were trying to site, and invited those in attendance to form a liaison committee. Such a committee was formed, made up entirely of local residents.

In a short time, however, the liaison committee became the focus of opposition to the committee. Led by a woman who was a substantial landowner in the area, the committee marshalled the support of both summer and year-round residents of the area. The committee did not attempt to negotiate with the VRCSD. Instead, it took its case directly to county elected officials, some of whom had homes in the vicinity of Padre Juan Canyon. Due in part to the affluence of the affected community, the committee was eventually very successful in enlisting the support of these political leaders in their opposition to the facility.

Because of the scope of this project, an Environmental Impact Report was required (as per the California Environmental Quality Act of 1970). On June 20, 1974, VRCSD announced that it had hired a consulting firm to prepare this EIR. Analyses of the environmental impact of the proposed facility were carried out during June, July and August, 1974. The first Public Opportunity meeting--to receive public input and comment on the proposed site and facility--was held on July 17. The reaction of the public and of local officials to all four proposed sites was entirely negative. Public concerns expressed at this meeting included the wisdom of selecting a site in a seismically sensitive area so near the ocean;

¹ VRCSD, Padre Juan Canyon final EIR, ibid.

odors, dust and litter from the facility; the possibility the facility would attract scavengers (i.e., seagulls and rodents); traffic; and the effect on the quality of life in Ventura County, especially in terms of induced development. Other problems frequently mentioned were the possibility of contaminating the ocean and the visual impact of the facility on what is otherwise a relatively unspoiled area. There was also considerable feeling that the problem of hazardous waste disposal could be mitigated or avoided if a comprehensive resource recovery program were established. Finally, there was opposition to accepting wastes from neighboring Santa Barbara County. A second Public Opportunity meeting was held on August 22. Again, no support for these sites was expressed and the same public concerns were voiced.

The draft EIR was submitted to the VRCSD board on September 26. Adverse impacts identified in the EIR included the production of noxious odors and gases from fill-areas, particularly from Site 4; that an area of Site 4 would be visible to some residents along old Route 101 and to traffic on U.S. 101; that there would be an increase in truck and auto traffic (if the interchange directly to the facility were built, this increase would be very small); and that there would be an increase in erosion, runoff and dust from the canyons. The VRCSD Board held a public hearing on the EIR on November 14. All 15 speakers--all of whom were residents from the Padre Juan vicinity--at this hearing spoke against the use of these sites as landfills of any type. Letters from the public received by the board were also in opposition to the facility. Concerns expressed included the facility's impact on the aesthetics of the area and the adverse impacts projected in the EIR. However, comments from state agencies on the EIR were generally favorable, in that they concurred with the findings. The only criticisms of the report were in effect requests for more information.

At the November 14 meeting the Board deferred its decision on whether or not to go ahead with the facility until December 12 to give the consultant time to respond to comments on the draft EIR. The December 12 meeting was later postponed to January 30, 1975 to give the consultant more time to respond to these comments. In response to public and official comments, the final EIR proposed several changes in the project. These included: 1) limitation of all project operations to the area more than 1,000 yards from the coast;¹ and 2) construction of an interchange on Route 101 to provide direct access to the site. However, these changes did not materially affect the level of opposition to the facility. The Board held its second hearing on the EIR on January 30, 1975. This hearing attracted about 175 people, a large percentage of whom were residents from the Padre Juan Canyon vicinity. It was reported in the local press that the only people to voice support for the facility were VRCSD staff members. Concerns expressed by the public were generally the same as at the first hearing -- aesthetics, environmental pollution, and traffic impacts in particular.

¹ To limit the intrusion of the facility into the Coastal Zone.

The Board then voted to conclude the public hearing but to continue the meeting until February 13 to allow themselves time to discuss the matter. On February 13, the Board voted (13-8) to abandon the proposed site. One particular reason for the outcome of the vote was that the three members of the County Board of Supervisors on the VRCSD Board were all opposed to the project. These three members constituted a majority of the County Board of Supervisors. They would have been able to deny the project its land use permit even if the Planning Commission had decided to grant one.

IV. CHRONOLOGY OF EVENTS

July 1, 1972 -- Ventura County Board of Supervisors transfers responsibility for county solid waste to VRCSD.

1973 -- VRSCD tries but fails in two hazardous waste facility siting attempts.

Spring, 1974 -- VRCSD holds public meeting in north coast area to describe the siting process. Assists in the formation of liaison committee. Committee subsequently becomes source of opposition to the facility.

June 20, 1974 -- VRCSD announces it has hired an engineering consulting firm to prepare an EIR for the Padre Juan sites.

July 17, 1974 -- First Public Opportunity meeting held by engineering consulting firm to receive public input and comment. The reaction to the facility is entirely negative.

August 22, 1974 -- Second Public Opportunity meeting is held with same result.

September 26, 1974 -- Draft EIR is submitted to the VRCSD board.

November 14, 1974 -- VRCSD board holds hearing on draft EIR. All 15 speakers speak against the proposed site. Decision on site is deferred to December 12 to give engineering consultant time to respond to comments.

December 12, 1974 -- Meeting postponed to January 30, 1975 to give consultant more time to respond to comments.

January 30, 1975 -- VRCSD holds second hearing on EIR. Hearing is well-attended. Of all speakers, only VRCSD staff support the facility. Board votes to conclude hearing but to continue the meeting until February 13 to allow themselves time to discuss the matter.

February 13, 1975 -- VRCSD board votes, 13-8, to abandon the proposed site.

V. ATTEMPTS TO SECURE SUPPORT

As noted above, the VRCSD's efforts were directed more towards alleviating concern about the facility among residents in the vicinity of the proposed site than to developing support for it among other concerned groups. These efforts included:

- o The public meeting held in Spring, 1974 for residents in the vicinity of the proposed site to:
 - describe the proposed facility and the siting process; and
 - assist in the formation of a citizen liaison committee.
- o Public Opportunity Meetings held to receive public input and comment on the site for inclusion in the EIR.
- o Individual responses were sent to all communications received in regard to the facility.

VI. SUMMARY EVALUATION

Ultimately, insufficient support for the Padre Juan site was generated, yet while the actual attempts to secure support for the facility cannot be faulted, they did not go far enough. The prevailing mood in the county at that time was not at all favorable for siting this facility, as is evidenced by the failure of two previous siting attempts. In particular, it appears that not enough effort was made to secure support for the facility from either the industries which would use it or from county residents who did not live in proximity to the proposed site. One such person--who was involved in the opposition to the Lake Canyon site--noted that while she had been in favor of the Padre Juan site, she had not become involved and had not attended any of the public hearings. No explicit attempt was made to involve such interested persons. Although technical issues were raised by the EIR and in the public hearings, the ultimate decision not to pursue this siting attempt was based on political rather than technical factors. The failure by VRCSD to marshal the support of those of its constituencies who had reason to favor this site (i.e., industry and non-abutters) enabled the residents of the Padre Juan Canyon area to gather sufficient political support to defeat the project.

During the series of public hearings, a number of issues and concerns were raised by the public. These are summarized below.

Site suitability - Particular concern was expressed at the selection of a site so near the coast. Aspects that were frequently mentioned were the possibility of contaminating the ocean and the visual impact of the facility on what is otherwise a relatively unspoiled area. Another issue was the technical suitability of the site itself. Here concern was expressed about the likelihood of waste materials leaking out of the facility, especially given the possibility of a severe earthquake in the area.

Facility Operations - Odors, dust and litter from the facility were a concern, as was the possibility that the facility would attract scavengers (i.e., seagulls and rodents). Traffic induced by the facility--as well as the attendant noise and air pollution effects--was also an issue.

Quality of Life in Ventura County - The public, and especially local residents, expressed concern about the effect the facility would have on the quality of life in Ventura County. Their perception was that this quality of life was strongly tied to the relatively underdeveloped state of that part of the county and the lack of environmental pollution. They expected the proposed facility to increase development and to pollute the environment.

Resource Recovery - There was considerable public feeling that the whole problem of waste disposal could be avoided if a comprehensive resource recovery program were established.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

The following were major factors leading to public opposition to the proposed site.

- o The proximity of the site to the Pacific Ocean and to an area of expensive homes.
- o Failure of two previous siting attempts.
- o Location of the site in an area of high seismic activity.
- o The public expectation that the site would accept wastes from Santa Barbara County.

VIII. RETROSPECTIVE VIEWS

Area residents' comments on the siting process were generally consistent with their satisfaction with the result of the siting process. The only concern expressed was with the VRCS D for even attempting to site a waste disposal facility in what they perceive as a sensitive area. An official with the Regional Water Quality Control Board noted that there had been better sites than Padre Juan available to VRCS D at the time, from both technical and public relations standpoints. However, the Padre Juan site was chosen because it would have been less costly to develop than the alternative sites.

IX. GENERAL COMMENTS

The VRCS D general manager stated that siting hazardous waste facilities had become sufficiently difficult that the state or federal governments would have to at least own, if not operate them. He felt that rather than trying to purchase new sites, a preferable location would be somewhere on the tremendous amounts of land already owned by government.

There are, he felt, a number of infrequently mentioned factors which are important in finding a truly acceptable site. These are: 1) access by rail, since this has the potential to be the safest way of transporting hazardous wastes; and 2) more use of resource recovery to reduce the quantities of wastes which are disposed of.

Limiting, at least initially, the types of hazardous wastes accepted at a new facility was mentioned as a possible strategy for gaining public acceptance. Relatively less hazardous waste would be accepted during the first few years of facility operation. Only then, when the local public presumably has confidence in the facility, will more hazardous waste be accepted.

SCA CHEMICAL WASTE SERVICES INCORPORATED

MODEL CITY, NEW YORK

I. INTRODUCTION

Since 1972 a hazardous waste facility, now owned by SCA Services, has operated in Model City, New York. While the facility has expanded its operations over the years, the basic technologies -- landfilling, treatment, and storage -- employed at the site have not changed since operations began. The Model City facility replaced an earlier, similiar facility located in Blasdell, New York, some 30 miles to the south.

The facility was sited and began operations without opposition. Beginning in 1973 area officials and residents began to raise concerns about on-site operations and spills from trucks transporting waste to the facility. Concerns have evolved into opposition and a substantial group of local residents and officials appear to be unalterably committed to closing the facility.

During the seven years of the facility's operation a variety of attempts have been made to provide public information, to solve problems giving rise to opposition, and to address in other ways public concerns. Although there is widespread acknowledgement of some changes for the better, these changes have not substantially altered the positions held by opponents.

II. BACKGROUND INFORMATION

The Model City facility is located a few miles west of Ransomville, New York within the Towns of Porter and Lewiston.¹ Prior to its development as a hazardous waste facility, the site was federally owned and known as the Lake Ontario Ordinance Works. It was used for research purposes by Olin-Mathison as a part of the Manhattan Project until the 1960s. The resulting radioactive contamination precluded any use of the site until a government "clean-up" effort reduced contamination to a level acceptable for industrial use. Much of the surrounding land remains in the hands of the federal government. Abutting the site are a number of government or government-sponsored facilities including a tower immediately to the south which contains the world's largest concentration of radium. (The tower is reportedly leaking radioactivity and is a source of concern to area residents and officials.) The closest non-industrial uses are a public school complex and scattered residences within a mile and one-half of the site.

¹ In New York, the town is the jurisdictional level immediately below that of the county. As in a township, residents of a town elect a board of supervisors and the town government provides some basic services (e.g., sewers) to its residents.

Access to the site is by a two-lane road and the site is about five miles from the Robert Moses Parkway, a limited access divided highway. The site is also served by a rail spur; however, rail service was discontinued in 1978 because of track deterioration.

SCA environmental officials characterized the hydrogeology of the developable portion of the site as good. (They indicated that a maximum of 200 acres would be developable.) An environmental assessment¹ of the site listed a range of permeabilities for in situ soils at levels significantly more permeable than the pending RCRA standard. The site is also traversed by Four Mile Creek which empties into Twelve Mile Creek and Lake Ontario. Both creeks are subject to intermittent flows particularly during the dry summer months.

The facility provides treatment, processing, and disposal services. There are seven existing landfills, a number of which are closed, as well as a proposed eighth landfill. Because of the permeability of in situ soils, SCA uses a compacted clay liner (minimally two-feet of 10^{-7} cm/sec clay) underlain by a Hypalon liner.² A leachate collection is installed above the clay liner. SCA staff estimated that developable landfill capacity could have a remaining life of 20 to 25 years.

Treatment facilities are primarily designed to handle aqueous waste streams. Facilities for the distillation of solvents and for fuel blending are also on-site. There are five lagoons for the storage of treated liquid effluent. According to a Niagara County Health Department official, SCA is currently storing about 90 million gallons of effluent suitable for discharge. Also on-site are a temporary drum storage area and a laboratory for analysis of incoming wastes. SCA also operates a waste hauling service and, according to the draft EIS, 80 percent of accepted wastes are hauled by SCA trucks. Provisions for post-closure care will follow applicable state or federal regulations.

The facility accepts a broad spectrum of hazardous wastes. Specifically excluded, however, are shock-sensitive, radioactive, flammable (unless capable of being blended for fuel), and extremely hazardous wastes such as dioxin. These wastes come from a multi-state region as well as the province of Ontario. According to the draft EIS, 17 percent of accepted wastes are generated in the Erie-Niagara counties area, 42 percent within New York state, and the remaining 58 percent from out of New York state.

¹ Draft Environmental Impact Statement for a SCA Chemical Waste Services, Inc. Facility in Model City, New York, prepared by Fred C. Hart Associates, Inc. for the New York Department of Environmental Conservation, Region 9 Headquarters on behalf of SCA Services, Boston, Massachusetts, February 27, 1979.

² Opponents claim that the earliest landfills, developed prior to SCA's ownership, are unlined.

The Model City facility is but one of four hazardous waste facilities owned by SCA Services of Boston, Massachusetts. SCA staff estimated permanent employment at Model City at 60 to 75 workers. The number of workers increases significantly in the summer when soil is neither frozen nor so muddy as to restrict work on the site. SCA's other hazardous waste facilities are in Illinois, New Jersey, and South Carolina. SCA is the third largest waste services company in the nation and reported total revenues of over \$180 million in fiscal 1978.

Model City is located in northern Niagara County (estimated 1976 population, 240,000). That section of the county is relatively rural in character and historically has been a farming area. More recently it has developed residentially as employees from Niagara Falls have moved into the area. Model City is within ten miles of Niagara Falls and within 25 miles of Buffalo. While Niagara Falls has been linked historically to the beauty of American and Horseshoe Falls and the attendant tourist industry, the city is a major manufacturing center of chemicals, electrical machinery, and paper products. Together with Buffalo, the entire metropolitan area is the second largest in New York state. As such it is the major trade, service, financial, cultural and transportation center for western New York and southeastern Ontario. In recent years Love Canal and other less publicized hazardous and radioactive waste dumps have made area residents extremely sensitive to the dangers of improperly disposed wastes.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE¹

When originally sited in the early 1970s the facility was subject to local zoning and state health department regulations enforced by the Niagara County Health Department (NCHD). The state Department of Environmental Conservation (DEC) was formed in 1972 and began issuing permits for waste management facilities in 1973. In 1977 these regulations were revised, in part to address more specifically hazardous waste. As a result, existing hazardous waste management facilities were required to apply for new, more restrictive permits.

The Model City facility is subject to the latest DEC permits (there are separate construction and operation permits). Because of the facility's

¹ The history of facility operations and the public and regulatory response to those operation is one that has become increasingly complicated. To clarify this flow of events, a number of incidents have not been described in this section; these generally are spills either at the site or on roads leading to the site, some smaller fines imposed by DEC as a result of these spills, and tactics considered but not actively pursued by opponents. The implications of these omissions are subsumed by other events described in this section.

need for discharging treated effluent and due to other peculiarities of the site and facility operations (addressed later in this section) a number of other permits or approvals are required. As listed in the draft EIS, these include a U.S. Corps of Engineers dredge and fill permit, state certification that no water quality standards are contravened during construction of the eighth landfill, several permits from DEC and others from the state transportation department in connection with installing a pipe to discharge into the Niagara River, and three local permits. Local permits have been the subject of extensive legal action (as will be described) and it is unclear if all local permits would be required.

The existing Model City facility replaced a similar facility located in Blasdell, New York just south of Buffalo. According to local papers, the facility was the brainchild of two Buffalo area men with extensive backgrounds in chemical manufacturing. These men founded Chem-Trol Pollution Services, Inc. in 1969 with the concept of recovering valuable materials from waste streams, destroying the remaining hazardous wastes, and burying the innocuous residuals. The 20-acre Blasdell site was purchased in August 1969, and initial operations began in July, 1970.

The Chem-Trol facility operated at Blasdell for almost two years; that period was marked by a growth in operational capabilities and in volume of business. Incrementally, facilities for thermal oxidation (i.e., an incinerator), waste neutralization, the removal of metals from wastes, the positive control of salts resulting from treatment procedures (i.e., impoundments), and laboratory analysis were added. Because there was a need to stockpile an inventory of wastes, lagoons and storage tanks were added. During this period employment grew from five to 35 workers.

The operation of the Chem-Trol facility in Blasdell did not proceed without public notice. Opponents of the Model City facility, citing local officials in the Blasdell area, and the local press reported that the facility on numerous occasions operated in violation of applicable environmental regulations and that six formal pollution complaints were lodged. In July, 1972, several hundred drums exploded and burned at the site. Area residents reportedly feared that the explosion would lead to pollution of an area creek. As late as August, 1978, (over six years after closure), residents complained of odors from the site and expressed skepticism about claims that wastes buried on-site were neutralized.

By late 1971 Chem-Trol's growth led company officials to seek another, larger site. According to an article in the Buffalo Courier-Express, Chem-Trol officials with the help of the Army Corps of Engineers surveyed several sites. In early 1972 the General Services Administration (GSA) declared the Model City site surplus property.

According to newspaper accounts and those interviewed¹, the selection of the Model City site was based in part on its size, its hydrogeological characteristics, and its relative isolation. Chem-Trol purchased 240 acres of land and in February, 1972, closed the Blasdell facility and began to move to the Model City site.

When the Model City facility was developed few regulations applied. Before GSA declared the site surplus federal property, the Atomic Energy Commission stipulated that, because of radioactive contamination on-site, the property would be restricted to relatively inactive uses. The zoning status prior to Chem-Trol's purchase was industrial; thus the proposed industrial use was not out of conformance with local regulations. The major regulatory action was conducted by NCHD which at that time implemented the state health department's sanitation code regulations for waste facilities. Chem-Trol submitted its plan for developing the facility to NCHD. That plan called for waste water treatment, secure landfilling, recycling of waste, and waste disposal via fuel blending. At that time Chem-Trol had arranged for the lease of tanks to store liquid wastes prior to their treatment. The original plan also included an incinerator, but this operated for only a short period before it was closed because of air pollution problems. NCHD review of the plan included a review by the Town of Porter which wrote that it had no objections to the proposal. NCHD then granted a one-year permit for 1972. In 1973 NCHD renewed the permit for an additional period of one year.

In May, 1972 the Model City facility began operations after investing about \$2 million in land and equipment. For more than a year the facility operated without particular concern on the part of the public. Continued growth led to expansions in employment so that by late 1972 there were 80 workers, more than double the number when Blasdell closed.

The lack of concern during this period appears to have stemmed from a lack of any noticeable operational accidents and a perception of the facility as a resource recovery and reclamation operation, not a land disposal operation. While land disposal has always been part of the facility's operations, area residents claim that the higher costs of recovering and treating hazardous wastes led Chem-Trol to change

¹ The original founders of Chem-Trol are no longer associated with the Model City facility. Some of those key figures subsequently founded a waste service company in Niagara Falls, a subsidiary of which operates the only other DEC-permitted hazardous waste landfill in New York. As of April, 1979, that company was under attack from local officials and citizens. Concerns had been raised over the hazardous waste landfill and charges had been made that the company was trying to monopolize solid waste collection in the Niagara Falls area. The latter charge stemmed from the company's contract with Hooker Chemicals to provide solid waste for a planned Hooker waste-to-energy recovery plant.

operations. Consequently there was an increased use of landfilling contrary to original plans and intentions. Press coverage of the facility during this initial period was quite favorable and focused on the recycling of wastes and the destruction of the hazardous residuals. Chem-Trol officials were quoted as saying that their treatment and processing procedures resulted in "no effluent whatsoever..." and that the only substances leaving the site were saleable residues, steam, and carbon dioxide. The solid remnants remaining after treatment were buried in "scientific landfills" developed according to a proprietary process. Company officials claimed "zero ground percolation." The articles clearly portrayed Chem-Trol as an environmentally innovative company which provided alternatives to the dumping of wastes on land or into waterways.

The initial response to the facility was apparently predicated on this image of recycling and recovery. The then president of Chem-Trol made presentations to local officials during this period and reportedly stressed the recycling aspects of the facility. A Lewiston town supervisor indicated that at that time recycling was ranked with motherhood and that the general response to recycling was very positive. A Porter town supervisor indicated that the return of that land to local tax roles was viewed as a benefit by the town and a reason for the early favorable response.

In 1973 Chem-Trol was bought by SCA Services of Boston, Massachusetts. With this purchase Chem-Trol became an SCA subsidiary and retained its original management staff.

Local attitudes began to shift in September of 1973. That month piles of salts generated by operations were discovered by local officials. The salts were reportedly haphazardly stored and had resulted in the destruction of trees and other vegetation. While the piles of salt were the focus of concern, a Lewiston official also charged that chemicals had been dumped in the wrong places. Reportedly Chem-Trol made no effort to clean up the salts and the Lewiston town board threatened the firm with a lawsuit to force a clean-up.

The following spring a spill in Four Mile Creek resulted in a fish kill. In March of 1974, NCHD concluded that phenol in the creek which had originated from Chem-Trol was responsible for the fish kill. Chem-Trol denied responsibility.

In September of 1974, Lewiston and Porter officials charged that Chem-Trol was discharging liquid wastes (variously described as aqueous wastes and as untreated acids) illegally into Four Mile Creek and thereby into Lake Ontario. There are a number of abandoned sewer lines underlying the Model City site. Lewiston officials were reportedly registering significant use of these lines at a lift station in the area but could not explain where this "sewage" was coming from. In September a Porter official noticed wastes flowing in Four Mile Creek. Upon investigation he found that the wastes were coming from an abandoned

sewer line which ran two feet underneath the creek bed. According to that official the creek bed had been excavated above the line and the line had been broken allowing wastes to flow into the creek. On learning this Lewiston plugged the abandoned lines.

Subsequent to the plugging of the sewer lines, Chem-Trol reportedly constructed a number of storage lagoons on the site. Three months later in December, 1974, DEC granted Chem-Trol a State Pollution Discharge Elimination System (SPDES) permit to discharge liquid effluent into the Niagara River. Chem-Trol, however, had no direct access to the river and that lack of direct access has continued to plague the facility up to the present day.

In the summer of 1975 SCA began to take more direct control of Chem-Trol. A manager of an SCA solid waste operation in Connecticut was sent to Chem-Trol to serve as a troubleshooter. In a relatively short period the top management of Chem-Trol was fired. The troubleshooter was promoted to vice president of operations (i.e., the top management position at the facility). In a 1977 interview with the Niagara Gazette, the vice president described on-site conditions when he arrived as appalling, with "...thousands of drums... piled recklessly all around, some of them rusty and leaking, or covered with rainwater." He characterized the dangers of these conditions as "very real." Consequently SCA began a campaign to reduce a backlog of unprocessed wastes, to re-engineer parts of the facility, and to make additional changes and improvements. Over the next two to three years SCA reportedly spent between \$500,000 and \$1 million on improvements to the facility.

In 1975 local jurisdictions showed signs of continued concern over the facility. In July the Lewiston Town Attorney was told to consider legal actions to restore vegetation to areas affected by the salt piles. In November the Town of Porter issued a notice of violation of town zoning law.¹ This was appealed to the courts by Chem-Trol. A Porter town supervisor also claimed that Chem-Trol was polluting the town's air and water.

In early 1976 two incidents at the site fueled local concerns and led to an increase in individual actions against Chem-Trol. In January a reported 1,500 gallons of wastewater containing phenols, dissolved metals, and organics spilled into Four Mile Creek, turning the creek and the snow along its banks blue. Chem-Trol spent \$50,000 cleaning the water and NCHD claimed the spill posed no danger. The following month a landfill caught fire and burned for several hours. A series of explosions was reported during the fire.

¹ The specific basis of this action was not determined. Subsequent legal actions by the local jurisdictions and the decisions of appellate courts would suggest both probable motives of the town (i.e., restrictions of Chem-Trol operations) and cast doubt on their legal viability.

Regardless of the environmental or public health impacts, area residents were alarmed. In the next few months the rate of complaints from citizens in the area markedly increased. Though unsubstantiated, there were reports of small explosions on the site. Beginning in January officials from Lewiston and Porter began to work together to pressure DEC into stricter enforcement of state regulations.

In July of 1976, Chem-Trol received a shipment of 200 tons of pesticides from Massachusetts. The director of DEC's regional office in Buffalo ordered a halt to the processing of the pesticides. Citing recent spills and other incidents at the site, the director stated that processing could not continue until Chem-Trol could prove that no environmental damage would result. Chem-Trol's vice president claimed that the company already had permits to dispose of pesticides and had been doing so for four years. In addition he explained that DEC's Albany office had been notified of the shipment. After a meeting between officials of Chem-Trol, DEC's Buffalo office, and NCHD, DEC issued approval for the disposal of the pesticides subject to several conditions.

In September, DEC's Buffalo office director requested Chem-Trol to stop using one of its landfills because it had become filled with a reported 3 million gallons of rainwater. Claiming that the order would stop most or all site operations, Chem-Trol ignored the request.

In October, another spill took place at the site when a lagoon wall collapsed. The wall had been undermined by a bulldozer. Chem-Trol said the bulldozer operator's actions were an unintentional mistake; local critics claimed it was intentional. DEC investigators studying the spill from the lagoon discovered a hose leading from a treatment lagoon to a manhole which connected to Four Mile Creek. Although investigators saw no material flowing into the manhole, local critics were convinced that Chem-Trol was illegally discharging into the creek. DEC's investigation led to a fine against the company for the lagoon spill.

During this same period resident and officials' attitudes began to change from concern towards opposition. In September, before the lagoon spill, a Porter town supervisor citing residents' complaints of noxious odors¹ called for a closing of the facility. In October residents began a petition drive which eventually collected about 2,000 signatures. The petitions, which called for an end to pollution caused by Chem-Trol, were delivered to the town boards of Porter and Lewiston. The village board of Youngstown, a community five miles northwest of the site, called for the closing of the facility. The town board of Lewiston asked the town attorney to determine how a local government

¹ An NCHD official explained during the site visit that odor complaints are most frequent during summer months. Because of seasonal thermal inversions odorous gases are prevented from rising thus leading to their dispersion in the area around the site.

Chem-Trol. Also in October, citizens from around the area formed a group called Operation Clean with the purpose of closing the facility.

By the end of 1976 the local opponents had begun to seek additional avenues for fighting Chem-Trol. Local jurisdictions had begun to seek consultants to perform independent analyses of the site. Local residents claiming the facility posed a danger to the water table sought state and federal action to close it. The area U.S. congressman had also become involved. Having asked DEC and U.S. EPA to investigate citizens' complaints, he had received assurances that Chem-Trol was following those agencies' recommendations for improvements. DEC indicated it would regularly report to the congressman on Chem-Trol.

In December of 1976, the Niagara Gazette reported that DEC had given serious consideration to a summary abatement order which would have closed Chem-Trol. Without explanation, the report indicated that DEC rejected taking such an action. Subsequently the director of DEC's Buffalo office, who had earlier criticized the company, termed it an essential service for disposing of toxic wastes and stated that Chem-Trol was making a determined effort at correcting past problems.

In January of 1977, the state supreme court issued a decision on the Town of Porter's zoning suit against Chem-Trol which had been initiated in November, 1975. Overturning a lower court decision, the court ruled that after the fact opposition by the town could not stop Chem-Trol from developing the site.

The same month Chem-Trol announced that it would no longer process liquid wastes and that it planned to lay off about 70 employees, over half the peak work force. The company explained its decision in terms of the public concerns raised about liquid wastes and new DEC requirements for handling such wastes. It was claimed that these requirements would cost \$30,000. Solid waste disposal would continue. In spite of this statement and subsequent problems, liquid wastes continued to be accepted.

In February a spill containing phenol occurred; a leak was found and corrected. Although DEC admonished Chem-Trol, it took no further action. This failure by DEC to take stronger action was cited as contributing to citizens' disillusionment with DEC. As a result DEC became part of the problem from the point of view of local opponents.

By March the local jurisdictions had hired a Buffalo consulting firm to test for pollution at the site. Although the firm spent some months attempting to collect data, local officials indicated a complete report was never prepared. The partial results of the study were considered very unsatisfactory. Those officials pointed particularly to Chem-Trol's refusal to allow the consultants on the site as a cause of the report's incompleteness.

Throughout this period Chem-Trol's problems with discharging treated effluent had not been solved. By the spring of 1977 one option for resolving the problem had been identified. That option would be to use a 42-inch sewer line owned by the Town of Lewiston. The line ran to the Niagara River and was not in use. With the active support of DEC Chem-Trol sought to lease the line from the town. As Chem-Trol already had a DEC permit to discharge into the river, the lease of the sewer line represented the only barrier to disposing of millions of gallons of treated effluent. The line has reportedly been contaminated and some opponents claim the contaminant is PCB-laden sludge. It was also reported that Chem-Trol offered to decontaminate the line if the company was allowed to use it. Without the use of the line, Chem-Trol claimed it would have to close. Whether the town board of Lewiston would approve Chem-Trol's request became a major focus of the controversy.

In late spring and early summer of 1977, the controversy began to heat up and positions began to polarize. In May DEC specifically asked Lewiston to approve Chem-Trol's use of the sewer line. An NCHD official, responsible for weekly monitoring and inspection of the facility, declared that the closing of Chem-Trol would precipitate a decline in the economic and environmental health of the area and a rise in illegal dumping of hazardous wastes. He said that Chem-Trol's top management had done a "tremendous" job in the past year cleaning up the site. Opponents were declaring that the Chem-Trol management was inept, incompetent, and dishonest. The president of an industrial park near the site claimed adverse impacts to his ability to promote the park because of Chem-Trol. In June local officials and representatives appealed to the governor of New York to intercede on their behalf. In an editorial that month the Niagara Gazette defined pollution as the sole legitimate issue. Should the company be able to operate without perceptibly lowering environmental quality, the paper said it would be happy to have Chem-Trol in Niagara County.

At a June meeting the Lewiston town board delayed a vote on the sewer line question and asked Chem-Trol for a list of hazardous wastes accepted by the facility. On the basis that the data were proprietary, Chem-Trol denied the request. In a related action, DEC announced that it would hold a public hearing in late July on a Chem-Trol permit modification including the land application of treated effluent.

In July the Town of Porter again served Chem-Trol with a notice of zoning violation. The town charged that the company did not receive a local excavation permit before developing a new landfill. Chem-Trol ignored the notice and appealed to the courts. The state Supreme Court then temporarily enjoined any further excavation work during the appeal. Before the Supreme Court, Chem-Trol argued that DEC had sole authority over hazardous waste management facilities. DEC, however, denied this and affirmed the validity of the local permit. In late July the Supreme Court ruled that the local excavation permit was necessary before work could be resumed on the landfill. Town officials indicated they would closely study the application for the excavation permit.

Also in July the Niagara County legislators established the Niagara County Environmental Management Council (NCEMC). Composed of various county elected and regulatory officials NCEMC was designed to act as a neutral party and to issue a report on Chem-Trol. A budget of \$15,000 was allocated for the study. Chem-Trol pledged full cooperation with the study, provided NCEMC with requested data and opened the facility to commission members. Over the next six months NCEMC proceeded with its work.

In September the Porter town board by a one-vote margin denied Chem-Trol's request for an excavation permit. The actual vote was three to two for granting the permit. However, the Niagara County Planning Board had denied Chem-Trol a special excavation permit three days earlier. As a result of the planning board's action, Chem-Trol needed four out of five town board votes to receive the excavation permit. Again, Chem-Trol appealed the town board decision to the local zoning appeals board and asked for a stay of the ban on excavating. Although DEC entered into the appeal in support of the company the zoning appeals board denied the permit application in October.

In mid-November the area's U.S. congressman arranged a meeting of opponents and officials from Chem-Trol, NCHD, DEC, and U.S. EPA. Prior to that meeting local officials had appealed to the congressman for support and he reportedly asked the U.S. president to compel U.S. EPA to monitor Chem-Trol. At the meeting itself the congressman declared that "...our biggest problem is that the people here don't trust [elected and regulatory] officials." The deputy administrator of EPA Region II provided information on RCRA and indicated that he was not at the meeting to close down the facility. According to Chem-Trol opponents, however, the EPA official promised that the Region II office would take direct action if it could be proved that Chem-Trol polluted any navigable water. Perhaps the most dramatic statement was made by an NCHD official. He explained that the original permit issued by NCHD had been reviewed and approved by town officials. This statement was reportedly met with disbelief by the assembled citizens.

By the end of 1977 Lewiston elected officials directed the town attorney to begin legal action against Chem-Trol, DEC, and U.S. EPA. This decision was made after a December spill which resulted in another DEC-imposed fine.

In January of 1978 a series of meetings were held between Chem-Trol and DEC officials. The meetings were designed to provide solutions to Chem-Trol problems with liquid waste disposal. Specifically DEC would determine whether a temporary permit for liquid wastes granted by DEC's Albany office in October of 1977 would be continued. By mid-January Chem-Trol had submitted a management plan which called for applying for a permit for an additional storage lagoon by late February, identifying outfalls for treated effluent by mid-March, submitting monthly waste water reports, and limiting Chem-Trol's acceptance of liquid wastes to 450,000 gallons a month. DEC declared that the plan had fulfilled the

agency's requirements. DEC, which had threatened to revoke the temporary permit if the plan was unacceptable, extended the temporary permit until mid-March, 1978.

Various other parties involved in the controversy also took actions in January. NCEMC, which had been formed in July, 1977 by county legislators, issued its report. That report found laws to be vague but that Chem-trol appeared to be complying with those laws. It stated that the facility should continue to operate but that monitoring should increase. Long-term care was considered to be the major issue and the ultimate objective for the site (i.e., its post-closure use) should be defined. To facilitate communications between the concerned parties it recommended that a panel of regulatory agency officials and citizens be established.

In late January a state appeals court lifted the ban on excavating a new landfill. The ban had been in effect since July of 1977 when the Town of Porter claimed that the company needed a local excavation permit. In its decision the court stated that "... (the) record fails to show how (the landfill) will result in irreparable injury..." and that delaying excavation would be punitive to Chem-Trol.

In January another spill occurred which discharged a "green acid" into Lake Ontario. According to local officials, the spill ran for five days while local and DEC officials argued over whether the spill was from the Chem-Trol facility. DEC finally determined that it was. By February, armed with data generated by technical consultants that showed pollution of navigable water, local officials and residents went to Region II to seek federal monitoring of the facility. EPA declined to do so. Instead, according to local residents, EPA indicated that such requests were routinely turned over to state agencies (i.e., to DEC). Local residents felt that EPA had broken the promise to act made at the November, 1977, public meeting.

In mid-March DEC finally held public hearings on the water discharge permit. These hearings had originally been scheduled for the previous July but had been postponed several times because of intervening events. At issue was whether effluent could be discharged into Four Mile Creek and thus into Lake Ontario. Although the existing permit allowed for discharging into the Niagara River, Chem-Trol had no direct access to the river. The Lewiston town board had not allowed the use of its sewer line to the Niagara River. The company reportedly wanted to pursue both discharge options.

The hearings proceeded for four days. The question of discharge into Four Mile Creek was complicated by the fact that there is substantial water flow in the creek only during a one-month period in the fall and another in the spring. Any effluent discharge by Chem-Trol would have to take place during these peak flow periods. Chem-Trol and its consultants testified that the discharge would have no effect on fish in the creek and that samples of fish from the creek showed no build up of toxic materials. Opponents openly doubted the reliability

of Chem-Trol's consultants and claimed the company had no credibility. They also questioned the company's ability to monitor its discharges. On the last day of the hearings Chem-Trol offered to pay the Town of Porter to hire a security agency for 24-hour surveillance of discharge operations.

In early April, three weeks after the hearing closed, DEC approved a permit allowing Chem-Trol to discharge up to 450,000 gallons a day into Four Mile Creek. This was subject to the condition that the volume of discharge not exceed 5 percent of the volume of water in the creek. DEC also announced that it would monitor discharge operations. Discharges were then made by Chem-Trol and the company paid Porter to have the operations surveilled. During the discharge operations a Porter town supervisor acknowledged that more monitoring was taking place than ever before but that he was still scared by the potential impacts of the facility.

In June, 1978 the New York Department of Health declared a state of emergency in the area around Love Canal, some ten miles south of Model City site. This official confirmation of the disaster surrounding Love Canal gave added impetus to the concerns of Chem-Trol's opponents. Operation Clean and local officials had developed some ties to citizens active in the Love Canal fight. In addition, various local leaders indicated that Niagara Falls residents fearful of the impacts of Love Canal had moved into Lewiston and Porter and had joined those concerned about Chem-Trol.

Despite local attempts to restrict Chem-Trol's operation the company had been able to expand its site. Through a number of purchases beginning in 1976, the land owned by SCA was increased so that by June of 1978 a total of 860 acres were owned. In July, SCA confirmed a number of local rumors by announcing that it was considering purchasing an old chemical plant in Lewiston. If bought, the plant would be converted into a treatment facility for hazardous wastes. (At the time of the site visit, no further evidence of such a purchase could be determined.)

In late summer and early fall of 1978, actions against Chem-Trol increased. In early September a resolution was proposed to the Niagara County legislature to oppose all permits allowing Chem-Trol to discharge. Opponents argued that there was a 50-50 chance of contamination resulting from disposal operations while others countered that the area should be responsible for the hazardous wastes it generated and that the resolution was too broadly written. The resolution was defeated by a vote of eight to four. The following month local officials and citizens appealed to the state attorney-general to investigate the site. The attorney-general's office subsequently began an investigation. Citizens opposed to the facility also received a boost when the United Auto Workers and the Farm Bureau independently passed resolutions supporting the efforts of Operation Clean.

U.S. EPA became directly involved with Chem-Trol when the Region II office granted a PCB disposal permit in October. During the public

comment period EPA received a number of letters from area residents. An EPA official, however, indicated that most complaints related to discharge, not directly to PCB disposal. For some opponents EPA's permit approval resulted in a wholesale plummeting of the agency's credibility.

In December opponents organized an informational meeting which attracted a reported 700 persons. Speakers included local opposition leaders, the assistant attorney-general of Illinois who had prosecuted SCA for its Wilsonville facility, and a cancer researcher from the Roswell Park Memorial Institute. The cancer researcher decried the burial of mixed hazardous wastes and argued that thermal destruction was the only responsible disposal method. She also stated that the Chem-Trol facility could be the "Love Canal" of the future. The Illinois official declared that Chem-Trol could be worse than Wilsonville.¹ A Lewiston town supervisor urged the state attorney-general to close Chem-Trol and called on industry to neutralize the hazardous waste it generated.

In early 1979 opponents began to focus their attention on the Porter town board and a proposed pipeline. Operation Clean presented that board with a petition signed by 6,500 persons; the petition urged the town to close the site.² Soon after the petition, SCA³ presented plans to Niagara County officials for a 32,000-foot pipeline from the site to the Niagara River. The pipeline, which would provide SCA access for discharging into the river, required approvals from the Town of Porter, Niagara County, DEC, the state transportation department, and U.S. EPA. Operation Clean opposed the pipeline and in late January the Porter town board unanimously voted to oppose the plan. In March Niagara County gave its approval for SCA to construct the pipeline on county right-of-ways. Yet by mid-April Porter officials had still not acted on SCA's request that the town approve the pipeline. The town's continuing opposition was based on the view that the line was an industrial use and any leakage would pose a threat to the areas traversed by the pipe including an area dedicated to residential use. The pipeline crossed one water line and paralleled another, raising fears of contamination of drinking water supplies.

In late January DEC called a meeting of Lewiston and Porter officials along with other area officials at the county, state, and national

¹ In of August 1978, a trial judge ordered an SCA subsidiary to close a hazardous waste facility in Wilsonville, Illinois and to exhume all buried waste. The exhumation order was stayed while the decision was appealed.

² The petition was also sent to Lewiston, Niagara County, and state officials, as well as to the governor, U.S. EPA, and the president.

³ In late 1978 or early 1979 the facility's name was changed to SCA Chemical Waste Services, Inc.

levels. This was the first in a series of meetings between DEC area officials and local opposition leaders. According to DEC, the meetings were designed to facilitate the exchange of accurate information on the SCA site, hazardous waste problems, state regulatory procedures, and DEC's attempts to regulate SCA.

The following month SCA submitted to DEC an application for an operating permit under revised state hazardous waste regulations. The new regulations subsumed earlier state regulations and all operating hazardous waste facilities were required to apply for new permits. The SCA permit also included some expansion to the facility, principally a new landfill. DEC anticipated holding public hearings on the application in May of 1979 prior to making any decision on the application.

In early March SCA was fined \$15,000 by U.S. EPA for improper storage of PCBs. This was the second fine levied against SCA in 1979; in mid-January DEC had fined the company because of odors and other charges.

In mid-April (when the site visit was conducted) the conflict over SCA's facility appeared not to be near resolution and showed signs of renewed activity. Long-standing opponents (i.e., local officials and citizens organized as Operation Clean) had begun to seek the support of Canadians across the Niagara River in Ontario. In the first several months of 1979 those Canadians were reportedly organizing their own anti-SCA group. Canadian officials at the local and provincial level had contacted DEC to express their concern over the possibility of SCA discharging into the Niagara River which is a source of water for some Canadian jurisdictions. Opponents appeared to be concentrating their energies on the anticipated public hearings on the new DEC permit for the facility. Operation Clean was also preparing to study health problems in the area to determine if they were related to the SCA facility. In the longer term, opponents looked to the state attorney-general's office as the most probable, and perhaps only, means to close the facility. Opponents specifically called for a suit analogous to the one pressed by the Illinois attorney-general against the Wilsonville facility.

While a substantial, apparently immutable group sought closure, other actions in 1979 were directed toward upgrading facility safeguards. Thus in January the state attorney-general's office reportedly recommended the creation of a state closure authority as a mechanism for additional control of hazardous waste facilities, particularly after those facilities were closed. The Porter town board was pressing Niagara County legislators to enact a perpetual care law that would apply strong standards.

SCA was still faced with the problem of discharging its treated effluent. Its only recourse in April was to discharge into Four Mile Creek. That option was severely restricted by the fact that the stream's flow could only accommodate discharge for short periods in the

spring and fall. Estimates of the amount of treated effluent SCA had on-site ranged from 40 to 90 million gallons. Long-term solutions required either the use of the Lewiston sewer line or the construction of SCA's own pipeline. Both solutions required approvals by local officials who showed few, if any, signs of granting such approval. A Porter town supervisor expected a suit would be pressed against SCA if it tried to construct the pipeline, even though he doubted the town could win such a suit. In February SCA changed its top management at the facility. For at least one local official who has been a long-time opponent, this change in management may have created the potential for resolving the conflicts. Most opponents, however, seemed unchanged in their attitudes. SCA staff also saw little chance for any change in the basic outlook of area residents over the short- or medium-term future.

IV. CHRONOLOGY OF EVENTS

April, 1969 -- Chem-Trol incorporated.

August, 1969 -- Blasdell site purchased.

July, 1970 -- Operations begin.

1971 -- Search for new site begins.

Early 1972 -- GSA declares Model City surplus federal property; Chem-Trol purchases site.

February, 1972 -- Blasdell site is closed; move to Model City begins.

Spring 1972 -- NCHD grants Chem-Trol operating permit.

May, 1972 -- Model City site begins operations.

July, 1972 -- Fire and explosion occurs at Blasdell site.

1972 -- Chem-Trol makes presentations to local officials stressing reclamation and recycling aspects of facility operations.

1973 -- SCA purchases Chem-Trol; original management retained.

September, 1973 -- Salt piles and damaged vegetation discovered by local officials.

March, 1974 -- Phenol-contaminated spill results in fish kill. NCHD determines material was from Chem-Trol.

September, 1974 -- Local officials charge that Chem-Trol illegally discharges wastes into Four Mile Creek via abandoned sewer lines. Town plugs line; subsequently lagoons reportedly developed on site.

- December, 1974 -- DEC grants Chem-Trol SPDES permit for discharge into Niagara river.
- Summer 1975 -- SCA replaces original Chem-Trol management, new management begins concerted effort to clean up facility.
- July, 1975 -- Lewiston Town Attorney directed to investigate legal actions against Chem-Trol.
- November, 1975 -- Porter issues notice of zoning violations to Chem-Trol; Chem-Trol appeals decision to courts.
- January, 1976 -- Wastewater from Chem-Trol spills into Four Mile Creek. Local officials begin meetings to push for DEC enforcement.
- February, 1976 -- Fire and explosions occur in landfill.
- June, 1976 -- Chem-Trol acquires more land, owns a total of 407 acres.
- July, 1976 -- Shipment of pesticides received; DEC Buffalo office orders halt in processing pesticides; DEC and Chem-Trol develop plan allowing for processing of pesticides.
- September, 1976 -- Porter town supervisor calls for closing of facility; DEC requests halt to use of landfill filled with rainwater; Chem-Trol ignores request because it would idle facility.
- October, 1976 -- Spill at site occurs when bulldozer undermines lagoon wall; DEC investigators find hose leading from treatment pond to manhole. Residents begin petition drive against facility and form Operation Clean. Youngstown village board calls for closing of facility.
- November, 1976 -- Area's U.S. congressman asks DEC and U.S. EPA to monitor site. DEC reportedly considers, then rejects, an order to close facility.
- January, 1977 -- State Supreme Court rejects town zoning suit against Chem-Trol. Chem-Trol management claims it will stop receiving liquid wastes but it does not.
- February, 1977 -- DEC admonishes facility for spill; lack of stronger action by DEC reportedly leads to local disillusionment with that agency.
- March, 1977 -- Local jurisdictions hire consultant to analyze Chem-Trol.
- May, 1977 -- DEC advises Lewiston to allow Chem-trol to use a town sewer line for discharge into Niagara River.

- June, 1977 -- NCHD official argues for the continued operation of Chem-Trol. Opponents appeal to governor for help, openly charge company with incompetence and dishonesty. Lewiston delays vote on Chem-Trol use of sewer line.
- July, 1977 -- Porter issues zoning violation to Chem-Trol claiming company must have excavation permit. Chem-Trol ignores order to stop excavation until order affirmed by state supreme court. NCEMC created by county legislators to be neutral party investigating the controversy. DEC public hearing on permit for wastewater discharge postponed.
- August, 1977 -- Porter holds hearings on Chem-Trol application for excavation permit.
- September, 1977 -- Niagara County Planning Board denies special permit to allow Chem-Trol to construct landfill; Porter denies excavation permit for landfill; Chem-Trol appeals town's decision and DEC supports Chem-Trol's appeal.
- October, 1977 -- Area's U.S. congressman asks president to compel U.S. EPA to monitor Chem-Trol.
- November, 1977 -- Congressman arranges meeting with officials from U.S. EPA, DEC, NCHD, and local jurisdictions and with area residents.
- December, 1977 -- Spill discovered at Chem-Trol; DEC criticizes Chem-Trol for number of spills and violations; company fined by DEC. Lewiston Town Attorney is directed to take legal action against Chem-Trol, DEC, and U.S. EPA.
- January, 1978 -- Series of meetings between DEC and Chem-Trol results in plan for handling liquid wastes and extension of liquid waste permit for two months. NCEMC issues report finding Chem-Trol generally in compliance with state laws but calls those laws vague. State appeals court lifts ban on excavation of Chem-Trol landfill.
- February, 1978 -- U.S. EPA refuses to monitor Chem-Trol in spite of opponents' data on previous month's spill. Opponents consider U.S. EPA to have broken promise made at November, 1977 meeting.
- March, 1978 -- DEC holds four-day public hearing focusing on Chem-Trol's plans to discharge treated effluent.
- April, 1978 -- DEC approves discharge of facility's effluent into Four Mile Creek; Chem-Trol pays Town of Porter for surveillance of discharge operations.

June, 1978 -- Chem-Trol now owns 860 acres.

July, 1978 -- SCA announces that it is considering buying Stauffer Chemical plant in Lewiston to convert into treatment facility.

September, 1978 -- Resolution to oppose all permits for Chem-Trol discharge defeated by Niagara County legislators.

October, 1978 -- UAW and Farm Bureau declare support for Operation Clean. Opponents appeal to state attorney-general's office which begins investigation of Chem-Trol. EPA grants PCB disposal permit.

December, 1978 -- Opponents organize informational meeting; 700 attend.

Late 1978, early 1979 -- Facility name is changed to SCA Chemical Waste Services, Inc.

January, 1979 -- DEC imposes \$5,000 fine for violations. Operation Clean obtains 6,500 signatures on petition to close facility. SCA announces plans for 32,000-foot pipeline to Niagara River, Porter town board votes to oppose plan. Local officials meet with DEC to discuss SCA facility and general problems of hazardous waste. Attorney-general's office recommends creation of state closure authority for hazardous waste facilities.

February, 1979 -- SCA changes top management at facility, submits application for revised DEC permit. Porter town board encourages county to adopt perpetual care law.

March, 1979 -- Niagara County gives approval for SCA pipeline to cross county right-of-way. U.S. EPA fines SCA \$15,000 for improper PCB storage.

Spring, 1979 -- Operation Clean seeks and obtains support of Canadian residents; Canadian officials express concerns to DEC over SCA discharge into river.

V. ATTEMPTS TO SECURE SUPPORT

Numerous attempts have been made to gain support for the facility, to address or to correct specific and broad concerns of local residents, or to create a means for addressing those concerns. The most significant of these follow.

- o The review of the original NCHD permit by the Porter town board.
- o Early presentations by Chem-Trol to local officials stressing recycling and reclamation techniques.

- o The clean-up effort begun when SCA placed its own management personnel in charge of the facility.
- o Chem-Trol's offer to decontaminate Lewiston's sewer line if it could be used to discharge into the Niagara River.
- o Various statements by NCHD and DEC officials arguing that Chem-Trol was an environmental and/or economic asset.
- o Meetings and other actions by the area's congressman directed towards greater monitoring of the facility and better communications between key parties.
- o U.S. EPA's reported promise to intervene if navigable waters were polluted.
- o NCEMC's creation as a neutral party and its report on Chem-Trol and state law and regulation.
- o DEC's March, 1978 public hearings on the modification of Chem-Trol's state permit.
- o Chem-Trol's payment to Porter of the costs of surveilling discharge operations.
- o Meetings in early 1979 between DEC and local officials.
- o Anticipated public hearings to be held by DEC in May of 1979 in connection with the issuance of a revised operating permit.

VI. SUMMARY EVALUATION

In its first year or so of operation Chem-Trol operated with a degree of support from local officials. This can be said to stem in part from the review of the permit by Porter officials and early Chem-Trol public relations efforts. Approval of the NCHD permit was due to the benefits officials attributed to the development of the facility, including the return of a sizeable piece of land to local tax rolls and, more generally, the broadening of the area's industrial base. Equally important was the impression given local leaders that the facility would recycle and reclaim industrial wastes. It is probable that Chem-Trol stressed these facets of the operation and downplayed the burial of anything other than innocuous residues.

Subsequent attempts to secure support or address concerns did not occur until three years after the facility opened. All have clearly failed to generate support for the facility. Few if any gains have been made in overcoming public concern and opposition. The simplest and perhaps most accurate explanation of this failure is that in the eyes of area residents the attempts were too little and too late.

Opposition to the facility evolved over a relatively long period of time. Most opponents described this as starting with concern over spills or other operation problems which continued over time; repeated problems deepened concerns. The perceived failure of DEC to recognize the gravity of these problems added disillusionment; the perceived unwillingness first of DEC and later U.S. EPA to firmly and quickly enforce applicable regulations added frustration. The continued spills and accidents, intentional or unintentional, reduced SCA's credibility to near zero. Finally, outside events added a clear element of fear. To paraphrase an opposition leader, Love Canal demonstrated that landfills can kill and U.S. EPA demonstrated that there is no such thing as a secure landfill.¹ Over time opposition became more widespread and more profound. Attempts to deal with this appear not to have matched the magnitude of the opposition.

Since at least September of 1976, opponents have called for the closing of the facility. Thus for more than two years opponents have stated their major goal as being completely at odds with the facility's attempts to reduce spills, to upgrade monitoring, and to make other reforms. A clear impression from all key parties is that there is almost no middle ground, no room for compromise. There is some sense that better public education/ information may in the long run persuade residents that SCA's facility is an environmentally appropriate response to hazardous waste disposal problems. However, there is an equal if not greater sense that opposition will continue until every tactic to close the facility has been tried.

A great many issues have been raised, and major issues have changed as events have changed, a prime example being the concerns the Town of Porter has over the proposed SCA pipeline to the Niagara River. There are overriding issues, however, which encompass most of the shifts of focus. There are listed below.

The safety of landfills -- The burial of hazardous wastes is seen as a continuing and long-term danger extending beyond the operational life of the facility. It is also seen as a low-cost, high-risk disposal technique.

Perpetual care -- Linked to the concern over landfills is concern over provisions for maintaining and monitoring the integrity of the facility after it is closed.

¹ A U.S. EPA-sponsored study found that leachate was migrating from over 80 percent of 50 industrial waste land disposal facilities surveyed. The study concluded that groundwater contamination at such facilities is a common occurrence. It should be noted that some of the study's data were challenged by state agencies. See The Prevalence of Subsurface Migration of Hazardous Chemical Substances at Selected Industrial Waste Land Disposal Sites, EPA/530/SW-634, October, 1977.

Operational safeguards -- Opponents feel that there have been too many odors, spills and accidents. Many see these accidents as intentional actions by the company to solve its discharge problem. SCA's credibility has been consistently questioned and doubted. A major focus of concerns over operations has been the discharge of effluents. These are seen as major pollutants of Lake Ontario and potentially the Niagara River, the latter being a source of public water supplies.

The credibility of regulatory agencies -- Residents seriously doubt that DEC is willing to implement a strong regulatory program. DEC is seen as insufficiently responsive when violations of state regulations occur. While most of these regulatory concerns have been directed at DEC, the credibility of U.S. EPA has also been questioned. These agencies tend to be seen as being biased towards SCA and against opponents.

Equity -- Area leaders have stated that provisions should be made for hazardous wastes generated in the area. At the same time, opponents feel that the area is being asked to bear the costs, while a much larger group of others reap the benefits of those industries which generate hazardous waste.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

Initial acceptance of Chem-Trol was primarily the result of the following factors.

- o The return of the Model City site to local tax rolls.
- o The desire of local officials to increase the area's industrial base.
- o The image of Chem-Trol as a recycling and reclamation facility utilizing innovative, non-polluting techniques.

The subsequent creation of local concern and opposition resulted from the following.

- o Spills, odors, and other operational problems at the site and in the transport of wastes to the site.
- o The perception that Chem-Trol turned increasingly to the burial of hazardous wastes as a disposal technique.
- o The conviction that DEC, and to a lesser extent U.S. EPA, were not fulfilling their regulatory responsibilities and were not helping to solve problems at the facility.
- o The events surrounding Love Canal and a variety of information which confirmed the potential dangers of hazardous waste disposal and cast serious doubt on the integrity of landfills as a disposal technique.

VIII. RETROSPECTIVE VIEWS

Almost everyone interviewed felt that if the initial promises and proposals made in connection with the Model City facility had been adhered to, opposition would not have developed. For local leaders this primarily meant that no burial of hazardous materials would have taken place. For SCA and regulatory officials this meant that no spills or other accidents would have occurred. An NCHD official also indicated that if the original proposal had encompassed some permanent method of discharging effluents much of the controversy could have been avoided. Given that there have been a number of operational problems, those interviewed agreed that opposition was inevitable.

IX. GENERAL COMMENTS

Local leaders saw a number of general problems with current hazardous waste management. RCRA was strongly criticized for condoning landfilling of hazardous waste and for limiting "perpetual care" provisions to a 20-year period. Implementation of hazardous waste programs should be carried out by one lead agency as opposed to the array of agencies with some regulatory control over these problems. Greater responsibility should be placed on hazardous waste generators although one official cautioned that this might place undue burdens on small businesses. More monitoring of sites was considered critical although it was acknowledged that DEC has limited staff resources. When violations occur fines should be much larger. It was argued that a \$1,000 or \$5,000 fine made little difference to disposal companies. These leaders also saw the transportation of hazardous wastes as a major problem. Finally, one local official felt that problems might ease in two to three years as regulatory agencies gained more expertise and thereby gained the confidence of the public.

These local officials and residents agreed that the state or federal government must own disposal sites and be responsible for operations. Industry was seen as being naturally concerned with reducing cost and therefore not willing to spend the required money for proper disposal. They also called for complete treatment of wastes to render them non-hazardous and the burial only of harmless residuals. Several of those interviewed pointed to European treatment facilities that reportedly operated in such a fashion. The facility being proposed by the state of Michigan was also seen as a model. A national approach was emphasized so that no state would become a haven for hazardous wastes. Finally, there is a need for compensating local areas for costs from studies commissioned by local governments and from legal fees as well as the more general costs associated with being a host community for a disposal facility.

An NCHD official also felt state or federal ownership of sites may be the only viable option. With the use of eminent domain the government could acquire the best possible site regardless of whether the site was for sale. Government could contract with private industry for facility operations. A major concern was perpetual care and who would be

responsible if problems arose 20 or 100 years after closure. He argued that government would be there to solve problems long after private industry had left the scene.

SCA officials also felt that eminent domain may be necessary in some cases because public opposition will be a major obstacle in securing future sites. They also saw this potential increase in governmental involvement as making siting more cumbersome and problematic. In the longer run, they felt, public education by government and industry is the only real way to overcome opposition. They saw a need for widespread understanding of the societal impacts created by contemporary industry. People need to realize the inevitable costs -- both financial and environmental -- of the products that contribute to the present standard of living. It was hoped that such an understanding would lead to greater confidence in the ability of government and private industry to solve hazardous waste problems. Finally, these officials felt that there should be stricter government regulation and stronger enforcement of existing regulation, including fines tied to costs. These regulations should impose high standards for disposal and require greater quality control for operations.

State views are discussed in state agency reports elsewhere in this report.

ENSCO ENERGY SYSTEMS COMPANY

EL DORADO, ARKANSAS

I. INTRODUCTION

Ensco is in the business of disposing of industrial waste chemicals by high-temperature incineration. They operate a facility in Union County near El Dorado, Arkansas. The facility consists of a modified incinerator and storage tanks left over from an abandoned oil refinery. The facility has been operating commercially since 1977. In 1978, Ensco requested permission from EPA to incinerate PCBs¹. However, before this request could be acted upon, the county passed an ordinance prohibiting the transportation, storage or disposal of PCB wastes in the county. EPA had scheduled but subsequently postponed a test burn of PCBs to ensure the effective and safe destruction of these wastes by the Ensco facility.

At the present time, the company is continuing to dispose of non-PCB hazardous wastes. The company is also fighting a court case against the county ordinance forbidding PCB storage, disposal and transportation activities. Pending a decision in this case, EPA will again reschedule a test burn to verify the incinerator's effectiveness in PCB disposal.

There has been local public opposition to this facility almost since its inception. This opposition was initially based on adverse publicity surrounding a previously unsuccessful Ensco waste disposal facility in Minnesota. Ensco's decision to request permission to incinerate PCBs then raised the level of public opposition, due to the public awareness of the hazards associated with PCB wastes. Although the facility appears to be technically adequate and represents the current state-of-the-art in high temperature incineration, the management and physical appearance of the facility and the past history of the company have provided the public with issues on which to base their opposition.

Various attempts by Ensco have been made to assuage public concern, and a number of technical studies and reports have generally upheld the facility's viability. These various actions have had little impact on general public opposition.

II. BACKGROUND INFORMATION

The site of the Ensco facility occupies 45 acres in an industrial park within the unincorporated portions of Union County, Arkansas. The site is part of what was an abandoned oil refinery that was converted into an industrial park. It is zoned for industrial use and is completely surrounded by other industrial uses. Every phase of the oil industry

¹ Under the provisions of the Toxic Substances Control Act, EPA must approve any such operation.

operates in this area -- exploration, drilling, production, refining, sales and transportation. Within the county there are several refineries, a chemical fertilizer plant and several bromide plants. However, the site is also immediately adjacent to the city limits of El Dorado and less than a mile from populated areas. The Ensco facility makes use of several storage tanks and an incinerator that were part of the abandoned refinery. The basic incinerator consists of a primary combustion area (3000 ft³) and a retention chamber (3000 ft³) separated by a 180-degree bend and a brick baffle. The primary combustion area has two burners: Model 6514-9 Fire-All Dual Burner manufactured by North American. The waste is fed into a central nozzle in each burner and atomized with 100 psi air. Two annular rings encircle each nozzle, one to deliver secondary air and one to provide natural gas to act as a pilot light and a flame stabilizer. Mounted on the rear wall of the primary combustion chamber are two spray nozzles which are used to inject well water into the flame front to control the temperature of incineration. The incinerator is equipped with a venturi scrubber, and a cyclone de-mister for removal of particulates, HCl and SO₂.

The incineration process proceeds as follows. Drums full of waste are first dumped into grinding mills that shred any packaging so that it will burn better. The combined packaging and chemical waste then falls into a hopper and is dumped into a 34-foot rotary kiln. The kiln is lined and turns constantly. The waste retention time is 30 minutes. The temperature inside the kiln reaches 1,500 degrees. Organic material is turned to an inert ash. The ash and non-combustible organic materials, which together comprise the solid waste output of the incinerator, is suitable for landfilling.

The incinerator burns both liquid and solid wastes. Liquid wastes are used as fuel for the incinerator. Waste air and vapors are pulled out of the grinder and recirculated into the system. The combustion system operates under negative pressure, so that air would be drawn into rather than out of any hole in the structure. Pressure-sensitive switches automatically close down the system if interior pressure exceeds given parameters. Ash is dumped out of the kiln and gases are recirculated. The kiln temperature is increased to 2,200° to break liquids into a fog. A wet scrubbing system then removes dust and acid vapors. In the smoke stack a de-mister removes dirty water from the resultant gases, leaving clean flue gases. The stack gases are monitored to ensure that they include no harmful materials.

In addition to its incinerator, Ensco has storage tanks originally used by the refinery. The company maintains a laboratory on the site. All wastes received are analyzed before incineration and samples of waste are kept. Ensco also has four tanker trucks to provide hauling services for hazardous waste. There are about 80 employees.

The Ensco facility accepts a relatively broad range of solid and liquid wastes suitable for thermal destruction, including chlorinated.

hydrocarbons. Wastes are accepted from generators and in some cases other disposal firms that lack incinerators. Most wastes are from out-of-state and the market area served by the facility is national.

Ensco is a privately owned firm which has evolved from an earlier disposal firm with a hazardous waste landfill which operated between 1965 and 1976 in Minnesota. As will be described in Section III, Ensco is also linked to an El Dorado firm with which it merged in the early 1970s. The El Dorado facility is the only one currently being operated by Ensco.

El Dorado is located in southern Arkansas, 120 miles from Little Rock. The estimated population of El Dorado was 26,500; that of Union County, 46,500 (1977 figures). Average family income in El Dorado was \$10,617. Major industries located in the county include the oil industry, chemical industry and the lumber and wood products industry. El Dorado also has the largest poultry processing plant in the South.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

To operate an incinerator in the state of Arkansas, one is required to have a permit from the Arkansas Department of Pollution Control and Ecology (DPCE). This permit specifies what can be burned in the incinerator. In this case, for instance, the permit had to be amended to allow the burning of PCBs. As noted above, permission from the EPA to incinerate PCBs was required under the provisions of the Toxic Substances Control Act. No regional or local permits were required for this facility.

In March of 1971, American Oil Company (Amoco) donated to Union County certain property to be used for industrial development purposes. The donation was made since Amoco had closed a refinery there and had moved from the Union County-El Dorado area. In August of 1973, a lease-purchase agreement was entered into between Union County, the El Dorado Industrial Development Corporation, and a private individual who was personally associated with Pollution Controls, Incorporated (PCI). The agreement covered several lots on the old Amoco properties. In March of 1974, a sub-lease agreement was made between that individual and Graco Properties, Incorporated for approximately 45 acres. The 45-acre site included an abandoned oil refinery and storage tank facilities. The abandoned equipment was to be the nucleus of an incineration process for hazardous chemical wastes. This arrangement was approved by Union County and the El Dorado Industrial Development Corporation. Graco Properties soon became known and referred to as Graco Chemicals. Graco Chemicals subsequently took the name of Pollution Controls, Incorporated. This was in essence a merger with PCI, a Shakopee (Minnesota) chemical disposal firm. (PCI was founded in Shakopee, Minnesota, in 1965. The Shakopee plant was closed in 1975, following continuous complaints from residents and continuous disputes with the Minnesota Pollution Control Agency.)

PCI's first contact with DPCE in connection with the development of the incinerator came in 1973. Following these discussions PCI submitted an application for a permit for the El Dorado site. In July of 1974, DPCE granted PCI a permit for the construction of a chemical waste disposal facility. The major component of PCI's facility plan was an incinerator which would be constructed over a period of about 18 months. The facility plan also included the use of existing storage tanks for the storage of hazardous waste. By offering storage services, PCI could begin to accept wastes as soon as the permit was granted. As a result, PCI was able to generate revenues during the incinerator construction period. The wastes were to be stored until they could be incinerated.

In early 1975 the future plant engineer for PCI, a chemical engineer who was then a professor at the University of Arkansas, spoke as a representative of PCI with local civic groups on company plans for a waste disposal incinerator in El Dorado. At these initial meetings with elected officials and public groups it was explained that the plant would be less hazardous than existing industries now operating in the area. No noticeable opposition to PCI's plans was expressed. However, shortly thereafter the local newspaper started a campaign opposing the proposed site. The main themes of the news story were PCI's previous difficulties in operating a chemical waste disposal facility in Shakopee. The newspaper chronicled the major public opposition to that PCI facility and foresaw similar problems if PCI moved to El Dorado. The newspaper also quoted the plant managers as saying that if Minnesota prevented them from disposing of Dioxin at their Shakopee site, the material eventually would be moved to a new incinerator planned in El Dorado. The paper alerted its readers to the "lethal" nature of Dioxin and previous accidents that had occurred in other parts of the country through mishandling of the chemical. The paper also portrayed PCI as incompetent and as operated by people of questionable integrity.

In June of 1976, PCI, in cooperation with the EPA, shredded approximately 7,000 pounds of capacitors containing PCBs. PCI had PCBs in storage at this time but had not yet completed construction of its incinerator. The incinerator's shredder, however, was operational. This shredding was done under control and direction of the EPA and the Arkansas Department of Pollution Control and Ecology. The shredded capacitors were packaged in drums and shipped to the Rollins Environmental Services incinerator at Houston, Texas. The PCB materials were incinerated by Rollins and testing was done to determine the destruction efficiency of the incinerator while incinerating PCB solids. The results of those tests indicated a destruction efficiency of greater than 99.99 percent. These tests confirmed that incineration is an effective means of destroying chlorinated hydrocarbons such as PCBs.

In September of 1976, the Arkansas Department of Pollution Control and Ecology approved a modification to the earlier (1974) construction permit. This allowed PCI limited operation of the incinerator for purposes of curing refractories and testing design calculations.

Two months later PCI suffered an accidental spill while transporting a chemical waste to the El Dorado facility from Kansas. Based on what Ensco thought was in the waste load, no alarm was sounded over the spill. However, the load was mislabeled and severe wildlife kills resulted along the stream where the spill took place. The accident and especially the mislabeling fueled public opposition to the PCI operation. Residents were not only fearful because wastes being brought to El Dorado were lethal but also because if those wastes were mislabeled, there would be no way of knowing what the dangers really were. These fears added to existing concerns over odors from wastes being stored at the PCI site.

In January of 1977 the mayor, responding to concerns over the spill and odors and general citizens' fears over the development of a hazardous waste facility, appointed a committee to investigate PCI. On the committee were represented local elected officials, business leaders and the general public. The committee hired a noted consulting firm with experience in this area to conduct a technical investigation of the PCI facility and its operation. During the consultant's investigation, PCI's president answered the public opposition with his own letter to the editor. He admitted to and explained some of the odor incidents and tried to dispel the fears of fires and explosions. The letter described the operation of the plant and the sophisticated monitoring systems. PCI also was said to expect that the consultant's report, OSHA reports and EPA ambient air quality studies would confirm the safe operation of the plant and, if necessary, correct any shortcomings. The president of PCI noted that there were chemical industries in the area producing hazardous materials in much greater concentrations than those handled by PCI, and pointed out that PCI did not generate the wastes, but merely treated them and rendered them harmless.

In February construction of the incinerator was completed and a month later it came on line. In the summer of 1977 PCI publicly announced its name change to Ensco and its intent to operate a thermal oxidation (incinerator) process on the El Dorado site.

EPA had had tests conducted on the Ensco incinerator in June of 1977. The final report of the EPA contractor, published in May of 1978, called the test one of the most intensive and exacting tests ever performed on a commercial-scale incinerator. The tests were conducted on four consecutive days. The materials incinerated were polychlorinated liquids similar in chemical structure and combustion characteristics to PCBs. Test results showed the destruction efficiency to be greater than 99.99 percent, and confirmed the operational capability of the unit.

In July of 1977 a permit was granted by the state for full operation of the incinerator as long as no fuel was burned which is recognized to be more difficult to thermally decompose than polychlorinated hydrocarbons,

unless such materials were burned under test conditions supervised by EPA and state officials. Included in these permitted wastes were liquid PCBs. Public opposition to the facility continued during 1977 from individual citizens using the paper's editorial page as a forum. Their opposition centered on the inherent danger of dealing with hazardous substances, the possibility of fires, toxic fumes, plant malfunctions, transportation spills and odors. Odors seemed to be the most frequent public complaint. Although other odor-producing industries are in the area, most of the complaints were leveled at Ensco. One of these odor problems was traced to Ensco's poor handling of mercaptan, an odor-producing additive for natural gas. The company discontinued accepting mercaptan in an attempt to assuage public opposition, but to no avail.

In March of 1978 Ensco submitted an application to the state for incineration of PCB solids -- such as capacitors, fluorescent light ballasts and, clean-up from spills -- and PCB liquids. Also during early 1978, EPA reported in a public newsletter that in cooperation with the state of Arkansas it had recently conducted a highly successful incineration test at El Dorado, destroying toxic chemical wastes (chlorinated hydrocarbons). Ensco subsequently received approval from the state to incinerate drummed solids, semi-solids and liquids such as PCB-impregnated capacitors. Also, under provisions of the Toxic Substances Control Act, EPA made a public announcement that it was going to conduct a test burn of PCBs at Ensco in July of 1978. (The previous test had been of polychlorinated liquids similar to PCBs, not of PCBs proper.)

Public opposition was exacerbated by the announcement of the PCB test. Because of this opposition and attendant political pressure, the test was soon put off by EPA until September, 1978. A local radio station broadcast a strong editorial against the test burn. The editorial pointed out the extreme danger posed by PCBs, which had been linked to cancer and birth defects. The editorial then asked whether it was in the community's best interest to have PCBs transported to El Dorado and then disposed of near populated areas; and if approval were given for PCBs, what toxic chemicals would be added in the future. The station received a large number of letters, all in opposition to the PCB test burn and Ensco. No letters were received in favor of the operation.

Under the equal time provisions, Ensco responded to the station's editorial, citing EPA's announcement in the Federal Register that incineration is the only currently available means of destroying PCBs. Ensco's response described the uses of PCBs, the plant's safe operating procedures and the successful testing of the incinerator that previously had been done by EPA. Ensco noted that while PCBs are toxic, they are not flammable and pose no threat unless improperly handled.

Sensing the rising pitch in public opposition over the PCB issue, Ensco engaged a public relations expert and proceeded to run large ads in the paper in support of their operation. These ads explained the sources of PCB wastes, alternative methods of disposal, and the Ensco facility.

Ensco also suggested to the municipality that their incinerator could be used to help them dispose of their municipal wastes. (The capacity of the local sanitary landfill was rapidly being exhausted.)

By now the letters to the editor had dropped the odor issue in favor of the more emotional PCB issue. The opposition asked why EPA did not provide its own incinerator to dispose of PCBs, and the health of the community became the key issue. The site was said to be too close to populated areas and short-term tests proposed by EPA were said not to answer questions about long-term effects. Concerns were voiced about the safety of future generations. Questions were again raised about Ensco's reputation and past track record in Minnesota.

In the latter part of August 1978, Union County attempted to pass an emergency ordinance banning incineration, shipment or storage of PCBs in the county. The emergency ordinance failed to pass. However, the same ordinance minus the emergency status passed a week later. In the intervening week, Ensco voluntarily ceased accepting any PCB wastes, hoping that the ordinance would not pass.

In early September of 1978, EPA held a public hearing in El Dorado on its proposal to conduct a test burn of PCBs. The hearing was attended by over 450 persons. The testimony reiterated many of the concerns voiced earlier in the press over the company's financial stability, past spills, fire hazards and their Minnesota track record. Witnesses were brought from Minnesota to bolster the opposition's contention that the owners of Ensco had a questionable past and that El Dorado did not want this type of operation. Ensco replied with its own presentation which restated much of the information Ensco had already made available to the public. A 4,600-signature petition was introduced into the hearing record stating citizen opposition to the EPA test burn of PCBs. Petitioners felt that the dangers of PCBs were too great in an area surrounded by residential properties. The public hearing demonstrated EPA's limited technical role and provided a forum for both sides of the local issue. The public hearing did not dampen public opposition.

After the public hearing, the letters to the editor continued to voice opposition to the Ensco plant. They pointed out that out of 1,256 personal contacts in El Dorado, 1,200 opposed the plant and the importation of wastes from out of state and out of the county. The letters also congratulated the county commissioners for their decision to pass a resolution against further storage, disposal or transportation of PCB materials.

Ensco filed a complaint in the U.S. District Court to reverse the county ordinance. It argued, among other things, that the ordinance is unconstitutional in view of the federal Toxic Substances Control Act which preempts local law, the interference with interstate commerce, and the interference with Ensco's right to engage in business. This case has not yet been heard but most people on both sides of the question

agree that the county has a weak case especially since recent state and federal Supreme Court rulings in similar cases have been in favor of the waste disposal operations.

At the end of September, 1978, the consultant released his final report to the Mayor's Committee. The evaluation did not uncover any serious problems. The Ensco staff was said to be knowledgeable, informed, courteous, and well trained. The report concluded that Ensco should be able to conduct its operations without endangering or significantly degrading the safety, health, or welfare of the community. However, according to El Dorado's mayor, there were a few blatant errors in the evaluation which helped discredit the report, thereby failing to diminish public fears over Ensco's operation.

At the close of 1978 the Mayor's Committee reported that Ensco was not the type of industry that the Committee would solicit for location inside the city limits of El Dorado or immediately adjacent to it. However, the Committee's role was not to recommend an industry for El Dorado but rather to evaluate an existing industry. Based on available data, the Committee felt that with upgraded facilities, a careful monitoring program, a system of periodic inspections, and a system of approvals by state and federal authorities for each new waste stream to be handled, the Ensco facility could be safely operated.

The Mayor's Committee went on to note that a citizens group had recently been formed to become involved in environmental issues concerning Ensco's operations. The Committee was concerned over whether a local group could possibly have the technical expertise to evaluate so sophisticated a technology as environmental impacts. It felt that such a group would become simply a publicity-oriented sounding board for real and imagined issues.

The group known as the Citizens for a Safe Environment was incorporated in January of 1979 with the purposes of promoting a safe environment by advising the public of environmental abuses, educating industry and the public, and securing community support for environmental matters. A spokesperson for the group said that it was up to the people rather than the government to monitor the actions of Ensco.

No further action is taking place regarding the PCB test burn until the court case over the county ordinance is settled. However, it appears that public opposition will not be a determining factor in EPA's decision to approve or not approve the Ensco application to incinerate PCBs. EPA's decision will be based on technical grounds regarding stack emissions and residues. The State Department of Pollution Control and Ecology is in a similar situation.

IV. CHRONOLOGY OF EVENTS

1971 -- Amoco donates abandoned refinery property to Union County to be used for industrial development purposes.

- 1973 -- County reaches lease-purchase agreement with El Dorado Industrial Development and a private individual associated with Ensco for 45-acre tract within the former refinery. Ensco initially approaches DPCE about hazardous waste incinerator.
- March, 1974 -- Sub-lease agreement is made between a private individual and Graco Properties (later Ensco) for part of the refinery property, to be used as the site of a hazardous waste incinerator.
- July, 1974 -- DPCE grants Ensco a construction permit for incinerator.
- 1975 -- PCI (a Shakopee, Minnesota chemical waste facility) is closed following complaints from local residents and disputes with the Minnesota Pollution Control Agency. Ensco's future plant engineer presents description of projected Ensco operations to local elected officials and civic groups. Local newspaper begins a campaign opposing the Ensco facility.
- June, 1976 -- Ensco, in cooperation with the EPA, shreds approximately 7,000 pounds of capacitors containing PCBs, and ships them to the Rollins Environmental Services Incinerator.
- September, 1976 -- The Arkansas Department of Pollution Control and Ecology approves a modification of an earlier (1974) construction permit. This allows Ensco limited operation of the incinerator for curing refractories and testing design calculations.
- November, 1976 -- Ensco suffers an accidental spill while transporting a mislabeled chemical waste to the El Dorado facility. Severe wildlife kills result.
- January, 1977 -- Mayor's committee is formed to investigate the Ensco operation. The committee hires a consulting firm to conduct a technical investigation of the Ensco facility and its operation.
- February, 1977 -- Incinerator construction completed.
- March, 1977 -- Incinerator comes on line.
- June, 1977 -- EPA contractor conducts tests on the Ensco incinerator. These tests confirm its operational capability.
- July, 1977 -- The Arkansas Department of Pollution Control and Ecology grants Ensco a permit for full operation of the incinerator so long as no fuel is burned which is recognized to be more difficult to thermally decompose than polychlorinated hydrocarbons.

- March, 1978 -- Ensco submits an application to the state for permission to incinerate PCBs. Permission is received shortly thereafter.
- Spring, 1978 -- EPA makes a public announcement that it is going to conduct a test burn of PCBs at Ensco in July, 1978. Due to intense public opposition, this test is postponed until September.
- August, 1978 -- Ensco voluntarily ceases accepting any PCB wastes. Union County passes an ordinance banning the incineration, shipment or storage of PCBs in the county.
- September, 1978 -- EPA holds a public hearing in El Dorado on its proposal to conduct a test burn of PCBs. The hearing does not dampen public opposition. Ensco files suit in U.S. District Court to reverse the county ordinance. Consultant's report concludes that Ensco should be able to conduct its operations without endangering or significantly degrading the safety, health or welfare of the community.
- December, 1978 -- Mayor's committee reports that the Ensco facility could be safely operated.
- January, 1979 -- Citizens for a Safe Environment incorporated to advise the public of environmental abuses and, in particular, to monitor Ensco's operations.

V. ATTEMPTS TO SECURE SUPPORT

In an effort to secure local support for their operations, Ensco undertook several actions.

- o They hired a public relations consultant and took out several newspaper ads to help the public understand the nature of the wastes being processed, the incineration process itself, the safety precautions, and the reasons for locating in El Dorado.
- o They responded to media editorials and letters to the editor with their own letters and public notices.
- o They participated in talks to local civic and government groups.
- o They complied with and advertised their degree of compliance with federal and state regulations.

- o They suggested the future use of their incinerator to help the city dispose of municipal wastes. (The local sanitary landfill was rapidly being exhausted.)
- o They cooperated with outside tests and evaluations of their facility.

VI. SUMMARY EVALUATION

The conflict over Ensco's operation in El Dorado has not been resolved. Although the company is operating at the moment, incinerating chemical wastes that are less difficult to dispose of than PCBs, they have yet to win EPA approval for the commercially attractive PCB disposal. Their attempts to gain public support have failed and the emotional level of the controversy has risen.

The company's attempt to educate the public and to comply with state and federal regulations has missed the point of public concern. The citizens of El Dorado do not want to be educated on hazardous waste disposal or on safety precautions. Their concern seems to be over the past and present integrity of the owners and the physical image of the site, and of course, over the potential hazards associated with PCBs. More attention to and display of open and above-board business dealings as well as to site appearance may have done more good than all the technical education on chemical wastes and their treatment.

Ensco may well gain all the necessary state and federal approvals to expand their existing incineration facility to handle PCBs. They also stand a good chance to win their court case against a local county ordinance banning PCBs. However, a significant part of the local population will remain frustrated in their attempts to not have hazardous wastes imported to El Dorado for disposal. The major issues in this controversy are:

PCB disposal -- The hazardous nature of PCBs has generated a highly emotional opposition to their disposal regardless of the manner of that disposal.

Operational and other problems connected with the facility -- Odors at the facility, the unpleasant appearance of the facility, and a spill of wastes en route to the facility have been major sources of complaints. The mislabeling of spilled wastes added to general concerns about the nature of wastes handled at the facility.

Importation of wastes -- Because many of the wastes are delivered from out of state, residents feel they are bearing the burden of others' problems. They do not want El Dorado to become a dumping ground for other states.

The integrity of Ensco -- Based primarily on major problems with the Minnesota landfill, citizens have serious questions as to the ability of Ensco to operate the incinerator in a safe and efficient manner.

Local control and the unresponsiveness of regulatory agencies -- Local officials in response to citizen pressure have tried to establish local controls over Ensco. Opponents feel that DPCE and EPA, in only addressing technical questions, fail to consider other equally important questions.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

The factors contributing to public opposition are:

- o Poor image of the owners based on questionable track record of waste disposal in Minnesota, inadequate financial reserves, past accidental spills en route to Ensco, and the appearance of wheeling and dealing in connection with site acquisition.
- o Most of the wastes are imported from out-of-state sources.
- o The company's management is made up of out-of-state individuals with no previous business history in the area.
- o The site is situated in an industrial park but too close to the city limits and populated areas.
- o The site is visually unattractive with rusting storage tanks and construction debris.
- o National news on cancer and birth defects attributable to PCBs has fueled local editorials in opposition to Ensco's operation.
- o EPA is viewed by the local public as having an interest in only the technical merits of the facility and unable to do anything about local public opposition.

VIII. RETROSPECTIVE VIEWS

The final outcome of the Ensco operation is still uncertain. The case against the county ban on PCBs is still in court and public opposition to EPA's forthcoming test burn is still strong. Very few participants in this situation had any comment as to what could have been done differently. Ensco felt that they should have started their public relations campaign earlier, prior to the PCB controversy. They also felt that had they set up a local corporation with local financial interests, the opposition might have been reduced or at least there could have been more support.

State comments are listed in the state agency write-ups elsewhere in this report.

CALABASAS

LOS ANGELES COUNTY SANITATION DISTRICTS LOS ANGELES, CALIFORNIA

I. INTRODUCTION

The Los Angeles County Sanitation Districts' (LACSD) Calbasas landfill began operations in 1961 and began accepting hazardous wastes in 1965. Several years later, however, a residential development was constructed immediately adjacent to the facility. When the LACSD announced in 1973 that it planned to move its operations closer to and into the view of the housing development, they met with intense opposition from the residents of this development. The issue was not resolved at that time.

Although the LACSD did meet with community leaders regarding the dispute, their overall strategy was to maintain a low profile. It has become apparent to them that this approach has not been particularly successful. They now plan to adopt a more open policy when they bring the issue up again in the next year or so.

II. BACKGROUND INFORMATION

The Calabasas landfill site, which is owned and operated by the LACSD, occupies a total area of 416 acres. A conditional use permit has been obtained for the whole site. However, only 300 acres are covered by Regional Water Quality Control Board Waste Discharge Requirements. Of these 300 acres, 260 are planned for the disposal of Group 1 and Group 2 wastes, and the remaining 40 acres for Group 2 wastes only.¹ The remaining area is comprised of an 80-acre parcel to the north of the site and a 30-acre parcel to the east. The LACSD plans to apply for Waste Discharge Requirements for use of these parcels as Group 1 disposal sites.

The site is located approximately one-half mile north of U.S. Highway 101 (the Ventura Freeway), one mile east of Agoura, California. It is surrounded on the east, west and north by undeveloped land which is used, if at all, for grazing or oil producing operations. Immediately

¹ Group 1 wastes are defined to include those wastes which consist of or contain toxic substances. Group 2 wastes consist of or contain chemically or biologically decomposable material which does not include toxic substances nor those capable of significantly impairing the quality of useful waters and includes municipal solid waste. Group 3 wastes consist entirely of nonwater soluble, nondecomposable inert solids (California State Water Resources Control Board). A Class 1 landfill can accept wastes in Groups 1, 2, and 3.

to the south of the site, between it and the Ventura Freeway, is located a development of moderately expensive suburban homes. The population of this community is comprised mainly of upper-middle income professionals. (House values are in the range of \$150,000-\$200,000).

The site is underlain by sandstone conglomerates and shales. Steep dips in these layers of material restrict horizontal movements of liquids, so that wastes deposited in the greater part of the site will be hydraulically isolated from groundwaters of adjacent canyons. Test data indicate permeability values of 10-20 gallons per day per square foot. The only exception to this is a small alluvial area which is not approved for the dumping of hazardous wastes.

The landfill handles municipal solid wastes as well as hazardous solid and liquid wastes. The operation of the facility is as follows. Early each day a tractor builds a dam of municipal wastes, and a "pond" is formed between the dam and the previous day's wastes. Hazardous liquid wastes are dumped into this pond and municipal wastes are then pushed in to absorb the liquid. At the end of each day the pond is filled with refuse, compacted and covered with earth. Liquid wastes disposed of in this manner include relatively innocuous substances such as oil field brines and paint sludges. Odorous, flammable or reactive liquids are disposed of in injection wells which have been drilled into areas previously filled with refuse. Hazardous solid wastes and other special wastes are buried in excavations in the waste pile.

The facility accepts two general classes of hazardous wastes. The first is oily waste from petroleum refineries. The second class includes biological products such as discarded culture tests, chemicals from manufacturing industries, spent acids and caustic solutions from the metal finishing industry, pesticides, tannery wastes, and refined petroleum products. These wastes may present more of a hazard -- they are often reactive, toxic, flammable, or infectious and must be handled with care. The Calabasas landfill is not suitable for and does not accept very hazardous or highly reactive wastes (for example, cyanide and water reactive wastes), except in small quantities. Explosives and radioactive wastes are not accepted at all.

The facility currently accepts approximately 2,400 tons of wastes per day, including 250 tons per day of hazardous wastes. The existing disposal area has capacity for another 15 million cubic yards of refuse; if disposal is ultimately permitted on the whole site, remaining capacity may be on the order of 50 million cubic yards. Given current densities of approximately 1,400 pounds per cubic yard, the life expectancy of the existing disposal area is approximately 13 years, and is 40 years or more if the whole site is permitted.

The facility serves western Los Angeles County and to a lesser extent Ventura County. However, even wastes from out of state have been

accepted in the past. The LACSD operates one other, very similar hazardous/municipal waste landfill at Palos Verdes. However, they plan to close this site in 1980. In addition, there is a commercial hazardous waste management facility in West Covina and one is currently proposed in the Sauges/Newhall area. Los Angeles County is the industrial center of southern California. Major industrial sectors which produce significant amounts of chemical wastes include electronics, petroleum and natural gas. The area is also a major agricultural center.

II. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

In order to develop and operate a hazardous waste management facility in California, at least three permits are needed. These are: 1) a land use permit, 2) Regional Water Quality Board Waste Discharge Requirements (permit), and 3) State Department of Health Services permit. The land use permit, which is issued by the local city or, in unincorporated areas, county planning board, certifies that development and operation of the proposed facility would not conflict with existing land use or land use plans. In practice, it indicates that the facility has local political support. A significant factor in gaining this support is facility compatibility with local land use. This permit is a precondition for the granting of the other two permits. The decision of the local planning board can be appealed to the local board of supervisors.

The Regional Water Quality Control Board Waste Discharge Requirements specify what kinds of wastes the facility may receive and what measures must be taken to prevent groundwater and surface water pollution. These requirements are in effect a permit since they will not be issued if the geology and/or hydrology of the site are inappropriate. The State Department of Health Services permit is for the most part based on the existence of proper procedures for above-ground handling of chemical wastes. These procedures must include a contingency plan for "an accident or accidental discharge."¹

In addition, two other permits are often required, depending on the particular types of storage, processing or disposal of chemical wastes that are proposed. If hazardous wastes are to be codisposed with municipal solid wastes, then the state Solid Waste Management Board must grant a permit for the facility. This permit regulates the disposal of residential and commercial refuse so that nuisances are not created. The Solid Waste Management Board may authorize local political entities, such as the local city or county government, the power to issue municipal waste permits.

If some sort of evaporation, neutralization or incineration process or any other process which will produce a significant amount of atmospheric

¹ California Department of Health Services, Hazardous Waste Regulations, Chapter 2, Article 4, "Hazardous Waste Permit".

emissions is proposed, a permit will be required from the Regional Air Pollution Control District. Evaporation ponds, for instance, are treated as emission points. Depending on existing air quality in the region, this permit can be very restrictive as to types of processes and/or wastes accepted. Permits may also be required from agencies such as the Coast Regional Commissions if the proposed site is located in any of the areas which are under their purview.

The Calabasas landfill required a land use permit and permits from the Regional Water Quality Control Board, the State Department of Health Services, and the State Solid Waste Management Board. In this case, permits were not required from the Regional Air Pollution Control District and the Coast Regional Commission.

The LASCSD began planning for a municipal solid waste landfill in the western part of Los Angeles County during the late 1950s. This planning was in response to increasing residential and commercial development in that part of Los Angeles County. There were no publicly operated landfills in this area prior to that time. The Calabasas site was one of several considered, and was chosen on the grounds of its superior access and geology. In the spring of 1958, Los Angeles County made application to the Regional Planning Commission (RPC) for a zone exception (land use permit) approving the use of the Calabasas site as a landfill. A public hearing on the zone exception case was held on May 23, 1958. Several persons spoke in opposition to the zoning exception, on the grounds that the facility would be detrimental to a proposed school and to the health, safety and general welfare of property owners in the vicinity. The Zoning Board nevertheless approved the application. However, because the LACSD did not begin dumping in the next two years, the zoning exception expired. The county submitted a request for a new exception to the RPC on September 12, 1960. This was approved on October 4 and forwarded to the County Board of Supervisors, who approved it on April 25, 1961.

Meanwhile, the Regional Water Quality Control Board had, in December, 1960, set requirements for waste discharge at the Calabasas landfill. The site at that time was planned to accept only Group 2 and 3 wastes, i.e., non-hazardous wastes. The site began operating in mid-1961, accepting only Group 2 and 3 wastes. In 1965, the LACSD announced its intention to adapt the Calabasas landfill so that it could accept certain Group 1 wastes. Group 1 waste discharge requirements for the Calabasas landfill were adopted by the Regional Water Pollution Control Board in September, 1965, and Group 1 industrial wastes, subject to some limitations, were accepted beginning in late 1965.

During the development and first several years of operation of the Calabasas landfill, the surrounding land was largely undeveloped. The only uses found there were grazing and oilfield operations. In 1968, however, a developer purchased the tract of land lying between the landfill and the Ventura Freeway. The eastern and northern border of this parcel is bordered by the access road to the landfill. As a

condition of the site, the previous owners of the land petitioned the RPC for a change in the zoning of the parcel from heavy agricultural to residential. This petition described the surrounding area as "presently undeveloped acreage," and made no reference to the adjoining landfill. The zoning change was granted in June, 1964. The parcel, subsequently named Saratoga Hills, was developed in three phases. Development of the first tract, furthest away from the landfill, was begun in 1968; the second, in 1969, and the third, in 1972. (The parcel is now almost fully developed.) The information sheet on the development provided to prospective property owners¹ during the first two phases made no mention of the landfill. The one provided during the third phase states that the "tract is located three-fourth mile south of dump site (sic). Heavy truck traffic along north side of tract may be noticeable to prospective residents."

Notwithstanding the proximity of the landfill to the development, there were no recorded complaints about it or its operation until 1973. In July of that year, the LACSD posted a sign -- in two canyons located 350 feet from the closest homes -- which stated that they intended to use these canyons as landfill space in the near future. Prior to that time, all dumping operations had been carried out in the back part of the landfill, behind a ridgeline and out of sight of Saratoga Hills residents. A local association -- the Community Association of Saratoga Hills (CASH) had been established earlier as a forum for concerns. CASH became the focus of opposition to the proposed movement of landfill operations in the front canyons. At a meeting of CASH officers in September, 1973, it was decided to call a general meeting of the community to decide how to respond to the LACSD action. Such a meeting was held in autumn of 1973, and was well attended. The primary concern of local residents was the effect the new landfill area would have on their view of the hills. Other concerns included those related to odors, rats and other scavengers, landslides, fires, spills, and the behavior of truck drivers. Residents reported that truck drivers had been involved in several unpleasant incidents, including shouting obscenities at teenage girls in the tract. In subsequent months, concern was expressed over the geology and hydrology of the front canyons, which were said by local residents to be inappropriate for a landfill. At this meeting it was decided that the strategy CASH would adopt in opposing the landfill extension would be to approach their local political representatives, as well as the LACSD, to try to have the decision revoked. Therefore, starting in late 1973 and continuing through mid-1975, CASH representatives met several times with their state representatives, the Los Angeles County Supervisors, the RPC and the LACSD in an attempt to gain support for their plans.¹ These meetings had some immediate results but were ultimately inconclusive.

¹ Since these meetings were informal, and since many of the principal participants have left either the development or the respective government agency, neither their dates nor precise sequence could be determined.

CASH did get support for its position from the local state senator, assemblyman and County Supervisor, and as well from the Los Virgenes Homeowners' Association, the Agoura-Los Virgenes Chamber of Commerce and the Los Virgenes School District. The County Supervisor directed the LACSD to work out an agreement with CASH, and proposed that they should operate only in the back portion of the site.

The LACSD offered to resolve the dispute by moving the landfill access road away from and out of sight of the development (at a cost in excess of \$1 million). They also informed the community that, if dust or trash from the landfill was blown onto their property, they had only to call the LACSD to have it quickly removed. However, the LACSD refused to limit their operations to the back part of the landfill. They noted that this would reduce the capacity of the landfill by 60 to 70 percent. This counter-offer was accepted at first by CASH officers, but the membership as a whole voted to reject it, because the front canyons would still have been used as landfill space. Although discussions continued in 1975, no progress was made, and the result was a stalemate. During their meetings, the LACSD made some attempt to respond to local concerns. They stated that if the landfill is properly operated there should be no danger of rats, landslides or fires. They did acknowledge that there have been some spills of materials along the access road. Local residents reported in this regard that they have had difficulty getting the county health department to investigate spills, and that on one occasion when they did come, the material was sent to LACSD for testing, in the residents' eyes a not unbiased evaluation. As recently as April, 1978 a truck on its way to the landfill overturned and spilled its load of construction wastes onto a car parked next to the housing tract, wrecking it but causing no injury to its occupants. On the other hand, the LACSD has found a way to keep seagulls away from unburied garbage -- by stringing wires which interfere with their flight above the current waste area, and they are currently undertaking a full-scale investigation of site geology and hydrology to determine whether these are suitable.

Another issue which was frequently raised, but which was not at all a point of contention between CASH and the LACSD, was the incorrect information about the landfill which the developer had provided to prospective property owners. Furthermore, residents reported that the developer stated as far back as 1969 that the landfill would become a park in "10-15 years". To compound the confusion, residents also maintained that the L.A. County Regional Planning Commission until recently had the Calabasas landfill on its maps as a park. As noted above, if the whole landfill is developed, it will not become a park for another 30-50 years.

Since 1973, when the dispute first surfaced, residents have become more aware and thus more concerned about the dumping of hazardous wastes in this facility. In October of 1976, 2,500 gallons of nitric acid were

pumped into a well containing traces of sulfuric acid. The resulting reaction sent a cloud of toxic gas over the Saratoga Hills tract, but the gas was dissipated before it reached the ground. Local residents have indicated that aesthetic concerns are still primary in this dispute, but that they expect the safety of hazardous waste operations to be an issue when the LACSD again moves to bring its operations into the front canyons.

The LACSD has decided not to pursue moving into the front canyons until a year and a half from now. At that time they intend to conduct workshops and if necessary use other means to open lines of communication to the community in order to amicably resolve, if possible, the dispute.¹ LACSD attorneys have determined that they must file an Environmental Impact Report if they wish to expand the landfill into the front canyons. It is expected that the EIR will be prepared and submitted in or about 1980, and that local residents will at that time file suit to overturn the EIR and in that manner prevent dumping near their homes.

IV. CHRONOLOGY OF EVENTS

June, 1958 -- The Los Angeles County Regional Planning Commission (RPC) grants the LACSD a zone exception, approving the use of the Calabasas site as a disposal facility.

June, 1960 -- Zone exception expires.

October, 1960 -- RPC again grants LACSD zone exception for the Calabasas landfill.

December, 1960 -- The Regional water Quality Control Board adopts Class II waste discharge requirements for the landfill.

April, 1961 -- The Los Angeles County Board of Supervisors approves the zone exception for the landfill.

Summer, 1961 -- The Calabasas landfill begins accepting Class II and III wastes.

1963 -- Developer acquires the parcel of land between the landfill and the Ventura Freeway. The land is rezoned from heavy agricultural to residential.

¹ Workshops differ from public meetings in that the number of public attendees is limited and there are relatively many staff members from the sponsoring organization -- one for every eight or so of the public. In this way all questions can be answered and public input received. Furthermore, the discussion format is not so conducive to confrontation as that of the typical public meeting.

- 965 -- LACSD applies for and receives Regional Water Quality Control Board Class I requirements for the Calabasas landfill; begins accepting Group 1 wastes.
- 1968 -- Construction of housing is begun on parcel of land between landfill and highway.
- July, 1973 -- The LACSD posts a sign in the front canyons -- in close proximity to the housing development -- announcing its intention to begin dumping in these canyons in the near future.
- September, 1973 -- Officers of the Community Association of Saratoga Hills (CASH) decide to hold general meeting to organize opposition to the landfill extension.
- October, 1973 -- General meeting is held. Decide to approach local politicians to try to revoke LACSD decision to move operations into the front canyons.
- Autumn, 1973/Winter, 1974 -- CASH representatives meet with local politicians, RPC and LACSD to try to gain support for their position.
- Summer, 1974 -- The LACSD offers to change the route of the access road but refuses to consider limiting dumping to the back part of the site. CASH refuses to accept this offer.
- Autumn, 1974/Summer, 1975 -- Meetings between CASH and, respectively local officials and the LACSD continue, but to no avail.
- October, 1976 -- Accidental mixing of two acids in landfill sends cloud of toxic gas over the housing development.
- 1980 -- Expected date of the LACSD EIR on the movement of operations to the front canyons, and of CASH action to overturn the EIR and prevent the movement.

V. ATTEMPTS TO SECURE SUPPORT

During the early stages of this dispute, the LACSD underestimated the effect public opposition could have on their activities. Therefore, attempts to secure support were limited. These attempts included the following:

- o Meetings were held with CASH representatives to attempt to settle the dispute.

- o The LACSD offered to re-route the access road to take it further away from residences, in return for CASH support for their using the front canyons.
- o The LACSD promised to take immediate action to remove any dust or trash blown from the site into the housing tract.

VI. SUMMARY EVALUATION

The LACSD has not yet solved its problem at the Calabasas landfill. They acknowledged that gaining local public acceptance would have been considerably easier if they had invested more time in working with the public. For instance, it was not wise to announce that the LACSD expected to be dumping soon in the front canyons merely by erecting a sign which said as much. Consultation with community leaders might have given them a better chance at gaining initial approval. Furthermore, while their response to the public outcry against this dumping did indicate that they were aware of the threat that this opposition posed, it was not sufficient to head it off. Subsequent public relations efforts made by the LACSD at other landfills were more sophisticated (see below).

An official of the Regional Water Quality Control Board commented that the mere fact that the landfill had preceded the residences should not be relied upon to ameliorate public relations problems. He felt that this would make little if any difference to the perspective of local residents.

The issues and concerns raised by the local residents during the attempt to move operations included the following:

Aesthetics -- One of the amenities which this housing development has to offer is the view of the surrounding hills. Local residents object to dumping in the front canyon because this view would be adversely affected.

Facility operations -- There was considerable feeling in the local community that the landfill is not operated as competently as it might be, and that their problems as a result of this would be exacerbated if the landfill operation was that much closer to their homes. Particular concerns include odors and blowing trash and dust.

Traffic -- The truck traffic to and from the facility is considered by local residents to be both a safety hazard and a nuisance.

Hazardous wastes -- Following the accident in 1976, residents have become concerned about the possibility of a serious accident or fire due to mishandling of hazardous wastes. They perceive that the danger will be greater if these operations are closer to them.

Site Suitability -- Local residents have questioned whether the geology and hydrology of the front canyons are suitable for landfilling, and particularly for hazardous waste disposal. LACSD's analysis may resolve this issue when it is complete.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

The following factors can be said to have led to public opposition to the proposed dumping in the front canyons.

- o Residents' reaction to discovering the proximity and expected life of the landfill after having been misled by the developer.
- o The anticipated impact of this dumping on the aesthetics of the area.
- o The LACSD's announcing their plans to dump in the front canyons by posting a sign to this effect.
- o Incidents involving truck drivers and the local residents, including but not limited to traffic accidents.

VIII. RETROSPECTIVE VIEWS

The LACSD in retrospect perceived two major problems in their handling of the Calabasas landfill. The first was their failure to provide for buffer space around the landfill. Their experience shows that the mere fact that land around a landfill is zoned for agricultural (or other non-residential) use when the landfill is sited should not be grounds for assuming that no residences will ever be built there. Zoning is not an adequate tool to prevent residential development. The only exception to this need for buffer space would be if the facility is located in a developed industrial area.

An official with the Regional Water Quality Control Board commented, similarly, that land use questions are very important in siting hazardous waste facilities. By this he meant not just adjacent land but also any development expected in proximity to the planned facility during its lifetime. It is necessary first that some provisions be made for a permanent buffer zone unless existing surrounding land use is not only compatible but very likely to remain so. He recommended that local planning commissions not be free to allow subdivisions near existing sites.

The second LACSD critique of their own strategy relates to the low-profile approach to public relations they had adopted at that time. They now feel that it is necessary to make the public aware of their operations, but recognize that this in and of itself is not sufficient to guarantee public acceptance. Local residents seemingly agree with the latter point. They felt that they had had a very difficult time getting information from the LACSD.

Some of these ideas have subsequently been put into practice. When residential construction began around their Palos Verdes landfill, the LACSD attempted to ensure that all prospective purchasers were aware of the landfill, and even offered tours of the operation to anyone who wanted them. When people had moved into these houses, workshops were held to describe the operation, to answer questions and to make clear to the residents whom they could get in touch with if there were any problems. However, the public relations problem at this particular landfill was not so difficult because the landfill was to close in five years or so, and part of it which had already been closed had been converted to a botanic garden. Notwithstanding these very significant differences, the LACSD now believes that if it were possible to virtually eliminate public opposition at Palos Verdes, it will also be possible to do so at Calabasas. One tactic they are considering is to fill in the front of the "front canyons" first, had thereby construct a barrier between their operations and the housing development. They do realize that a major problem they still face is that of correcting the effects of past bad publicity.

SCA/EARTHLINE, INCORPORATED

WILSONVILLE, ILLINOIS

I. INTRODUCTION

Earthline, Inc., a private disposal company which is now a division of SCA Services of Boston, Massachusetts, is currently appealing a circuit court decision which required them to close a hazardous waste landfill in Wilsonville, Illinois. In 1976 the Illinois Environmental Protection Agency (IEPA) granted Earthline a permit to operate the facility. However, five months after the start of operations, local townspeople learned of a shipment of PCB-contaminated soil to the facility and within a matter of days became violently opposed to it. The town (and shortly thereafter the state Attorney General) took Earthline to court to close the facility and subsequently won their case at the circuit level.

Most attempts to secure public support for the Earthline facility occurred prior to this litigation. During the litigation, only one (unsuccessful) attempt was made to regain public support. However, support was received from industry, state and local officials during this time. Since the resolution of the lawsuit is still in doubt, the effectiveness of this support is not yet apparent.

II. BACKGROUND INFORMATION

The Earthline hazardous waste management facility occupies approximately 130 acres, 90 of which are within the boundaries of the village of Wilsonville, Illinois. This land is the site of an abandoned underground coal mine formerly owned by the Superior Coal Company. The general geological profile of the site shows a surface layer of about 10 feet of loess (wind blown silt and clay material) underlain by about 40 to 65 feet of till material. Permeability studies conducted during site design measured a permeability of 10^{-8} cm/sec for the till material. About 40 acres of the site is covered by a pile of mine waste (or "gob pile") made up of coal, shale and clay. No reclamation procedures had been carried out after the mine was closed. Water passing through the gob pile had become acidic due to oxidation of the pyrites in the waste. The landfill was designed so that excess soil from the trenches in which wastes were buried would be used to cover the surface of the gob pile. This would retard the flow of water into the pile and thus reduce the flow of acid mine drainage.

The site is bordered on the north by residential land in the village of Wilsonville and on the east, west and south by agricultural and/or undeveloped land. The waste burial area is located one-quarter mile from the northern boundary of the site. The facility's main gate is

located at the end of the main street of Wilsonville. While the facility's burial area is not immediately visible from the village, on-site buildings and the surrounding fence are within 100 feet of some residences. Truck access to the site is via Wilsonville's main street.

The hazardous waste facility is primarily a landfill, but also includes facilities for short-term storage of recyclables and for landfarming of waste. All types of hazardous wastes were accepted by the facility, with the exception of radioactive wastes, strong acids and explosives. Although the site is reported to have received wastes from as far away as Texas, industries from the St. Louis area comprise its primary market. The site is projected to have a 20-year landfill capacity.

Provisions for long-term post-closure maintenance of the site were in accordance with state regulations (i.e., Illinois Pollution Control Board Rules and Regulations). Currently, these require that:

The owner or operator of a sanitary landfill shall monitor gas, water and settling at the completed site for a period of three years after the site is completed or closed.

The owner or operator shall take whatever remedial action is necessary to abate any gas, water or settling problems which appear during the three-year period.

These regulations are expected to be amended shortly to comply with RCRA requirements.

Originally a privately owned corporation, Earthline was purchased in October of 1976, by SCA Services of Boston, Massachusetts. The Wilsonville facility is one of four hazardous waste management facilities owned by SCA. Others are located in New Jersey, New York, and South Carolina. SCA is the third largest waste services company in the nation and reported total corporate revenues of over \$180 million in fiscal 1978.

The population of Wilsonville (700) is comprised largely of low- to middle-income Italian and Polish-Americans whose principal sources of employment are the coal mines in the area. Wilsonville is located in Macoupin County, about 50 miles northeast of St. Louis, Missouri and 60 miles south of Springfield, Illinois. The economy of Macoupin County is based largely on farming and mining. Area residents also commute to employment centers in the East St. Louis metropolitan area.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE

The state of Illinois preempts any local regulatory control over the siting of hazardous waste facilities. Regulatory powers rest with IEPA. The IEPA landfill permit process is a three-step process. First,

application must be made for a permit to develop the site, at which time a complete description of the site and proposed processes must be furnished to IEPA. If this permit is granted and development proceeds, then the finished site must be inspected by IEPA personnel to ensure consistency with the site descriptions in the development application and with State of Illinois regulations. Only then can an operating permit be issued. Finally, supplemental permits are required for each type of hazardous waste from each given source.

Earthline, Inc., was chartered in 1974 by a Springfield, Illinois consulting engineer who had previously served as manager of the IEPA division of land pollution control. He has stated that he had become aware of serious environmental problems caused by co-disposal of hazardous and municipal wastes--then and now a common practice in Illinois. Therefore, given the likelihood of more stringent state and federal regulation of industrial waste disposal, he thought that a hazardous waste management facility would be a good investment.

After leaving IEPA to found his own consulting engineering firm, he began a search for an appropriate site for a hazardous waste facility in Illinois. Primary considerations in the site selection process were proximity to major industrial areas, hydrogeological data, and whether the area surrounding the site was developed.

Several sites were considered. The Wilsonville site which was ultimately chosen had first been considered as a possible recreational site in connection with another project of his. The site is, however, partially covered by a pile of mine wastes and had also been used as an open dump by village residents. This rendered it unfit for recreational use. Earthline's founder indicated that it then occurred to him that a mine slag pile reclamation operation and a hazardous waste landfill might be able to operate in concert, such that earth removed in burying hazardous wastes would be used to cover the mine slag pile.

At some point in late 1975 or early 1976, he reached an agreement with the owner of the site on the financial terms under which the site could be developed. The original site owner retained ownership of the land.

The initial application, submitted in February of 1976, proposed five processes. These were: 1) hazardous wastes landfilling; 2) acid-alkaline neutralization; 3) chemical fixation; 4) short-term storage of recyclables; and 5) medium-term storage of recyclables. IEPA rejected the application on the grounds that it would not approve medium-term recyclable storage. The application was resubmitted in May of 1976 without this process, and a development permit was granted Earthline in July of 1976.

A letter of notification describing the proposed facility was sent by Earthline to various local officials and residents in February, 1976. The letter stated that the Wilsonville Research Division of Earthline

was planning to build a facility which would assist in "conserving our precious resources and protecting our environment," implicitly promised that there would be jobs for local residents, and stated that the facility would eventually reclaim the site, which was then partly covered by a pile of mine wastes. The function of the facility was said to be "the recovery, treatment, storage and containment of industrial residues."

Initial development of the site took place from February through November of 1976. During this time, facilities for secure landfilling of hazardous wastes and short-term storage of recyclables were prepared.

Earthline, Inc., was sold to SCA Services on October 1, 1976. Earthline's founder had had previous contact with SCA through his work for SCA-owned firms in the St. Louis area. He was retained by SCA as the consulting engineer for the facility. According to the Illinois Attorney General's Office, under the sales agreement he is also to receive two percent of the gross receipts of the facility. A separate agreement was reached between SCA and the owner of the land, who was made regional director for SCA Services.

The operating permit for the facility was granted in early November, 1976. Operations began November 15, 1976. That same day, an open house was held for local residents to acquaint them with the facility. The open house consisted of a luncheon, presentations by SCA personnel, and a tour of the facility. Shortly thereafter, a meeting was held between SCA and the board of the village of Wilsonville for the same purpose. Accounts of exactly what SCA told the residents on these occasions differ widely. Earthline's founder claims that the nature of the wastes to be disposed of was made clear. The mayor of Wilsonville and other village residents maintain that the facility was presented as a center for the "recovery of industrial residues" and as a way to reclaim the mine site.

Residents of Wilsonville say that there were only minor problems in SCA-village relations during the following four months of facility operation. There were some complaints about odors from the facility, and that the facility did not hire as many local residents as the residents felt they had been led to expect. Trucks traveling to and from the facility caused some damage to local streets and property; and there were a few spills of hazardous materials. In general, however, local public feeling about the facility during this period has been characterized as neutral to slightly positive.

On April 4, 1977, the Missouri Department of Conservation contacted the U.S. EPA Region VII office to request help in the disposal of earth contaminated with waste oil containing PCBs and other chemicals. The oil had been illegally dumped and had polluted a creek near Dittmer, Missouri. U.S. EPA and the U.S. Coast Guard are responsible for the

removal of oil or any hazardous substance discharged into the waters of the United States.¹

To prevent further water pollution, all the contaminated soil was removed from the dump site and stored in drums. It was not feasible to incinerate this waste, and the only alternative was to place it in a chemical waste landfill. The closest such landfill was the facility at Wilsonville. An emergency supplemental permit to accept these wastes was granted Earthline by IEPA.

Newspaper accounts of the spill stressed the toxicity of PCBs and noted that the wastes were to be taken to Wilsonville. Wilsonville residents, who seem to have been previously unaware of the function of the facility, very quickly became violently opposed to the contaminated soil being dumped there. Their principal concern at this time was the toxicity of PCBs. On Friday April 15, State Senator DeMuzio held an "information meeting" in the village. Although the manager of the hazardous wastes subdivision of IEPA spoke in favor of the facility, the meeting served to intensify the fears of the village residents. On Sunday morning (April 17) a local parish priest reportedly told parishoners in his sermon the facility was a danger to them and should be shut down. By Sunday evening tensions had increased to the point where some residents had armed themselves and were prepared to use these arms in some way against either the facility or the trucks bringing in wastes. These armed residents had gathered into an angry mob. Some in the crowd reportedly had sticks of dynamite under their belts and threatened to blow up the facility. By this time, however, the priest and some other residents had contacted a recently retired circuit court judge and the State's Attorney for Macoupin County with regard to obtaining a court injunction to forbid the facility to accept any PCBs. The retired judge agreed to serve as special attorney for the village, but only on the grounds that no violence should take place. A blockade of trucks coming to Earthline planned for Monday morning was called off because of its potential for violence, and none subsequently occurred.

Legal proceedings against Earthline were begun by the village's attorney on Monday, April 18. The presiding judge of the Macoupin County Circuit Court immediately granted a temporary restraining order against burying any of the contaminated soil in the Wilsonville landfill. However, this restraining order was soon appealed, and was overturned in an Appellate Court. The facility then remained open until shortly after the circuit court decision against Earthline (September, 1978). IEPA filed an amicus curiae brief in favor of Earthline as part of this appeal and again during the trial. The village of Wilsonville was joined in the suit by Macoupin County and the County Farm Bureau.

That same day (Monday, April 18th) Earthline's founder called IEPA and requested that IEPA protect Earthline's trade secrets and customer list by keeping all supplemental hazardous waste disposal permits

¹ Under Section 311 of the Clean Water Act.

confidential (as permitted under Section 7 of the Illinois Environmental Protection Act). The confidentiality of these permits eventually became a legal issue since the permits provide a record of the types of wastes that are buried in the landfill.¹

During this time, tensions between the village and Earthline were made worse due to misinformation and some public statements ascribed to Earthline officials. For example, during the early stages of the litigation between the village and Earthline--when the litigation only dealt with PCB shipments--the site manager was quoted in a local newspaper as saying that there were much worse things than PCBs buried in the site. Next some local residents confused PCBs with PBBs. The contamination of cattle feed by the latter substance had resulted in birth defects in calves, severe deformities in cattle, and had necessitated the destruction of hundreds of cattle in Michigan. Local farmers reportedly became concerned that they would soon be in the same situation. And third, an unfounded report to the effect that nerve gas was being buried in the site was circulated. The owner of the land was then quoted in a local newspaper as saying that although there was no nerve gas in the site at that time, Earthline was free to store nerve gas there if it wished.

Illinois State Geological Survey personnel visited the Wilsonville site for the first time on May 10 at Earthline's request, and again in July. Four months later, ISGS issued a generally favorable report on the hydrogeology of the site.

On May 17, the circuit court judge denied a motion by Earthline to admit U.S. EPA into the suit because, he said, it was "not a necessary party in the legal sense." U.S. EPA was eventually admitted to the suit as a friend of the court.

In early May, the Illinois Attorney General, who had been representing the IEPA in court, had visited the site and decided that its continued operation was not in the public interest. Therefore on May 25, he advised the agency to retain its own counsel and announced plans to file suit to close down Earthline. This proceeding was later consolidated with Wilsonville's request for an injunction against the landfill accepting PCBs. The Attorney General later amended his complaint to ask for removal of all wastes buried at the facility and \$1.24 million in fines.

Five days later (May 30), the Governor of Illinois issued a 45-day moratorium on the issuance of new supplementary permits. This had no impact on facility operations due to the large number (over 200) of

¹ This issue was eventually resolved by a compromise by which the State Attorney General's Office could have access to all information on these permits with the exception of the name and location of the generator.

outstanding supplemental permits previously issued by IEPA. The following day, on the basis of this moratorium, the mayor of Wilsonville stopped five trucks from entering the landfill.

On June 8, a U.S. EPA technical evaluation team visited Earthline to evaluate the landfill's technical suitability. This team issued a report the following October which concluded that the Earthline facility "is a well-designed, secure landfill which provides disposal by environmentally acceptable methods" and "...is capable of managing PCBs." However, the only criteria used in this analysis were the rules for managing and disposing of PCBs, since regulations for the treatment, storage and/or disposal of hazardous wastes under the Solid Waste Disposal Act (as amended by RCRA) had not been promulgated at that time.

Midway through the trial, SCA officials asked for and received a meeting with local officials. At this meeting, SCA asked if anything could be done to settle the lawsuit out of court. It is reported that they offered to settle all outstanding damage claims by village residents against Earthline, and to pave the village main street which was used by trucks hauling wastes to the facility. The response of the Wilsonville officials present was that the only thing SCA could do to end the lawsuit was to close down the facility and remove the wastes already buried there.

The trial lasted for 16 months. Extensive testimony was presented by both sides (eventually filling 14,000 pages of record). The major issues in the trial were the technical suitability of the site and the concomitant threat posed by the site to the health of local residents. Specific technical issues raised during the trial included the permeability of the soil and the potential for subsidence. As noted above, permeability studies conducted during site design measured a permeability of 10^{-8} cm/sec. Subsequent measurements made by geologists working for the village of Wilsonville found the permeability to be 10^{-6} cm/sec. The implication of the latter figure is that it would take a given waste 1/100 as long to permeate a layer of soil than if the permeability were 10^{-8} cm/sec.

The potential for subsidence of land above an abandoned mine was also an issue. Geologists from the Illinois State Geological Survey (ISGS) maintained that the potential for problems due to subsidence is negligible, but this was disputed by mining experts hired by the village.

Other issues raised during the trial included the contention that disposal was frequently carried out in a manner contrary to state regulations. Smoking was allowed on the site. Containers were reportedly emptied and reused rather than buried with the wastes. No record was kept of the location of buried wastes during the first few months of facility operation. The facility was said to produce offensive odors. The local population also expressed concern about the possibility of health problems due to the facility, and about the fact that the facility had had an adverse effect upon local property values.

On August 14, 1978, the circuit court judge ruled that Earthline must close the landfill and remove all wastes previously dumped there. Earthline immediately requested permission from the Appellate Court to keep the landfill open during the appeals process. However, before the Appellate Court reach a decision on this, the village of Wilsonville began culvert repair work to control flooding. This required digging a trench across the access road to the Earthline facility, and effectively closed the facility. On September 14, the Appellate Court denied Earthline's request to remain open during the appeals process. That same month, the Governor directed IEPA not to issue any more supplemental permits to Earthline for the Wilsonville facility and prohibited all IEPA personnel from any further participation in the court action. It is reported that officers of a number of industries in the state wrote to him criticizing these actions. The Illinois Manufacturers' Association subsequently released its letter to the Governor in which it stated that the "Earthline facility...is one of the best landfill sites for industrial wastes in the United States", and that "[this] case seems to boil down to emotionalism on one side, and scientific state of the art on the other." They requested that the governor reconsider his position.

The appeals court is not expected to reach a decision before September of 1979. Moreover, it is expected that this decision will in turn be appealed to the Illinois Supreme Court. Two issues form the basis of the appeal. These are 1) whether the Macoupin County Circuit Court has jurisdiction over such disputes; and 2) whether the Circuit Court erred in its findings on the safety of the site. With regard to the former, the state Environmental Protection Act gives authority to the Illinois Pollution Control Board to "conduct hearings upon complaints charging violations of this Act or of regulations thereunder." During the trial, Earthline had requested a change of venue to the Board, but this was denied them. As of June 1979, EPA Region V was reviewing an Earthline application for a permit to dispose of PCBs. It was not expected that this application would be acted upon until the lawsuit is resolved.

IV. CHRONOLOGY OF EVENTS

February, 1976 -- First application submitted to IEPA for a development permit for the Wilsonville facility. Application rejected.

February 11, 1976 -- Letter of Notification sent out by Earthline to local officials and residents.

May, 1976 -- Application resubmitted with changes.

July, 1976 -- Development permit granted.

October 1, 1976 -- Earthline, Inc., sold to SCA Services.

November, 1976 -- Operating permit granted.

- November 15, 1976 -- Operations begin. Open house held for village residents. Shortly thereafter, meeting held between SCA and the village board.
- April, 1977 -- Wilsonville facility selected for disposal of contaminated soil.
- April 4, 1977 -- Missouri Department of Conservation requests U.S. EPA assistance in cleaning up spill of oil containing PCBs in Dittmer, Missouri.
- April 15, 1977 -- State Senator holds "informational meeting" in Wilsonville.
- April 17, 1977 -- Wilsonville parish priest asks parishioners to block delivery of contaminated soil.
- April 18, 1977 -- Legal proceedings begin against Earthline at Macoupin County Courthouse in Carlinville, Illinois. IEPA requested to protect Earthline's trade secrets and customer list by keeping all supplemental hazardous waste disposal permits confidential. Blockage of trucks coming to Earthline threatens to turn violent and is called off.
- May 10, 1977 -- Illinois State Geological Survey personnel visit Wilsonville site at Earthline's request.
- May 17, 1977 -- Macoupin County Circuit Court Judge denies Earthline motion to admit U.S. EPA into the suit.
- May 25, 1977 -- Illinois Attorney General advises IEPA to get its own lawyer, and announces plans to file suit to close down Earthline.
- May 30, 1977 -- Governor issues a 45-day moratorium on issuance of supplemental permits to Earthline, which turns out to be ineffectual due to large numbers of outstanding supplemental permits already issued by IEPA.
- May 31, 1977 -- Acting on the basis of governor's moratorium, Wilsonville village Mayor stops five trucks from entering the landfill.
- June 1, 1977 -- Attorney General requests injunction against Earthline.
- June 8, 1977 -- U.S. EPA Technical Evaluation Team visits Earthline to assess landfill's suitability. Issues a report in October, 1977 which concludes that the facility is well-designed, secure and capable of managing PCBs.

July 1, 1977 -- Attorney General amends complaint to ask for removal of all wastes buried at Earthline and \$1.25 million in fines.

July 19, 1977 -- ISGS staff makes second visit to Earthline; takes samples.

November 3, 1977 -- ISGS issues a generally favorable report on the Wilsonville site.

April 6, 1978 -- Trial testimony ends in Macoupin County Court.

August 14, 1978 -- Judge rules that Earthline must close its landfill and remove all previously deposited wastes.

September 1, 1978 -- Governor directs IEPA not to issue any more supplemental permits to Earthline for the Wilsonville landfill and prohibits all IEPA personnel from any further participation in the court action.

September 6, 1978 -- Village of Wilsonville begins culvert repair work to control flooding.

September 14, 1978 -- Appellate court denies Earthline's request to remain open during the appeals process.

September, 1979 -- Likely date for decision on Earthline's appeal of circuit court order.

V. ATTEMPTS TO SECURE SUPPORT

Attempts to secure support for the Wilsonville hazardous waste management facility can be divided into two categories: 1) attempts to secure support from local residents prior to the PCB-dumping controversy; and 2) attempts to secure support from industry groups and local, state and federal officials during subsequent litigation. Attempts to secure local residents' support included:

- o The letter of notification sent to various local officials and residents in February, 1976.
- o The open house held for village residents at the facility.
- o The meeting held with village officials to explain the operation of the facility.
- o The meeting held with village officials, midway through the trial, to attempt to settle the dispute out of court.

Subsequent to the events of April, 1977, most attempts to secure support for the facility were directed at industry and state and federal officials. These included:

- o Earthline's attempt to have U.S. EPA admitted into the suit.
- o The Illinois Manufacturers' Association letter-writing campaign protesting the Governor's decision to forbid IEPA any further participation in the suit.

VI. SUMMARY EVALUATION

Earthline's efforts to secure industry, state and federal support seem to have been successful. It remains to be seen whether this support will be sufficient to allow them to reopen the facility.

Very few things could have been done, given the location of the facility, to avoid the confrontation that arose between the village of Wilsonville and Earthline. Even if Earthline had decided not to accept the PCB-contaminated wastes, it does not seem likely that local residents would have remained forever ignorant of the true nature of the facility. Some problems might have been avoided if Earthline had made clear from the outset that it was preparing to build and operate a hazardous waste landfill. However, it is equally possible that had this been done, the facility might have faced opposition from the very beginning.

While Earthline's initial efforts to secure local public support--the letter of notification and open house for village residents--were successful in the short run, they were certainly unsuccessful and possibly counterproductive in the long run. However, the point has been raised that this might not have been the case if Earthline's actions subsequent to the beginning of operations had been different. First, Earthline might have made a greater effort to meet local residents' expectations which had been raised by the letter of notification. In particular, providing jobs for more local residents would have both given the community an economic interest in the facility and opened up more avenues of communication between Earthline and village residents. Second, Earthline might have responded more rapidly and more substantively when residents became concerned about the PCB shipments. Officials of SCA did eventually meet with village officials to see if anything could be done to resolve the dispute, but only when the trial was well underway. At least some Wilsonville residents and officials suggested that if such a meeting had been held shortly after the initial controversy, some sort of accommodation might have been reached.

Earthline lost most of its credibility among residents of Wilsonville when it was discovered that PCB-contaminated wastes were to be shipped there and that the facility was actually a hazardous waste landfill. Furthermore, its public image was damaged by some statements attributed to Earthline and SCA personnel.

The key issues and concerns in this dispute differ according to the perspective of the participant. These issues and concerns are outlined below.

Fear of the unknown - According to Earthline's founder and IEPA, fear of the unknown is a major issue. This includes such things as a lack of understanding of the need for and operations of the facility, and the linking of any kind of hazardous waste management facility to increased risks of cancer and birth defects, and the confusion of PCBs with PBBs.

Site suitability - As noted above, a major issue in the trial has been the suitability of the Wilsonville site as a hazardous waste landfill. Both IEPA and U.S. EPA have stressed the technical suitability of the site, while Wilsonville residents and technical experts hired by them note many technical shortcomings. At issue here are the permeability of the soil and the possibility of mine subsidence.

Another concern expressed by local residents is the proximity of the site to the village of Wilsonville (the waste burial area is located one-quarter mile from the nearest residences). In this case, the concern stems from two factors: first, the possibility that existing residents might experience health problems due to the facility; and second, that the presence of the facility has had a very adverse effect on the market for houses in Wilsonville.

Facility operations - Residents who have witnessed facility operations have testified that dumping was frequently carried out in a manner contrary to state regulations. The no-smoking rule was reportedly not enforced on the site. Containers were reportedly not buried with wastes but emptied so that they could be reused. No adequate record seems to have been kept of the location of buried wastes. Odors from the facility have been a concern since shortly after it began operating.

Transportation of wastes to the facility - Concerns were expressed over the danger of spills of hazardous wastes and over damage to local streets and private property caused by trucks going to and from the facility. These concerns became and have remained major points of contention between the village of Wilsonville and Earthline.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

Factors which led to the initial acceptance of the facility by residents of Wilsonville include:

- o The letter of notification sent by Earthline to local officials and residents describing the proposed facility. This letter was thought by the recipients to indicate that:
 - the facility would be a resource recovery and mine reclamation project;

- the facility would provide jobs for local residents; and
- the facility would ultimately reclaim the abandoned coal mine.
- o The open house held at the completed facility for village residents.
- o The meeting held by SCA officials with village officials to explain the function of the facility.

In retrospect, it was difficult for Wilsonville residents and other persons involved in the siting of the facility to separate the factors which led to public opposition from factors and issues which had arisen after public opposition had coalesced. It is certain, however, that the following two factors were the primary causes of the public opposition. These are:

- o The announcement that PCB-contaminated wastes were to be buried at the Wilsonville facility.
- o The local residents' belated understanding that the function of the Earthline facility was the disposal of hazardous industrial wastes.

Other factors cited by opponents of the facility include:

- o Public statements by Earthline and SCA personnel. For example, during the early stages of litigation when the opposition was only concerned with the PCB shipments--the site manager was quoted in a local newspaper as saying that there were much worse things than PCBs buried at the site. Later, when a false rumor to the effect that nerve gas was being stored at the site was circulated, the owner of the land was quoted as saying that there was no nerve gas at the facility at that time but that Earthline was free to store nerve gas there if it so wished.
- o Failure of Earthline to provide jobs for local residents as implied in the letter of notification.
- o The effect of the perceived long-term threat posed by the facility to property values in Wilsonville. It is reported that there is no market for such properties.

VIII. RETROSPECTIVE VIEWS

A number of parties suggested that the high visibility of the Earthline operation had caused problems. Although the landfill area was not visible from the main part of town, the site bordered on a residential

area and trucks going to and from the site travelled down the main street. This might have been ameliorated if access to the site had been by some other road.

Officials of IEPA and the State Attorney General's Office agreed that, had Earthline given the community a financial stake in the operation such as employing local residents or paying a fee on wastes brought in, the local community might have been less ready to have the facility closed. Earthline's founder felt that neither compensation to nor negotiation with the community would prove especially useful in siting hazardous waste management facilities. The former, he stated, will not be perceived as sufficient recompense for the risk the community is bearing and the latter procedures are subject to judicial review. It was suggested by the Attorney General's office that the lawsuit could have been settled if Earthline had agreed within a week or so of the initial filing not to bring in the PCB-contaminated wastes. This again presumes that residents would not have subsequently become aware of the other substances in the landfill.

Both local officials and the Attorney General's office criticized IEPA's role in the siting of the facility. Although they recognized the need for hazardous waste disposal sites, they felt that IEPA did not have the expertise necessary to judge the suitability of the site and its operation. The Attorney General's office questioned the wisdom of relying on the judgments of a consulting engineer who had a financial stake in the outcome, and recommended that IEPA hire outside experts to review future permit applications for hazardous waste disposal sites.

Local officials expressed considerable dissatisfaction with the total lack of a substantive local role in the siting process. It was noted that local residents might have petitioned the Illinois Pollution Control Board to conduct a public hearing which would have given them at least a nominal role in the process. However, this assumes that the local populace was aware of their opportunity to petition the board, which in this case did not seem to have been true. In fact, the siting process was completely in the hands of the facility sponsor except for technical review by IEPA.

IX. GENERAL COMMENTS

Opinions differed somewhat on the extent of U.S. EPA's role in the siting of hazardous waste management facilities. Local officials felt that the only way to resolve the problems of siting and long-term care was to put such facilities on federal lands under U.S. EPA management. The Attorney General's Office thought that U.S. EPA's primary role should be to provide technical assistance to state agencies such as IEPA. Earthline's founder felt that U.S. EPA should not take an active role, but that it should force the states to take a stronger role.

RESOURCE RECOVERY CORPORATION

PASCO, WASHINGTON

I. INTRODUCTION

In the fall of 1972, Resource Recovery Corporation began disposing hazardous waste in a leased portion of an existing sanitary landfill operated by Basin Disposal. The owners of Resource Recovery also owned the Preservative Paint Company of Seattle, and had a solvent manufacturing and reclamation operation called Chemical Processors, Inc., also of Seattle. The wastes produced by Chemical Processors had been disposed of in local landfills and in an abandoned coal mine outside of Seattle. However, their activities were terminated after several accidental fires. Resource Recovery was then formed with the leasing of Basin Disposal's facilities to dispose of paint wastes as well as other industrial and agricultural wastes.

The facility operated for two years during which time public opposition to the site grew as a result of its pesticide waste disposal operation. For some time prior to the operation of the site local grapegrowers had complained about crop damage from an herbicide (2,4-D), which was being used in aerial applications by wheat growers. The disposal of 2,4-D sludges at the Pasco site added fuel to this controversy, especially since their wastes were being imported from Oregon. Finally, the County Commissioners ordered the closure of the agricultural and industrial waste disposal operation in December of 1974.

The only support for the site came indirectly from the technical approvals given by the State Department of Ecology as a result of reports prepared by the state following their official investigations. The State Department of Ecology and the State Department of Agricultural had studied the situation and found that the site could be operated safely with no ill effects to the vineyards 12 miles away. They concluded in their report that grape damage had occurred prior to the site's disposal of hazardous wastes, and was probably due to windborne herbicides from wheat spraying operations. Nonetheless, public opposition forced the County Commissioners to not renew the land use permit for the hazardous waste operations.

II. BACKGROUND INFORMATION

The Pasco site had been used as a sanitary landfill since 1958. Farm land surrounds the site. The 250-acre site is about 2 miles east of Pasco, 3 miles north of the Columbia River and 2.6 miles northwest of the Snake River. The climate in the area is semiarid and average precipitation is eight inches, with most of the precipitation occurring as rain and light snow during the winter months. The mean annual

temperature is 56° F. Daytime temperatures often exceed 100° F during the summer. Annual evaporation potential is about 60 inches per year with about 80 percent of the evaporation occurring from May through October.

The Pasco facility was planned as a landfill operation with evaporative lagoons to be used as a means of concentrating wastes either for eventual resource recovery or final burial. The actual on-site facilities were several evaporation lagoons and trenches for the burial of drums. The Pasco site is in an excellent climatic location for ground disposal (by evaporation) of industrial solid wastes if proper safeguards are observed. The arid climate, with approximately eight inches of annual precipitation, prevents leaching of solid wastes disposed to the ground. Thus there is little likelihood for migration of hazardous elements vertically through the ground to the water table or laterally to be exposed at ground surface at lower elevations. The climate and low humidity of the air is conducive to on-site evaporation and concentration of liquid wastes where a large surface area of the liquid is exposed to the atmosphere. However, the hydrogeology of the site is not acceptable to dispose of liquid wastes directly to the ground in unlined pits or trenches. The water table is relatively shallow at the disposal site (approximately 60-80 feet) and there are no sub-surface impermeable zones that would prevent movement of the liquid to the groundwater although the alternating, nearly horizontal layers of sands, silts, and gravels would tend to spread the liquid and impede downward percolation. The silt and sand would also remove some elements from the liquid by adsorption and ion exchange. Under a carefully controlled operation and proper research on soil/waste reactions, selected and limited liquid wastes could be disposed directly to the ground without adverse effects.

Resource Recovery leased a portion of the Basin Disposal landfill with the intent of storing some wastes for eventual resource recovery operations and permanent storage of other wastes. The Pasco facility involving the hazardous waste operation employed about 9 persons at the site. The wastes accepted at the Pasco site by Resource Recovery came from the Pacific Northwest area and included paint wastes, empty pesticide and herbicide containers, wood treatment wastes, etching solutions, metal casting wastes, MCP and 2,4-D tars, and chrome plating wastes. Much of the waste contained potentially valuable materials such as copper, chrome and other elements that may occur in small amounts in industrial debris.

Resource Recovery constructed a series of evaporation lagoons (50 ft. x 100 ft. x 6 ft.) at the site. Liquid wastes, with almost 90 percent of the waste being fluid, were poured into the lagoons. The water quickly evaporated in the dry Eastern Washington climate. About 6,000 gallons can be evaporated in one day in the hot sun. These lagoons were lined with impervious materials. Deep in the ground beneath the bottom of the lagoons the company installed sensors which measured moisture and could detect any leaks in the lagoons. An impervious layer, manufactured from

a waste material, was placed over the dried material in the lagoons and topped with three feet of soil. Grass was planted to prevent wind erosion.

Some of the lagoons became permanent disposal areas and their contents were not to be recycled. They had more extensive impermeable liners and moisture sensors. On these lagoons three feet of soil covered the dry sludges topped with another impervious layer, another layer of soil and finally grass.

It was assumed that eventually, perhaps not for years, there would be a demand for some of the stored materials in the lagoons and it would be worthwhile to dig them out for reprocessing and re-use. Chemical Resources had planned to operate the site for approximately 50 years.

Paint wastes, insecticide and herbicide wastes with no recovery potential were stored in covered trenches in drums. Soil was mixed with the drums to make up a safe mixture to prevent waste flows from leaking drums from escaping the trenches.

Forty test wells were drilled around the disposal site. Water samples were analyzed regularly to be sure that groundwaters were not contaminated by wastes leaching from the storage area.

Resource Recovery at the time of its operation was not required to post any bonding or closure costs. However, after their land use permit was not renewed they sought a temporary extension during which they were required to post a closure bond and promise to carry out post-closure monitoring.

Resource Recovery Corporation was connected to three other corporations -- Chemical Processors (which was the majority stockholder in Resource Recovery) and Preservative Paint Company (which owned Chemical Processors). While Resource Recovery had no hazardous waste management experience prior to the development of the Pasco facility, Chemical Processors had been operating since 1959. Chemical Processors had experience with hauling, reclaiming and processing hazardous waste generated by Preservative Paint Company and other industries in the Pacific Northwest. Basin Disposal, with extensive experience in solid waste disposal, had a minority interest in Resource Recovery. The Pasco site was the only facility ever developed by Resource Recovery.

Pasco (1979 estimated population: 16,000) is located in southeastern Washington. Along with Richland and Kennewick, Pasco forms the Tri-Cities urban area with a population of over 100,000. The Tri-Cities is a rapidly growing urban area because of the federally owned Hanford Reservation, a production center for nuclear fuel. Historically the southeastern part of Washington has been a sparsely populated area with an agriculturally based economy.

III. HISTORY OF FACILITY DEVELOPMENT AND PUBLIC RESPONSE¹

When the Pasco facility first started accepting hazardous wastes in 1972, the only permits required were a county zoning variance and a county health department permit. Shortly thereafter the state Department of Ecology required a waste discharge permit to guarantee a zero hazardous discharge into the waterways.

In 1959 Basin Disposal started a sanitary landfill operation near Pasco, Washington serving the Tri-Cities area. Franklin County granted a zoning variance to allow the agriculturally zoned land to be used as a sanitary landfill. However, through an oversight by the owner of basin disposal this zoning variance lapsed in 1961 unbeknownst to either the county or the owner.

Preservative Paint Company of Seattle has been in operation for about fifty years. It formed a solvent manufacturing and reclamation operation called Chemical Processors. Chemical Processors also collected and hauled industrial solvents, crankcase oils, contaminated diesel fuels from ships and paint wastes. The impetus for developing the Pasco site as a hazardous waste facility came from Chemical Processors which had, up until 1972, disposed hazardous wastes in abandoned coal mines and sanitary landfills in the Seattle area. There had been several fires at these sites and public concern over these fires had mounted to the point where the company sought an acceptable hazardous waste site. Basin Disposal offered Chemical Processors the opportunity to lease a portion of their sanitary landfill for a hazardous disposal operation. The lease arrangement was coupled with the formation, by Chemical Processors and Basin Disposal, of a new company called Resource Recovery Corporation.

The intent of the Resource Recovery operation, which was started in 1972, was to recover materials (e.g., copper and chrome) from waste streams, primarily through evaporation of the largely liquid wastes. Since many of the valuable products in wastes came in small quantities or the technology for their recovery was not yet economically feasible, Resource Recovery intended to temporarily store these products in dried lagoons or trenches until recovery operations were more profitable. Some wastes, of course, were destined for permanent disposal.

¹ During the site visit, the State Department of Ecology asked Centaur not to interview local officials and leaders so as not to interfere with the state attempt to site a hazardous waste disposal facility on the Hanford Reservation. This request was honored and, consequently, secondary sources were used to determine much of the public response to the Resource Recovery facility. Despite this restriction, this case study provides valuable information for the overall study of public response.

Resource Recovery submitted an operational plan for the Pasco hazardous waste disposal site to the Benton-Franklin County Health District in September of 1972. In November of 1972, the Health District granted approval of the operation on an interim basis pending a new forthcoming state permit system. Resource Recovery applied to the State Department of Ecology in November of 1972 and was granted a waste discharge permit in March of 1973. The discharge permit from the state was described as an inverted pyramid permit. This pyramid permit allowed the firm to handle specified wastes approved by the state. It started out with a few items like paint, copper-bearing sludges, and insecticide wastes. Then as the company found new wastes, the state certified the site for their disposal and the pyramid base grew broader.

Since the site was already an operational landfill, dating back to 1959, the company felt that there was no apparent need for coordination with local officials or a public relations campaign for the addition of a hazardous waste disposal operation. However, in an attempt to gather new business, the president of Resource Recovery outlined his operation in a news article in the summer of 1973. As a result of this exposure, the public learned for the first time of the extent of the hazardous waste operation and especially of the disposal of herbicide waste containers, specifically 2,4-D. The state, various newspaper accounts and company officials described public concern as becoming uncomfortable with the knowledge that a hazardous waste site was operating in their area. The public was also unhappy over the fact that these wastes were shipped to the Pasco area from out of state.

In August of 1973, the state began studying the 2,4-D disposal problem partly because of large-scale 2,4-D damage that had been inflicted on the grape industry that year. The damage to the grape crop was among the most extensive ever recorded and the grape growers felt their economic livelihood was at stake. The grape growers were angry at the wheat growers because of their use of 2,4-D in aerial spraying operations. The herbicide in minute quantities is very dangerous to the grape leaves during their rapid growth cycle. It was assumed by the state that the herbicide spray had strayed from wheat fields as far away as Oregon to affect the vineyards near Pasco. However, the grape growers voiced concern over the possible connection between disposal of 2,4-D wastes and damages inflicted on their vineyards. There was no specific proof as to the source of the 2,4-D that was damaging the grapes. However, it was generally believed by Resource Recovery that the wheat growers pointed the finger at the Pasco disposal operation which was handling 2,4-D wastes to take the "heat" off their spraying operations.

In the Fall of 1973, studies were conducted by the State Department of Agriculture to determine if the disposal site was the source of the herbicide. They even planted grape plants at the dump site. These grape plants were able to grow at the site. The studies could not determine any link between the Resource Recovery operation and damage to the grape crop. They concluded that the operation was not damaging to the local environment.

With all this attention by the association of wheat growers and grape growers co-operative, the County Commissioners became alarmed. They were surprised to learn of the extent of the hazardous waste operation. They had not realized that hazardous wastes were being imported from out of state to be disposed in Pasco. They intended to investigate this matter and if necessary stop the operation.

In September of 1973 Resource Recovery had voluntarily stopped accepting 2,4-D wastes. However, public pressure mounted with almost daily news articles appearing on the 2,4-D dumping. (According to Resource Recovery and the State Department of Ecology, a local reporter became extremely active in the opposition. Consequently, the local paper became a major force behind the opposition and served to place additional pressure on the County Commissioners to close the operation.) The County Commissioners, in October of 1973, finally ordered a halt to the dumping of all industrial wastes. Resource Recovery did not comply with this order, arguing that they had contracts to honor and would wait for the outcome of a full public hearing on their right to dispose industrial wastes since they had a valid discharge permit from the state. At this time, the state was also feeling the pressure of the wheat and grape growers and ordered a halt to the disposal of 2,4-D pending further studies. This move on the part of the state was a complete reversal of their earlier stand that the operation posed no threat to the environment.

Towards the end of 1973, the County Commissioners held a public hearing on the continued operation of the Pasco site. The hearing revealed for the first time that the firm had no legal zoning permit to operate a landfill. Therefore, the county again ordered Resource Recovery to cease operations at the Pasco site on the basis of an invalid zoning permit. The company immediately filed for a belated zoning permit and another hearing was scheduled.

At this second hearing, Resource Recovery appealed the order to terminate their operation and requested a new zoning permit. Evidence was presented on the safety of the operation based on past studies by the agriculture and ecology departments. The company also presented expert geological evidence to counter allegations that 2,4-D was escaping the disposal site. However, the grape growers threatened to take legal action against the county and the firm if the county did not close the hazardous waste site. Under public pressure, the county denied the zoning permit and allowed the company to continue its 2,4-D industrial disposal till May of 1974. It was hoped that current activities by the state to locate another hazardous waste disposal site would solve the contractual problems that the Pasco closure would cause the firm.

The May deadline was later extended to December of 1974, after negotiations with the county. Resource Recovery made several concessions to the county. The company agreed to post a \$5,000 bond to assure that no dumping would take place after the December closing date.

A \$30,000 performance bond would be put up to guarantee that Resource Recovery maintained and operated the site properly. The \$30,000 could have been used to correct any problems that might have developed on the land after closure. Furthermore, Resource Recovery agreed to monitor the site for two years after closure with supervision by the state.

The site was eventually closed to hazardous waste, at the end of 1974. It continues to operate as a sanitary landfill.

During this period, the Department of Ecology began intensive efforts to locate a single hazardous waste site for the entire state. A history of this effort closely parallels the Pasco experience and is therefore appended to the end of this case study.

IV. CHRONOLOGY OF EVENTS

1959 -- Basin Disposal starts a sanitary landfill operation serving the Tri-Cities area. Franklin County grants a zoning variance for the site.

1961 -- The zoning variance lapses and due to an oversight is not renewed. However, operations of the sanitary landfill continue.

1972 -- After several fires in local landfills and an abandoned coal mine, Chemical Processors searches for a new site for paint and solvent wastes. Basin Disposal offers to lease a portion of their sanitary landfill to Chemical Processors for industrial wastes. Resource Recovery, Inc. is formed with ownership links to Chemical Processors and Basin Disposal.

September, 1972 -- Resource Recovery submits an operational plan of a hazardous disposal site and requests approval from Benton-Franklin County Health District.

November, 1972 -- Health District approves operation on an interim basis pending a forthcoming permit system. Resource Recovery applies for a waste discharge permit from the State Department of Ecology.

March, 1973 -- Waste discharge permit is granted by the state. Permit includes mercury, paint and insecticide wastes.

Summer of 1973 -- A new business-type article promoting Resource Recovery's hazardous waste operation indicates that 2,4-D wastes are handled at Pasco site.

August of 1973 -- State Departments of Agriculture and Ecology and County Health Department meet to discuss the safe disposal of 2,4-D at the Pasco site.

- Fall of 1973 -- Wheat farmers face an angry grape industry following the worst 2,4-D damage ever recorded. Grape growers voice concern over the possible connection between disposal of 2,4-D and the 2,4-D damage inflicted on their vineyards. State Department of Agriculture conducts tests to determine whether grapes grown in the disposal site are affected by 2,4-D. No damage is found. County Commissioners become alarmed over the hazardous waste site not realizing that it is being used for out-of-state wastes.
- September, 1973 -- Resource Recovery voluntarily halts shipments of 2,4-D for disposal until investigations as to the connection between these wastes and grape damage are assessed.
- October, 1973 -- Franklin County Commissioners order a halt to industrial dumping. Resource Recovery continues non-2,4-D operation pending hearing. The State Department of Ecology orders Resource Recovery to stop disposing of 2,4-D.
- November, 1973 -- County Commissioners hold hearing to determine if the dump violated zoning laws. Resource Recovery learns that their zoning variance had long since lapsed. Resource Recovery applies for a renewed zoning variance (operating permit). County Commissioners again order the company to stop their industrial operation.
- December, 1973 -- Public hearing is held for new zoning permit with testimony pointing to the safety of the site along with abutting farm owners complaints over crop damage.
- April, 1974 -- County Commissioners deny zoning permit application and allow operation until May 1974.
- May, 1974 -- Resource Recovery offered concessions in return for permission to operate until the end of the year. The concessions included posting a \$5,000 bond to cease operating by December 31 and a \$30,000 bond to operate properly up to and through the closure period. Resource Recovery also agreed to monitor the site for two years after closure.
- June, 1974 -- Public hearing was held on Resource Recovery's request for operating permission until the end of the year. Permission was granted.
- December, 1974 -- The hazardous waste disposal operation at Pasco ends. The sanitary landfill operation continued.

V. ATTEMPTS TO SECURE SUPPORT

Direct attempts to secure support for the Pasco operation were few.

- o Technical evidence was presented by Resource Recovery at public hearings to show that the site was safe. The firm had hired expert consulting geologists to counter allegations that 2,4-D was escaping from the site and damaging the grape vines.
- o The firm voluntarily stopped the disposal of 2,4-D in the face of growing pressure from both wheat and grape growers.

VI. SUMMARY EVALUATION

The efforts outlined above proved to be insufficient to achieve public acceptance of the operation.

Although the technical evidence did exonerate the site insofar as causing the grape damage it did not conclusively identify the true source of the herbicide damage. Since the damage affected the very livelihood of local agricultural interests they were not willing to take necessary chances on the hazardous disposal site. Furthermore, since the site was primarily a service to outside industry, it generated very little local sympathy. Finally, concurrent efforts on the part of the state to locate a single hazardous waste site for the entire state lessened the pressure on county officials to keep the Pasco site operating even though it was the only licensed hazardous site in the state at that time.

The oversight on the expired zoning variance proved to be the most convenient vehicle by which the county was able to stop the hazardous waste disposal operation.

In summary, the most important factors in the closing of the Resource Recovery operation were:

State responsibility -- State efforts to locate a single disposal site for the entire state provided the county with a convenient alternative which appeased the grape growers and relieved the county of having the responsibility for the only approved hazardous site in the state.

Intensity of 2,4-D issue -- The animosity between wheat and grape growers over 2,4-D had existed for some time prior to the Pasco disposal operation. Resource Recovery's disposal of 2,4-D tars was a convenient scapegoat during a period of unusually heavy herbicide damage to the vineyards.

VII. FACTORS LEADING TO PUBLIC OPPOSITION/ACCEPTANCE

The general public opposition to the Pasco site can be attributed to the following factors:

- o Public became aware of herbicide disposal at the site through company efforts to advertise their business.
- o Uncertainty over the cause of 2,4-D herbicide damage to local vineyards and the possibility that it might have originated at the disposal site.
- o Discomfort over the fact that Pasco was being used to dispose of industrial and agricultural wastes generated outside of Franklin County and throughout the Pacific Northwest.

VIII. RETROSPECTIVE VIEWS

In retrospect, Resource Recovery thought that there were three areas that could have been handled better. First, the County Commissioners should have been approached much earlier as soon as public opposition surfaced. This would have provided the Commissioners with technical information to fend off the pressures of the wheat and grape growers. Secondly, the oversight on the lapsed zoning variance should never have been allowed to happen. With a valid permit, the firm would have had more time to work out solutions to public opposition. And finally, more attention should have been paid to countering the news articles against the Pasco operation.

The state had no retrospective views especially since it is in the midst of its own public opposition battles with regard to a single centralized hazardous waste site for the entire state (see appendix).

APPENDIX TO PASCO CASE STUDY

A HISTORY OF EFFORTS TO ACQUIRE A HAZARDOUS WASTE SITE IN THE STATE OF WASHINGTON

By Tom Cook and Jim Knudson^{1/}

Introduction

It is necessary to understand a bit about the climate and geography of the State of Washington to see where and how our search was narrowed to Federal lands. Western Washington is populous, contains most of the industry and receives considerable rain except for three or four months in the summer. Eastern Washington receives as little as 6 inches of rain per year because the Cascade Mountains remove most of the Pacific Ocean moisture. Eastern Washington also is sparsely populated, largely agricultural in nature. The area around Richland, Pasco, and Kennewick, however, is an exception because of the presence of the Federal Government Hanford Works. The Tri-Cities boasts of a population of 100,000 and is rapidly growing.

Hazardous wastes produced in the state include heavy metal sludges from oil refineries, pesticides from agriculture, plating wastes from aircraft manufacture, and chemical wastes from the electro-chemical industry. Electrical utilities also produce P.C.B.s from facilities that include numerous dams on the Columbia River.

Early Efforts - Private/Non-Federal Sites

Private industry began the effort to develop disposal sites dedicated to hazardous waste in 1971. After one unsuccessful attempt at Badger Junction, a private chemical waste firm opened a site near Pasco and adjacent to an existing sanitary landfill. The site accepted a large variety of industrial wastes from Western Washington and some agricultural pesticide wastes as well. The site operated until 1974 when the issue of 2,4-D disposal was raised by nearby grape farmers. 2,4-D is a broad-leaf herbicide used by wheat farmers extensively. Grape growers have historically fought the use of such chemicals because of spray drift that can severely damage grape plants even in minute quantities. The general public furor, publicity, and clamor was enough to force closure of the state's first recognized chemical waste disposal site. As a result, the private firm and others turned to the State of Washington, Department of Ecology for help in locating another site.

We began this effort by contacting Atomic Energy Commission officials about use of federal lands. Our request was rejected until all other efforts were exhausted. This led us to searching state lands, mainly Department of Natural Resource lands.

Twenty sites were evaluated and

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narrowed to three sites. The most acceptable of the three was in Franklin County. It was known as the Eltopia site. Its fate was similar to that of the original Pasco site - public pressure brought to bear on county officials who had no choice, in view of the intense political pressure, but to oppose the site. The project was abandoned in mid-1975 before the land was even purchased. As a result of continuing failures to locate sites on private or state lands, the Department of Ecology returned to federal lands.

The Search on Federal Lands

In addition to the earlier AEC talks, the department approached federal authorities in the Department of Army in 1974. The site was the Yakima Firing Range, a desert-type training ground used for tank maneuvers and troop warfare training. The site was rejected because of insufficient cover material.

In 1975, formal efforts to locate a hazardous waste site on the Hanford Reservation were begun. The Hanford Reservation is located in south central Washington State, in the Columbia Basin. Rainfall is 6 inches per year with pan evaporation rates of 50 inches per year. The 540-square mile reservation was taken over by the U.S. Government during World War II for the production of weapons-grade plutonium. The site was chosen for its isolation and proximity to the Columbia River and abundant supply of cooling water used in some of the nation's first nuclear reactors. The reservation has become a center for research and development of nuclear fuels reprocessing and nuclear waste disposal. Both high-level (i.e., spent reactor fuel elements) and low-level radioactive wastes are being stored on the reservation awaiting a solution to the long-term disposal question. The reservation is also becoming a nuclear energy park with one nuclear reactor operating and three under construction.

Such land uses made the reservation a natural choice for the siting of a non-nuclear hazardous waste site. Discussions with federal officials of the Atomic Energy Commission (now the Federal Department of Energy) soon revealed that:

- (a) Federal officials desired state ownership of the waste and hence the land upon and in which the waste was to be disposed. Leasing the land was therefore rejected.
- (b) The site was to be located away from any existing nuclear activities on the reservation.

Legal council at the state level also revealed that the State of Washington did not have the legal authority to purchase federal land for the purpose of owning a hazardous waste facility. That authorization was therefore inserted into hazardous waste legislation enacted by the State of Washington in March of 1976.

Federal Department of Energy officials then presented a series of possible sites for the department's evaluation. The same criteria was used to judge the proposed six sites,

After considerable discussion and evaluation, the department chose Section 15 in the southern part of the Hanford Reservation as the most acceptable site of the given six. Section 15 is located about 12 miles from the center of Richland and 3 1/2 miles from the nearest resident to the south. Desert sagebrush land, devoid of any activity, acts as a buffer zone between the site and any residents. Ground water is 125 feet below the site and the nearest surface water is the Columbia River, 7 miles to the east. The land is flat, with no possibility of flooding or erosion even during occasional desert downpours. The site is accessible and served with power and telephone facilities. Work began on the writing of a draft environmental impact statement (EIS) for the proposed site. In August 1977, the department held four statewide hearings on the draft EIS which covered not only the proposed site, but also, draft regulations to implement the State Hazardous Waste Disposal Act of 1976. Benton County officials were briefed two weeks prior to the hearing on the nature of the project and its location.

Little citizen comment was heard at the public hearings, including one in the City of Richland. One real estate agent did make informal comments on the proximity of the site to potential home sites near the southern boundary of the Reservation, 3 1/2 miles away. After the meeting was covered by the media, protests over site location led local legislators to ask for another informational meeting.

The second meeting was held in mid-September and saw about 50 concerned citizens and considerable media interest. The City of Richland's Ecological Commission testified on both the site and the proposed regulations. Many commentators were technical persons working either directly or indirectly with federal governmental activities. Also represented were real estate interests and citizens of no particular identified affiliation.

The Department of Ecology spent the next three months preparing the final EIS and responding to criticism on the site location and the draft EIS. Worst case scenarios were constructed for fires, explosion, spills to ground water, and dust storms. Attempts were made to relate overall risks of concentrating hazardous waste as opposed to continued disposal at the local level. Every written comment was included in the final EIS and a written response prepared. The final EIS was issued in mid-December 1977 and the regulations signed into effect in late January 1978.

Despite the efforts of the department to satisfy the City of Richland in the final EIS, the city felt the need to bring court action against the department for its choice of site locations. The City of Richland approached the Governor and also contacted members of the Washington Congressional Delegation. Because all federal land transfers require the review and approval by the House Governmental Operations Subcommittee, the Washington delegation asked for a hold on the transfer of land to state ownership. The directive to the state was to settle its differences with the City of Richland. This, in effect, dictated that a new site on the reservation be found and that the acquisition process begin anew.

This process resulted in the selection of a new site, Section 1, which is 3 1/2 miles to the northwest of the previous site, Section 15. With assistance from the Governor's Office, representatives of the City of Richland and the Department of Ecology hammered out a memorandum of understanding on how the department will proceed with the new acquisition. The Ecological Commission, a Department of Ecology advisory board, held a hearing in Richland in early June 1978 to hear public comments on the Memorandum of Understanding. The City of Richland testified asking for frequent consultation in the preparation of the draft EIS supplement.

The Department then began preparation of a draft supplemental EIS on Section 1, with frequent and early consultation with the City of Richland. A public hearing in December 1978 drew an audience of 50 persons. The City of Richland commented upon the draft but generally in a positive tone. Of four additional commentors; two state legislators were still opposed to the general location of the site. The final supplemental EIS was issued in February 1979. The department expects to complete site acquisition by mid-1979.

This is where the acquisition of a hazardous waste site stands today. Some obstacles have been overcome, but some in the Richland area continue to resist the site location. A private firm has also made its presence felt in arguing against the need for a second site within 80 miles of its Oregon facility, which it claims as a regional site already. The department has felt that every state should have its own hazardous waste facility to guarantee a place for politically controversial wastes.

Although the site development monies were appropriated by the Legislature, along with site acquisition monies, the site controversy resulted in all but the site acquisition money being revoked. As a result, the department is looking for private funding to develop the site. The operator would recover all capital costs from disposal charges, according to this plan.

Conclusions

Acquiring federal land for this site is complicated by the numerous federal agencies involved and the approval mechanisms. Very long lead times are therefore necessary before successful transfer can occur.

The other aspect is that of the role that local communities do or do not play in controlling the activities that occur on federal lands. Even though activities on federal lands are somewhat autonomous, it is critical that early and constant communication and involvement of the local community be maintained so they can be fully informed of all activities.

The difficulties of writing EISs for hazardous waste facilities should not be underestimated. The sponsoring agency must be prepared to spend the time and money in answering "what if" questions in great detail.

Recommendations

It is difficult to draw parallels between siting problems that are a continent apart. However, I would advise the following:

1. Provide current state laws and regulations which detail and authorize the system you want to implement for siting hazardous waste facilities.
2. Hiring of appropriate staff (planners, chemical engineers, chemists) is vital to the ultimate success of such an undertaking.
3. Where federal lands are concerned, the involvement of congressional level politicians should be actively sought.
4. Some method of selecting and involving the local community must be found that does not lead to the familiar cycle of protest and outrage. Perhaps a region-wide publicity effort, coupled with financial incentives, would be more productive especially if private lands are to be chosen. This would call for local communities to make application for such a site. A final choice could be made based upon an evaluation of the most favorable environmental choice. Quite clearly, any process which reverses that process is bound for trouble from citizen protests.
5. If a regional concept is recommended, guarantees of waste acceptance of all hazardous wastes will need to be provided. Otherwise, the concept of a regional site cannot and will not make sense. The role of private enterprise in constructing competing sites will also have to be clarified.

APPENDIX B

NEW ENGLAND REGIONAL COMMISSION REPORT

NEW ENGLAND REGIONAL COMMISSION
HAZARDOUS WASTE MANAGEMENT PROGRAM

I. OVERVIEW OF PROGRAM

In April of 1978, the New England Regional Commission (NERCOM) formally resolved to seek a regional solution to New England's hazardous waste problem. As a result of that resolution a multi-faceted program was developed to address a range of issues from preparing an inventory of hazardous waste generated in the region to providing for public input into the program. A major component of NERCOM's program is a study of the need for disposal facilities and procedures for siting such facilities.

When NERCOM first embarked on this program the agency had no experience with hazardous waste management although it had been involved in a few solid waste projects. Because of the agency's economic development activities, however, it had established good working relationships with New England businesses that generate hazardous waste. To provide needed expertise, advisors from state agencies, industry, and public interest and other organizations have been utilized. In addition, private consultants have been hired to develop much of the program.

The current work of the program will be completed in September, 1979 and presented to NERCOM's governing board. The governing board will then determine what activities should be continued by NERCOM and which will be taken up by the individual states in New England.

II. THE NEW ENGLAND REGIONAL COMMISSION

NERCOM was created in 1966 to address problems of potential and real economic decline in the New England region and to seek to reverse what was perceived to be incipient economic deterioration. The legislative mandate for NERCOM was Title V of the Public Works and Economic Development Act of 1965 which created a number of other regional commissions across the country. The act and subsequent amendments are administered by the U.S. Department of Commerce.

NERCOM serves six states -- Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. The governors of the six states along with a presidentially appointed federal co-chairman serve as the governing board which determines overall policy. NERCOM maintains a permanent staff of research and administrative personnel; these in-house capabilities are expanded through the use of state agency staffs and outside consultants in each of the program areas addressed by the agency.

The primary concern of NERCOM is economic development in the six-state region and this concern is addressed by short-term programs for specific problems as well as long-term planning towards the establishment of regional economic development priorities. There are two other major areas of concern -- energy and transportation. The former is concerned with solutions to the region's substantial reliance on imported energy resources. The latter is oriented towards the development of an integrated regional transportation system and major emphasis is placed on rail systems.

III. ORIGIN OF THE HAZARDOUS WASTE PROGRAM

In January 1978 the governor of Rhode Island first approached NERCOM about hazardous waste management problems in New England. According to NERCOM's hazardous waste program director, industry officials in Rhode Island had come to the governor to express their concerns about the impact of RCRA on Rhode Island. Those officials foresaw major problems for hazardous waste generators because of a lack of disposal facilities that would meet RCRA standards. The governor, feeling that hazardous waste disposal was a problem difficult for individual states in the region to manage, turned to NERCOM and asked its staff to prepare a background paper.

By mid-March the six New England governors and the federal co-chairman had called for a meeting to discuss a regional approach to hazardous waste management. That meeting, held at the end of March, brought together government officials from the six states and EPA's Region I office and representatives of generators and disposers of hazardous waste. At the meeting individual states discussed their hazardous waste programs and industry representatives discussed their current methods of managing hazardous waste. The major conclusion of the meeting was that a regional approach to hazardous waste management was required. It was also decided that NERCOM's first task should be an inventory of the region's generation of hazardous waste.

By the end of April NERCOM was ready to make a formal commitment to the hazardous waste program. The issues that needed to be addressed had been outlined and an organizational framework had been developed. Initial estimates by NERCOM had indicated that 4,500 industries would be impacted by forthcoming RCRA regulations. On April 27, NERCOM's governing board passed Resolution 182 which committed NERCOM to seeking a regional solution to New England's hazardous waste management problem.

IV. THE NERCOM HAZARDOUS WASTE MANAGEMENT PROGRAM

Resolution 182 established the broad tasks of the program. An advisory group -- composed of representatives of each state, EPA Region I, and the hazardous waste generation and disposal industries -- was to be created. The state representatives were gubernatorially appointed,

senior-level officials from the state environmental agencies. EPA's representative was appointed by the EPA Regional Administrator, and the industry officials' by NERCOM's governing board. This group was to develop a work plan for the consideration of NERCOM's governing board. The work plan would outline a regional plan, activities needed to implement this plan, and potential funding sources. Earlier attempts by NERCOM to inventory the region's hazardous waste generation would be refined. Comments at that time by state and industry officials involved in the early efforts suggested that a regional plan would be the most cost-effective approach to hazardous waste problems. By expeditiously developing an effective plan New England would not only help to retain existing industries but also attract new industries. One of the biggest obstacles to implementing a regional approach would be public opposition to siting facilities.

In late May the advisory group held its first meeting and began to organize its efforts. The major substantive action was the agreement on the major components of the regional plan. Those were: 1) regionwide inventory of waste generation and disposal facility needs, 2) site selection process and siting criteria, 3) institutional and organizational structures (including facility operation), 4) institutional barriers (including importation bans), 5) implementation strategy, 6) environmental assessment, and 7) citizen involvement. The preparation of issue papers on the first five components was assigned to the various New England states and NERCOM. The development of issue papers on the last two components was postponed. The issue papers were designed to serve as the first step in developing a regional hazardous waste management plan. The preparation of a work program for the plan was scheduled to coincide with NERCOM's timetable for fiscal year 1979 budget decisions. At the meeting it was also decided to establish a technical committee, composed of advisory group members, to perform and coordinate technical tasks among the six states.

In August NERCOM sponsored a workshop for advisory group members to inform them of hazardous waste problems in other areas of the country. At the workshop regulatory officials from Minnesota, Texas and Washington related specific experiences with attempting to site disposal facilities in their respective states.

The day following the workshop the advisory group held its second meeting. At the meeting presentations were made on the progress of individual issue papers which had been prepared after the May meeting. The meeting also focused on the advisory group's future activities and recommendations to be made to NERCOM's governing board. The advisory group agreed on the need for maintaining itself as a means to coordinate state efforts, influence U.S. EPA actions and policy, oversee public involvement in hazardous waste management, and direct any future consultant work. With regard to the last item, it was agreed to

recommend a consultant study to examine resource recovery, facility needs and financing, site selection process, long-term care and liability, and management options.

The State of Massachusetts was responsible for preparing the issue paper on site selection process.¹ Siting criteria developed by Camp Dresser and McKee for Massachusetts's Division of Water Pollution Control were summarized. Criteria for land disposal were accessibility, hydrogeological conditions, adaptability, environmental impact, compatibility with existing and proposed zoning and land use, and relative construction and operating costs. It was noted that no one site was likely to meet all criteria. Accordingly, Massachusetts had adopted a policy that physical characteristics were less important than the site's proximity to waste generators, in part because of reduced hauling costs, but more importantly because employment opportunities with generators might offset inevitable opposition to any site. For incinerators, sites with good atmospheric ventilation and remoteness from particularly sensitive activities (e.g., hospitals, schools) should be selected.

The siting issue paper stated that local acceptance of a designated site was possibly the single most important factor in siting. Public education was seen as critical to establishing an awareness of existing disposal problems and thereby support for solutions to these problems. Compensation in the form of payments per unit of disposed waste to host communities was seen as a potential incentive. Finally, the use of eminent domain or the threat of its use was seen as a potential last resort if opposition could not be overcome and if a clear need for a facility site existed.

The issue paper examined NERCOM's role in siting. Citing earlier advisory group discussions which considered the development of a single regional disposal facility, this approach was thought to be unjustified because of the potential for greatly reducing the volume of residual hazardous waste through treatment and processing. Accordingly the following tasks were suggested for NERCOM: the dissemination of information on safe intrastate disposal technologies, the provision of technical assistance on specific disposal problems, the promotion of the region's only waste exchange facility, the avoidance of choosing any specific site and concentration on siting criteria to be applied within individual states, and investigation of the feasibility of a regional reprocessing center.

By late September the advisory group had prepared recommendations for the NERCOM governing board. Acting on those recommendations the

¹ Because the major emphasis of Centaur's project is public response to the siting and operation of HWMFs, this issue paper is summarized here and appended to this report on NERCOM's hazardous waste program.

commissioners passed Resolution 195 on September 22. This resolution expanded the advisory group by adding six public members (e.g., local officials, representatives of environmental and public interest groups) and created a steering committee of advisory group members serving in an ex officio capacity. In addition, the advisory group was charged with ensuring the compatibility of the six states' individual hazardous waste programs, developing interim strategies and solutions to hazardous waste management problems, supervising medium- and long-term planning efforts, directing any NERCOM-sponsored consultation work, and implementing a public information/participation program. To provide support for this effort, \$245,000 was allocated to the program. These funds were allocated primarily to consultation work (\$190,000) and the public information/participation program (\$50,000). Within two weeks a public information sub-committee was formed and a request for proposals had been reviewed and revised by the full advisory group. To help in the selection of a consultant and to work with the selected consultant during the contract period, a consultant committee composed of advisory group members was created. On October 13 the request for proposals was distributed to 36 prospective contractors.

The request for proposals called for a six-month contract not to exceed \$190,000 in cost. Five major tasks were outlined in the scope of work: 1) a nationwide hazardous waste inventory organized by management option was to be prepared;¹ 2) a site selection process was to be developed to provide a vehicle for the identification of, but specifically not identify, one or more regional disposal facilities and consider acquisition methods, public acceptability and incentives. Roles of public and private parties were to be examined as were the relationship between the location of generators and site selection; 3) management options were to be examined. These included the number and types of facilities required by New England, various public/private arrangements for facility planning, construction, ownership and operation, and financing arrangements; 4) provisions for long-term care and legal liability in case of incident were to be studied; 5) the previous four tasks were to be integrated into a set of realistic scenarios and implementation options. Included within these options would be specific references to the number and type of facilities needed in New England and their respective service areas.

By early January NERCOM announced the selection of Arthur D. Little as the consultant for the study. Work began on the contract in

¹ Earlier efforts to aggregate individual state inventories had been frustrated by variations in the data collected and tabulated by the individual states.

mid-February and was due to be completed in mid-August of 1979. NERCOM's consultant committee organized smaller groups around each of the major tasks of the contract. These groups have played an active role meeting with the consultant on at least a monthly basis to review the project's progress and to make recommendations and advise the consultant.

While this contract will be the major focus of NERCOM's efforts in fiscal year 1979, the public information program has also been active. In December, 1978, the public information committee (as with other committees, also composed of advisory group members) met for the first time and defined its goals as the promotion of public understanding of New England's hazardous waste concerns, the encouragement of public involvement in finding solutions to those problems, the promotion of environmentally sound disposal facilities, the identification of key groups and their concerns, the ensuring that all management options are explored, and the monitoring of the Arthur D. Little contract. A broad range of possible key groups that could play a major role in NERCOM's hazardous waste program (e.g., environmental groups, hazardous waste generators) were identified and the most critical of these were targeted for particular attention. A list of methods for implementing the committee's goals was also developed. The committee met for a second time in late January. At the meeting it was decided to include the following efforts in the public information program: a speakers bureau, a slide show, brochures, facility tours for advisory group members, media efforts, special meetings, contributions to conferences, and a film. The committee will also utilize a public information consultant to assist in implementing the program. The public information committee expected to begin parts of the program (i.e., slide show, brochures, speakers bureau) in the summer of 1979.

By late May of 1979, the NERCOM program was proceeding as planned with no major problems. The Arthur D. Little contract was roughly at mid-stage. From those interviewed it was clear that a broad range of issues had been examined. This was particularly true of issues directly relating to the siting and development of facilities. Equally clear was the fact that any final recommendations to come out of that study would have to take into consideration a range of technical, economic, legal, institutional, and political considerations which vary significantly among the six New England states. Decisions on what to do next would be made by the NERCOM governing board in September, 1979.

V. VIEWS ON THE NERCOM PROGRAM AND FUTURE ACTIONS¹

Two views stand out from discussions with those involved in or potentially impacted by NERCOM's program. One is support for a regional

¹ The material in this section is based on interviews with state and EPA officials in New England who have either worked on NERCOM's advisory group or are directly involved in state hazardous waste management efforts.

approach to hazardous waste management and the attendant perception of NERCOM as the obvious agency to promote a regional approach. The other is the view that individual states, rather than NERCOM, must play the major role in the implementation of any hazardous waste program, particularly with regard to the development of specific facility sites. The two views are not necessarily conflicting, but do underscore the need (and desire) for careful consideration of future roles of NERCOM and the states.

NERCOM's continued role has been defined in a number of ways. The basic distinction between these conceptions of NERCOM's role is whether NERCOM will be supportive of state actions or will take the lead in identifying sites and developing facilities. According to NERCOM and state officials, the latter role, which could involve the development of a regional hazardous waste authority, is unlikely. More likely is that NERCOM will be asked to continue to support the advisory group. At a minimum the advisory group would then continue to monitor and coordinate the states' programs to try to ensure compatibility and would also continue its public education/information efforts. NERCOM might also serve as a proponent of specific facilities proposed by the private sector.

Decisions on government roles in siting will in all likelihood be left to the individual states. Because of variations between the states,¹ there will be varied responses to the siting. To date Massachusetts has taken the most direct action in siting. Efforts to identify and acquire facility sites have been active since early 1978.² The state is currently preparing a statewide plan focusing on management, institutional and other non site-specific aspects of hazardous waste management. The NERCOM study will be used as input to this plan. Connecticut is studying its hazardous waste generation and developing siting criteria. Connecticut expects to identify candidate areas for facility sites by eliminating areas in the state which are unsuitable because of hydrogeology and/or land use. Connecticut officials are scheduled to meet with Arther D. Little staff three times during the course of the NERCOM-sponsored study. NERCOM's study should provide analyses which Connecticut can use along with its own study.

¹ For example, Maine encompasses about half the land area of New England, but has less than 10 percent of the region's population and 3 percent of the hazardous waste generators. Massachusetts, on the other hand, has 12 percent of the land area, 48 percent of the population, and 45 percent of the generators of the region.

² See the Sturbridge, Massachusetts case study and the Massachusetts agency write-up elsewhere in the appendices to this report.

Most states do not envision direct involvement by states in developing specific sites. Most of those interviewed saw states as being arbiters for siting processes initiated by the private sector. The primary goal of the states was thus seen as not only developing strong and effective regulatory programs but also becoming much more sophisticated with respect to the needs of hazardous waste generators, the options available to the disposal industry, the concerns of the public, and other critical aspects related to the development of specific facilities. It was expected that NERCOM's program would provide states with a substantial amount of information which would enable them to analyze more critically the proposals of private industry. By serving as a knowledgeable arbiter but not as a developer or proponent of specific facilities, states could avoid real or perceived problems of credibility or conflict of interest. By leaving facility ownership and operation in private hands, cost-effectiveness would increase and the potential for public subsidies of useful but uneconomic, facilities would be eliminated.

Massachusetts and Connecticut have between them 70 percent of the region's identified industries which generate hazardous waste. These states contemplate an active state role in siting. Massachusetts has committed itself to acquiring one or more facility sites which would probably be developed by private industry. Three potential sites have already been designated and an ongoing site survey could produce considerably more sites. An environmental review of these sites preparatory to acquisition is scheduled to begin in 1980. As stated earlier, Connecticut expects its current study to identify areas within the state that would be suitable for disposal facilities. The state expects public opposition to any potential site to be vigorous. Accordingly, state acquisition of sites and operation of facilities has been considered with state or federally owned land being a potential source of sites. The Connecticut Resource Recovery Authority, a state agency which contracts with private vendors for waste-to-energy facilities, might be a means for state control of hazardous waste facility operations.

EPA has played an active role in the NERCOM program. However, in the future, EPA, from its own and from the states' perspective, would focus on ensuring the development of state programs required by RCRA and on abandoned sites. EPA would have a role in any continued NERCOM program but little if any role in siting of new facilities.

NERCOM Issue Paper: Site Selection Process

Submitted by: The Commonwealth of Massachusetts

Prepared by: David Standley, Commissioner, Department of Environmental Quality Engineering, and Anthony D. Cortese, Director, Division of Air and Hazardous Materials

Date: August 7, 1978

In our opinion the principal criteria to be employed in siting hazardous waste disposal facilities will ultimately be determined by the final regulations promulgated by EPA under Subtitle C, Hazardous Waste Management, of the Resource Conservation and Recovery Act (RCRA). According to our best information, EPA hopes to have Section 3001, Identification and listing of hazardous wastes, ready for public distribution by January 1979. Region I of EPA is of the opinion that April 1979 is a more realistic date. The public hearing and review process will take at least six (6) months. Therefore, October 1979 is the earliest date by which Section 3001 will be ready. Sections 3002-3011 inclusive, and more particularly Section 3004 which addresses standards applicable to owners and operators of hazardous waste treatment, storage, and disposal facilities, will not be promulgated until the final definitive Section 3001 has been issued.

In the meantime draft versions of Subtitle C Sections 3001-3011 inclusive are being circulated to all interested parties for review and comment. Of particular interest to State regulatory agencies concerned with land and water use are the "cradle-to-the-grave" supervision of all hazardous wastes, the "no endangerment" concept with respect to ground-water resources, the dispute now going on within EPA as to whether or not the protection of ground water is properly within the jurisdiction of the Solid Waste Program, and the regulatory implications of long-term facility monitoring and in-perpetuity maintenance and repair. Of continuous concern to regulatory agencies responsible for protecting air quality standards are the interstate implications of air pollutant transport

(i.e., the New Jersey case), especially with respect to possible emissions from a hazardous waste disposal incinerator. Recognizing that the situation within EPA is dynamic and subject to change between now and October 1979, the following criteria for disposal of hazardous waste by landfill techniques or incineration are proposed for consideration.

Land Disposal

The technical, environmental and institutional factors affecting the criteria for identifying and evaluating potential sites for land disposal of hazardous wastes have been rather comprehensively addressed in the Camp Dresser and McKee (CD&M) report entitled "Site Selection and Evaluation for Disposal of Hazardous Wastes - First Report," dated July 1978, prepared under contract to the Massachusetts Division of Water Pollution Control. A listing and brief summary of their siting criteria is, as follows:

1. Land requirements (site capacity) - For disposal by landfill technology, the required area will be dependent upon the form in which the wastes are delivered to the site, the volume of wastes generated in the area served by the landfill, and the contemplated serviceable life of the facility. Barreled wastes will consume available site capacity at a greater rate for a given waste volume than disposal sites accepting bulk wastes.
2. Location - Preferably centrally located with respect to the region of largest generation of hazardous wastes. A single site within a state may impose excessive hauling costs for waste generators remote from a central site. Therefore, consideration should be given to establishing smaller, more local sites to serve the needs of other waste generators, too remote from a central facility.

3. Accessibility - The characteristics of the roadway to the disposal site will affect haul times and overall safety of transportation operation.
4. Geological/hydrogeological Conditions - Given primary importance by CD & M are the natural characteristics of a site - its soil types, ground-water levels, and site drainage conditions. If possible, sites within the watershed of public surface water supplies should not be considered in initial site selection. Sites underlain by extensive deposits of sands and gravels should be avoided unless overlain by substantial thicknesses of fairly impermeable materials. Sites considered appropriate would consist of low-permeability underlying soils such as clays, silts or glacial tills.
5. Adaptability - Characteristics of hazardous wastes necessitate an absolutely secure landfill. This can be both engineered and constructed at any site, but an area of level or gently sloping terrain will facilitate construction of the base liner and perimeter embankments. The area method of landfilling is recommended as the most suitable.
6. Environmental Impact - Land disposal of hazardous wastes may have an impact on air, land and water quality which can be eliminated or reduced to acceptable levels by competent engineering design of the facility, proper operation, and continuous maintenance. One of the problems of landfill disposal of hazardous wastes not yet addressed by RCRA or EPA is the possibility of very long-term release of hazardous or toxic substances into the environment. Provision for long-term facility monitoring, active site closure, and in-perpetuity maintenance and repair should be included in the design phase. Funding such activities is a new institutional problem to be solved.

7. Compatibility with Existing and Proposed Zoning and Land Use - Because of the nature of the wastes, the best location for a hazardous waste disposal site is in an area of low population density isolated from most public activities.
8. Relative Construction and Operating Costs - Capital costs include site acquisition and preparation, such as land clearing, grading, liner preparation, installation of drainage facilities, access roads, buildings, fencing, sanitary facilities, extension of utilities to the site, special site preparation, planting or buffer strips, leachate collection and/or treatment facilities. The major operating costs to be considered are adequate suitable cover material, equipment operation, utilities, personnel and operation of a leachate treatment system, if required. Some gross haul cost estimate should be made or integrated into the evaluation process for the relative costs of different sites.

Obviously no single site will be able to satisfy completely all of the foregoing criteria. Some trade-offs will be necessary between environmental, public health, political, economic and social considerations. In Massachusetts, the Department of Environmental Quality Engineering, a regulatory agency, has adopted the policy that the physical characteristics of a site are less important than its physical proximity to the largest generators of hazardous wastes. Public opposition to the siting of a hazardous waste facility will be generated whenever and wherever a particular site is designated. This opposition should be moderated or offset by the employment opportunities offered by a large waste generator. Locating a facility within the major area of waste generation not only saves transportation costs, but, even more importantly, may result in less public opposition.

In terms of purely physical characteristics, geological/hydrogeological conditions form the single most important criterion. This is due to the requirement that there be no degradation of ground-water or surface water, which

in effect generally means total containment, with provision for collection and treatment of any leachate. Where natural geological conditions cannot provide the required containment, artificial barriers may be used, but these must be in the form of a 5-foot thickness of soil having specified characteristics. Synthetic liners may not be used in place of earthen barriers. A consideration of great importance is the requirement that funds and procedures must be provided for in-perpetuity maintenance and repair.

The proposed RCRA regulations do not at present consider any variation in the degree of hazard of the various materials which will come under the definition of "hazardous waste." If, as appears to be the case, "highly" hazardous wastes account for only a small percentage of the total volume of hazardous waste generated, there may be an advantage in dealing with the two categories in separate facilities. A landfill for the less hazardous materials would still be required to meet stringent RCRA standards, but may nevertheless offer the following potential benefits: 1) it would create less of an environmental and public safety danger, while solving a large part of the disposal problem for industry; 2) it may engender less public and political opposition; and 3) it would allow the very best site (geologically and environmentally) within a wide area (probably larger than New England) to be reserved for disposal of the most dangerous wastes.

Incineration

1. A site should be located in an area of good atmospheric ventilation such that there will be good dilution and dispersion of the emissions (i.e., not in a valley).
2. A site should be located in a rural area such that there are no sensitive receptors proximate (hospitals, nursing homes, schools, etc). In addition, there should be a buffer zone. This buffer zone should be to protect against upset conditions and the area of the buffer zone should be sized such that if an upset

occurs concentrations of the contaminants or its complete or incomplete products of combustion would not exceed one half of applicable threshold limit values outside the buffer zone.

Public Acceptability

Perhaps the single most important factor to be taken into account in siting a hazardous waste disposal facility is local acceptance of a designated site. Public opposition to the siting of solid waste disposal facilities for non-hazardous wastes is a matter of historical record. How then can we hope to overcome the opposition which can be anticipated to the location of a proposed hazardous waste disposal facility?

Various factors affect the acceptability by the public of a hazardous waste disposal facility. The public must be educated, establishing general public support. Compensation can be a useful incentive in gaining some local support of hazardous waste disposal facilities. A method of site acquisition must be established which is generally acceptable but implementable given inevitable local opposition.

Public Education

To establish general public support for a solution to the hazardous waste problem, an awareness of the existing disposal problem must be created. The public must be educated through well-controlled passage of information to interested groups, key individuals, etc. The aim should be to communicate the importance of siting a facility for the region-wide benefit and develop public pressure to achieve that goal. The establishment of effective cooperation between industry and citizens groups should ease the passage of information and therefore communicate the necessity of siting a facility. State support of industry must be displayed openly. Legislative mandates should be obtained to involve the state in assisting industry with hazardous waste disposal.

To enlist specific local support for siting a hazardous waste disposal facility, a combination of support from local officials and community groups must

be gained. Environmental laws have provided the opposition with tools to support their views. The requirements for environmental impact statements have given groups increased power to block or delay possibly environmentally adverse or even environmentally reasonable projects that are deemed undesirable. There is also a traditional and legal commitment to local autonomy and local control over land decisions as demonstrated in the manner zoning has developed. The number of examples that demonstrate that local or other special interest groups can block the siting of potentially dangerous facility (prisons, nuclear power plants, natural gas facilities, solid waste disposal sites, oil refineries, tanker docks) is increasing.

Ideally, it would be nice to achieve voluntary local acceptance of a facility through bargaining and sound environmental and technical arguments. However, some people who deal with local public opposition will cite the "irrationality" of the public response to many issues. This may be particularly true for a hazardous waste facility, as the track record for both solid waste dumps and hazardous waste handling companies is poor. Because such a poor history of disposal operations can be cited, perhaps it is misleading to term public reaction to the siting of another, even less attractive waste facility, as "irrational". However, such irrational local opposition to facilities that may, to some people, appear beneficial must be considered in siting such a facility. If there is enough opposition to a specific proposal, a very rational argument can almost always be developed and used to influence the decision-making process.

This works at cross purposes to the common approach to siting a facility. The approach is to develop technical and economic arguments so sound that any ensuing political battles can be easily weathered under the roof of sound reason. However, the determining issues are frequently more than technical. The political process can uncover a variety of opposing goals and vested interests, and technical arguments can be found to support or refute any conclusion offered. This is illustrated by the difficulties the courts have had in hearing many

environmentally related cases. Particularly, for these cases, and similarly for arguments opposing facility siting, technical arguments can be "on the frontiers of scientific knowledge," and proof, in fact, cannot be achieved. But even for well known scientific subjects, opposing technical arguments can be formulated. Judge Bazelon of the D.C. Circuit Court has expressed the Court's uneasiness with judging technical facts: "...in cases of great technological complexity, the best way for courts to guard against unreasonable or erroneous administrative decisions is not for the judges themselves to scrutinize the technical merits of each decision. Rather, it is to establish a decision making process that assures a reasoned decision that can be held up to the scrutiny of the scientific community and the public."¹

A community should be informed of a decision to investigate a specific site within its boundaries for the possibility of hazardous waste disposal. Public meetings should concentrate on allowing citizen input into the decision-making process. Before meetings are conducted, it is necessary to have a good understanding of all relevant facts and environmental impacts associated with site acquisition and development

It is important to note at this point that financial and manpower resources are necessary for public education needs to be met.

Compensation

In the siting of resource recovery plants, it has been shown that the payment of a "bonus" of one dollar a ton for solid wastes accepted from outside the immediate area can be a useful incentive for communities to accept negatively viewed facilities. In the case of siting a hazardous waste disposal facility, considering that it may be relatively more dangerous, a similar compensatory approach requiring payment of a greater monetary sum may reduce local opposition. Following the determination of a fair compensation sum by all parties concerned (local government, industry, and state), a statutory basis for compensation must be established.

Acquisition

Most state governments have the power of eminent domain for locating a facility

necessary to the public good. Experience with State use of eminent domain powers when locating socially dangerous facilities, such as prison siting, illustrate why a state is reluctant to use this power. However, when local opposition cannot be overcome by public education and financial incentives, and when the need for siting a hazardous waste disposal facility clearly exists, exercising the power of eminent domain must be seriously considered.

The most realistic approach to siting a hazardous waste disposal facility will probably be a combination of the above mentioned approaches. Various types of bargaining techniques may be employed, such as mediation. It appears that compensation and, at least, the threat of eminent domain will be involved if all parties are to bargain from positions of strength. It is becoming clear that lack of public involvement in the decision-making process may lead to serious confrontations when the decision is ready to be implemented. Unfortunately, there is no assurance that full public involvement from the beginning will lead to a more acceptable decision.

"The siting of a hazardous waste facility warrants care in planning the approach to dealing with the local group to be negatively impacted by the facility. In particular, the timing and degree of public involvement in the decision-making process is important. A delicate balance will have to be struck between the traditional completely technical approach and a possibly protracted and unwieldy citizen participation".

Technical Considerations

Public opposition to the siting of a hazardous waste disposal facility will unquestionably be successful unless the following technical factors have been thoroughly considered and evaluated for their potential impact as either a public nuisance or a threat to public safety:

- (1) All of the siting criteria suggested by CDEM;
- (2) Screening and distance separation from residential areas;

- (3) Transportation routes to and from the facility;
- (4) Spill planning;
- (5) Noise control;
- (6) Failsafe engineering for prevention of explosion and leakage;
- (7) Controlled access to site to prevent accidental trespass by children or domestic animals.

The Role of NERCOM in the Site Selection Process

At the last meeting of NERCOM the Commonwealth of Massachusetts, in conjunction with the other New England states, was contemplating the idea of a single regional hazardous waste disposal facility which could serve the needs of the entire region. Since that time we have thoroughly researched the need within Massachusetts for such a facility. We have reached the conclusion that the largest volume of so-called "hazardous wastes" generated in the State are capable of being detoxified or stabilized to a point where they can safely be disposed of by special landfilling practices or by incineration. We have developed and implemented a policy for the environmentally safe disposal of metal hydroxide sludges, liberally borrowing from the Connecticut guidelines. We are now in the process of developing state policy for handling and disposal of oil spill debris, reprocessing solvents, and latex wastes. When we have solved the disposal problem for these four (4) types of wastes, we anticipate that the total volume of residual hazardous wastes shall be greatly reduced. For the remaining hazardous wastes we advocate disposal at one of the existing hazardous waste disposal facilities, either in New York or New Jersey.

We believe that the other New England states would benefit from a similar evaluation of their own "hazardous wastes" volumes. If similar satisfactory techniques and state - sponsored disposal practices can be developed and implemented in each of the New England states, there is a strong possibility that the total remaining volume of "hazardous wastes" would be insufficient to justify the establishment of a New England regional disposal facility.

If that should prove to be the case, we believe that NERCOM can provide a valuable function as an institution:

- (1) to disseminate information about policies and procedures for safe intrastate disposal of "hazardous wastes";
- (2) to provide technical assistance on specific chemical wastes and suitable methods for their safe immobilization and disposal;
- (3) to publicize the existence and availability of the only privately operated waste exchange facility in New England, the Natural Resource Recycling Center, 286 Congress St., Boston, MA;
- (4) to avoid activities designed toward site selection of a suitable New England site and concentrate on the suitability of the siting criteria to be applied within the individual states; and
- (5) to investigate the feasibility of establishing a New England regional reprocessing center for resource recovery rather than disposal.

Reference

1. International Harvester Co. V. Ruckelshaus, U.S. App. D.C., 411, 448 478 F.2d 615, 652, 673

APPENDIX C

INFORMATION ON STATE REGULATORY AGENCIES

ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY

In the state of Arkansas the primary responsibility for regulatory hazardous waste management facilities rests with the Department of Pollution Control and Ecology (DPCE). A hazardous waste management act became law in Arkansas in March, 1979. Interim regulations are expected to be promulgated by July, 1979. The discussion below refers to these regulations.

AGENCY CAPACITIES AND COMMERCIAL HWMFs

Staff Positions: 2¹

Agency Budget: \$132,000 (FY 1978)

Commercial HWMFs: 1 permitted facility

SELECTED ASPECTS OF STATE HAZARDOUS WASTE PROGRAM

Facility Inspections -- DPCE has the right of access to hazardous waste management facilities to determine whether they are in compliance with the regulations. What institutional arrangements will be used to carry out these inspections has not yet been determined, but it is expected that there will be a group of inspectors working out of the central office in Little Rock.

Enforcement Actions -- In the case that there is an imminent hazard, the DPCE is empowered to issue a cease and desist order (the recipient of the order then has 10 days to contest this in court). There are also civil and criminal penalties for violating the regulations, but these must be handed down by the courts. At present the DPCE must work through local prosecutors to take a violator to court. However, an enforcement branch is now being organized which will enable them to do this for themselves.

Monitoring -- The hazardous waste management act allows the DPCE to establish monitoring programs for hazardous waste management facilities. It is expected that these programs will follow EPA guidelines. Facilities may require different types of monitoring depending on the type of operation and types of wastes being stored, treated, or disposed of.

Manifest System -- The new regulations establish a manifest system for cases in which a generator is disposing of wastes in a commercial site. On-site disposal is not covered, and they have not yet decided whether shipments to off-site, captive facilities will be covered. In making this decision the DCPE will probably follow EPA's lead. Also, it is not certain whether special wastes (e.g., waste oil) will be covered by this system.

¹ DPCE has authority for 11 positions as of July 1, 1979.

Defining Hazardous Waste -- The definition of hazardous waste closely follows the EPA definitions, with two exceptions. Hazardous waste is defined as:

A solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical or infectious characteristics, may, in the judgment of the department --

- (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 threat or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise improperly managed.

The underlined sections were added by the DPCE.

Coverage of Permit System -- Any facility which stores, treats and/or disposes of hazardous wastes, and any person who develops and/or operates such a facility must first receive a DPCE permit. For a given operation, this permitting can be done together or separately.

AGENCY VIEWS

The DPCE feels that siting of hazardous waste management facilities will be the most difficult problem they will face in the hazardous waste field in coming years, and that gaining public acceptance for these facilities will be the reason it is so difficult. The technical problems they face are not that great. There are technically acceptable areas for hazardous waste facilities in the state.

The DCPE has an embryonic public awareness program which is being set up to try to deal with this problem, but the extent of this program is very limited because the state legislature declined to fund it sufficiently. They now hope to get EPA assistance in this area. However, they are not sure that such a program can be effective.

Respective government roles in siting depend, the DPCE has indicated, on the type of facility being sited. A facility which intends to accept PCBs, for instance, would obviously need much more federal involvement than would one which does not. Generally, though, they feel that EPA should have a supporting role--providing technical assistance and funding. The states should themselves be directly involved to the extent that direct government involvement is necessary (e.g., public awareness). Local governments were seen to play a critical role, but not to be officially involved in the process per se. They are considering options such as fee-splitting to give local government officials an acceptable reason for supporting the siting of such facilities in their districts.

CALIFORNIA DEPARTMENT OF HEALTH SERVICES

Within the state of California, the regulation of hazardous waste management is primarily the responsibility of the State Department of Health Services (DHS). However, other state and local agencies also play a significant role in the regulation of such facilities and operations. The more important of these latter agencies include the Regional Water Quality Control Boards, the Regional Air Pollution Control Districts, and the local planning board.

AGENCY CAPACITIES AND COMMERCIAL HWMF

Staff Positions: 29¹

Agency Budget: \$1,489,000¹

Commercial HWMFs: 11 permitted facilities

SELECTED ASPECTS OF STATE HAZARDOUS WASTE PROGRAM

Facility Inspections -- DHS regulations allow Department representatives to enter any "factory, plant, construction site, waste disposal site, transfer station or other area where wastes are stored, handled, processed or disposed of" to "inspect the premises and gather evidence on existing conditions and procedures." Vehicles suspected of transporting hazardous wastes may also be stopped and inspected. No specific schedule of inspections is required.

Enforcement Actions -- The DHS maintains an inspection and compliance program, with inspectors permanently in the field. DHS response to violation of regulations can range from merely requesting that the conditions or practice be corrected to criminal prosecution. The latter must be undertaken by the state Attorney General. Sanctions are identical to those proposed by the EPA.

Monitoring -- Monitoring is not required by DHS regulations. Monitoring of ground and surface water is required, however, by the Regional Water Quality Control Boards. These programs are established on an individual site basis. For processes and operations which may affect air quality, monitoring may be required by the Regional Air Pollution Control Districts.

Manifest System -- The regulations require that all hazardous waste transported off-site, except those transported by pipeline, must be accompanied by a manifest. This manifest must first be filled out by

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Source: U.S. Government Accounting Office, "Hazardous Waste Management Programs Will Not Be Effective," January 23, 1979.

the producer, who must provide a description of the waste including the type, chemical composition and special handling instructions. Both the hauler and the off-site facility operator are required not to accept any wastes without a properly completed manifest, and the operator must inspect the wastes before accepting them to ensure that the manifest description is correct. The producer, hauler and operator must each submit a copy of each manifest to the DHS.

Defining Hazardous Waste -- "Hazardous waste" is defined in DHS regulations as "any waste material or mixture of wastes which is toxic, corrosive, flammable, an irritant, a strong sensitizer or which generates pressure through decomposition, heat or other means, if such a waste or mixture of wastes may cause substantial injury, serious illness or harm to humans, domestic livestock or wildlife."

Coverage of Permit System -- Permits are required for any facility which "handles, stores, treats or disposes of a hazardous waste" and which contains at least one area where "hazardous wastes are stored, mixed, handled, treated, discarded or disposed of." The only exceptions are for facilities "using a biological process on the property of a producer treating oil, its products and water..." The DHS is required to review each permit at least every five years. Haulers of hazardous waste are required to hold a valid registration issued by the DHS.

AGENCY VIEWS

The DHS role in the regulation and planning of hazardous waste management activities in California has been expanded during the last several years. From 1973 through 1978 their role was purely advisory. Since 1978 a DHS permit has been required for operation of hazardous waste facilities, and starting January 1979, DHS is to provide statewide planning for hazardous waste site identification and assessment.

The agency feels that the following factors are most likely to cause difficulties in siting facilities:

- o public opposition;
- o time required to obtain environmental reviews and required permits;
- o cost of providing environmental impact reports and other information required for approval of proposed facilities;
- o environmental conditions at proposed sites; and
- o cost of transporting wastes to the proposed site.

They report that it currently takes three to five years to establish a site, and that during the years 1970-1976, only two of seven proposed sites were approved.

The criticism most frequently voiced of the current system of hazardous waste regulations in California is that there are too many agencies involved in this process. The proposed Padre Juan facility, admittedly an exceptional case, would have required permits from eight agencies. One result of this problem is that wastes which are considered hazardous by one agency are not necessarily so regarded by the other agencies concerned. For instance, brines are considered hazardous by the Regional Water Quality Control Boards, but not by the DHS, and asbestos is considered hazardous by the Regional Air Pollution Control Districts, but not by the Regional Water Quality Control Boards. It is reported that a coordinating committee has been set up to resolve such problems and to establish a one-step state-level permit process.

With the exception of these institutional problems, it is generally thought in California that their system of hazardous waste regulations go beyond and are superior to RCRA. One example of this which was cited is their monitor reserve fund. In California, the fund is based on the estimated cost of site closure -- not a fixed cost for all sites -- and is revised and updated annually. This fund can be borrowed from for emergency corrective action. In addition to this individual fund for each site, there is a statewide revolving fund -- based on a per unit disposal charge -- which would be used if an owner's fund is exhausted. The attitude in California seems to be that they do not need EPA.

IDAHO DEPARTMENT OF HEALTH AND WELFARE

In Idaho the principal responsibility for the regulation of hazardous waste management rests with the state Department of Health and Welfare (DHW).

AGENCY CAPACITIES AND COMMERCIAL HWMFs

Staff Positions: 3

Agency Budget: \$83,000¹

Commercial HWMFs: 2 permitted facilities

SELECTED ASPECTS OF STATE HAZARDOUS WASTE PROGRAM

Currently, there are no state laws specifically pertaining to hazardous waste disposal in Idaho. However, there are regulations which govern the disposal of solid waste, and legislation covering hazardous waste disposal is now being prepared by the DHW.

The proposed legislation is expected to be roughly equivalent to EPA's proposed RCRA regulations, with the exception that DHW might classify hazardous waste into several categories.

Facility Inspections -- The present solid waste disposal law provides for the inspection of all solid waste disposal sites, which therefore covers all sites at which hazardous solid waste is disposed. The proposed legislation would extend this to all hazardous waste disposal sites.

Enforcement Actions -- DHW's first step in enforcing regulations is to provide technical assistance. If this is not successful, they now have authority to take the offender to court, as a result of which fines up to \$1000 per day per violation can be assessed.

Monitoring -- Existing regulations do not require any monitoring. The proposed regulations would require the monitoring of ground and surface water.

Manifest System -- Neither the existing regulations nor the proposed legislation has a provision for a manifest system. It is still possible that such a system will be added to the proposed legislation.

¹ FY 1978; FY 1979 figure is \$106,000.

Defining Hazardous Waste -- Existing regulations define only solid waste. The proposed legislation, on the other hand, defines hazardous waste very broadly. It refers to any solid, liquid or gaseous material which is toxic, corrosive, flammable, bioconcentrative, infectious, or which causes an increase in mortality. It does not include high-level radioactive wastes which are subject to other Idaho state regulations.

Coverage of Permit System -- The current system of regulation includes an approval process for all solid waste disposal sites. The proposed legislation would include a requirement that all hazardous waste storage, treatment and disposal facilities be permitted.

AGENCY VIEWS

The DHW has indicated that it feels there are three broad categories of problems to be faced in siting and operating hazardous waste facilities: public acceptance, technical assessment and operation. Project acceptance by local elected officials was not, however, seen as a problem. National media emphasis on the hazards associated with chemical wastes was blamed for much of the public opposition. Technical assessment of proposed sites was felt to be a problem due to the difficulties of assessing the role of improbable events. They recommend that the site and operation be able to manage a "worst case". Potential operational problems include financial responsibility, bonding, daily site operation, employee safety and accident prevention.

The DHW proposes that specific authority to review and establish the suitability of sites in advance of specific proposals would be, in their case, useful. They also noted that government agencies should provide technical assistance, inspection and review of hazardous waste management facilities, and that they would support a state or federal waste disposal tax to be used in case of accidents or for long-term care.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

The regulation and planning of hazardous waste management in the state of Illinois is primarily the responsibility of the Illinois Environmental Protection Agency (IEPA).

AGENCY CAPACITIES AND COMMERCIAL HWMFs

Staff Positions: 7¹

Agency Budget: \$124,000¹

Commercial HWMFs: 2 permitted facilities²

SELECTED ASPECTS OF STATE HAZARDOUS WASTE PROGRAM

Facility Inspections -- The IEPA is authorized "to conduct a program of continuing surveillance and of regular or periodic inspection...of the refuse disposal sites".³ The Division of Land Pollution Control's Regional Environmental Protection technicians have as one of their responsibilities to routinely inspect and report on the operational status of all refuse disposal sites in Illinois, including hazardous waste management facilities.

Enforcement Actions -- Cases involving serious or repeated violations of IEPA regulations are taken before the Illinois Pollution Control Board, and the IEPA is represented there by the state Attorney General's office. The Board has the authority to levy fines up to \$10,000 plus \$1,000 per day per violation.

Monitoring -- There are no requirements for monitoring. Any data the IEPA requires are gathered by its own technicians during their routine inspections.

Manifest System -- New Special Waste Hauling Regulations took effect on July 1, 1979 in Illinois. Special wastes are in essence all wastes except garbage, and include hazardous wastes. A manifest is required for all such waste generated in Illinois and hauled for storage, disposal and/or treatment within or out of state, and for all such waste hauled into the state.

¹ Source: U.S. General Accounting Office, "Hazardous Waste Management Programs Will Not Be Effective", January 23, 1979.

² Illinois has 2 permitted HWMFs, only one of which is currently operating. In addition there are approximately 50 facilities which co-dispose hazardous and solid waste.

³ Environmental Protection Act, Title 1, Section 4.

Defining Hazardous Waste -- Hazardous waste is defined as "solid waste with inherent properties which make such waste difficult to manage by normal means including but not limited to chemicals, explosives, pathological wastes, radioactive materials, and wastes likely to cause fire."¹

Coverage of Permit System -- A permit is required to engage in any treatment, storage, transportation or disposal of hazardous waste. The only exception is for "any person engaged in agricultural activity who is disposing of a substance which would normally be classified as hazardous if that substance was acquired for use by that person on his own property."²

AGENCY VIEWS

The IEPA already has a system of hazardous waste regulations. However, they anticipate that these regulations will soon be changed to conform with EPA's RCRA regulations. They expect that this will result in their regulation of hazardous waste management being considerably more stringent. At the same time, they feel that EPA and RCRA have created more problems than solutions. In particular, they noted the failure in RCRA to distinguish between the degrees of hazard posed by different types of hazardous waste. Notwithstanding these planned changes, they feel that it will become increasingly difficult if not impossible for private firms to site hazardous waste facilities, and that more direct government involvement will be necessary. This involvement could be limited to perpetual maintenance, or the site itself might have to be owned by state or federal government and leased to a private operator. IEPA is not enthusiastic about the latter option, but feels it may be necessary. With this in mind, they saw no role for EPA in siting now, but a substantial role in the future.

The state of Illinois can now preempt local zoning to site hazardous waste facilities. However, this was not seen as a solution to the siting problem because it cannot avoid due process. Preemption does, however, allow local elected officials to save face by protesting publicly against the site while otherwise cooperating. In siting new facilities, they suggested that it might be wiser to first determine what sites are politically acceptable and only then conduct a thorough technical review, rather than the other way around, since the former factors are more likely to cause problems.

¹ Illinois Pollution Control Board Rules and Regulations, Chapter 7, Part 1.

² Illinois Environmental Protection Act, Section 21(e).

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT

In Kansas regulatory responsibility for hazardous waste rests with the Department of Health and Environment (DHE).

AGENCY CAPACITIES AND COMMERCIAL HWMFs

Staff Positions: 5

Agency Budget: \$251,000

Commercial HWMFs: 1 permitted facility.

SELECTED ASPECTS OF STATE HAZARDOUS WASTE PROGRAM

Facility Inspections -- DHE has the authority to inspect facilities and one DHE staffer's primary responsibility is the inspection of Kansas' only commercial disposal facility. Inspections are regular and frequent.

Enforcement Actions -- A variety of actions may be taken to enforce state law and regulations including orders to alter procedures, suspension or revocation of permits, and, in addition to other penalties provided by law, fines of up to \$500 per violation per day.

Monitoring -- Environmental quality monitoring systems are required for all hazardous waste facilities. DHE establishes specific requirements for monitoring wells, air monitoring stations, frequency of sampling, analyses required, and post-closure monitoring on a case-by-case basis.

Manifest System -- State regulations require the use of manifests by generators, transporters, and facility operators. Copies of the manifest must be sent to DHE by generators and facility operators.

Defining Hazardous Waste -- State law defines hazardous wastes as those which are harmful to human health or the environment because of their quantity, concentration, or physical, chemical or infectious characteristics.

Coverage of Permit System -- Generators, transporters, storers, and disposers are covered by state regulations and/or permits. Permits must be obtained for facilities that store, transfer, process, or dispose of hazardous waste.

AGENCY VIEWS

DHE officials noted that Kansas is in a fortunate position with respect to hazardous waste management. The state is not a major generator of

hazardous waste and so the one commercial facility in the state should serve its needs for a considerable period. In addition DHE felt much of the waste brought into the state can be rendered non-hazardous.

Nevertheless they did consider siting to be probably the most difficult obstacle to overcome in implementing RCRA. A number of factors were seen as contributing to the siting problem. People do not have great trust in EPA or state agencies. It has become more difficult to convince localities of the need for siting commercial facilities, particularly in remote areas where local economies do not depend on the industry which generates hazardous waste. Local communities see no economic benefit flowing to their communities and there is no extant system for rewarding communities for the economic damage they may suffer. If, as is likely, facilities would need to import wastes from out of state to be economically viable, the economic disbenefits would be perceived as being even more remote. Regardless of facility design or operation, risk cannot be eliminated. For these reasons local opposition to facilities was seen as expected and in keeping with growing opposition to siting of any number of facilities such as airports, dams, and nuclear generating stations.

EPA was seen as contributing to the problem. EPA was criticized for focusing on traditional regulatory sanctions and on hazardous waste problems, while ignoring the need for creative solutions to the siting problem. Concern was also expressed over the fact that siting will become increasingly complicated and long as RCRA takes effect. As the siting process becomes more intricate, the chance for procedural error increases and thus the chance for legal action based on procedural error increases.

The siting problem was thought to be sufficient to lead to more governmental involvement. Veto power over local zoning may have to be given to state or federal agencies. (It was noted, however, that a facility sponsor could simply avoid sites regulated by local zoning.) Should this governmental power be used to benefit private industry, precautions would need to be taken to prevent abuse, and utility-type regulations might have to be applied to disposal facilities.

If in the next several years the siting problem cannot be resolved then government ownership of sites may have to occur. Actual facility construction and operation could be accomplished by private industry. While such an option would not address many or any public concerns, government ownership could guarantee the best available site selection and perpetual care of closed facilities. These are two issues of critical concern to DHE.

MARYLAND WATER RESOURCES ADMINISTRATION

The Maryland Water Resources Administration (WRA) regulates hazardous waste management. Maryland Environmental Services (MES) has planning and management responsibilities for a variety of industrial waste problems, including hazardous waste.

AGENCY CAPACITIES AND COMMERCIAL HWMFs

Staff Positions: 7¹

Agency Budget: \$265,000¹

Commercial HWMFs: 4 permitted facilities

SELECTED ASPECTS OF STATE HAZARDOUS WASTE PROGRAM

Facility Inspections -- Regulations require that WRA representatives be given access to facilities at any reasonable time to inspect facilities, review records, or gather any needed information.

Enforcement Actions -- WRA may modify, suspend, or revoke in whole or in part any permit or other approval it has granted. Violations are also subject to civil and criminal penalties.

Monitoring -- Facility sponsors must include plans for the design and installation of piezometers, ground and surface water monitoring systems, and air emission sampling stations. The frequency and extent of monitoring activities and reporting requirements are determined individually by WRA.

Manifest System -- Generators, transporters, and facility operators must use a manifest system and facility operators must submit manifest reports to WRA periodically.

Defining Hazardous Waste -- Maryland defines hazardous substances in three classes by degree of hazard. Criteria which include and go beyond those defined by RCRA are used and specific substances are listed.

Coverage of Permit System -- Generators, transporters, and facility operators are covered by regulations and/or permits. Permits must be obtained for storage, treatment, and disposal facilities.

¹ Source: U.S. General Accounting Office, "Hazardous Waste Management Programs Will Not Be Effective", January 23, 1979.

AGENCY VIEWS

WRA officials considered local opposition to siting a major problem in developing new disposal capacity. Easing these problems and overcoming public fears might be possible by demonstrating safe operations at a facility; however, if no facility can be sited then it becomes difficult to demonstrate a successful operation.

WRA noted several factors that could improve siting processes. The probable location of sites can fall into two categories -- remotes sites which are "hidden" from public veiw and industrial sites which are "camouflaged" by surrounding industrial development. Public involvement should begin early before positions are hardened and opposition becomes emotional. Public education should be stressed so that local residents can become valuable contributors. Education should stress the benefits from industries which generate hazardous waste.

Regardless of these or other actions, it was considered likely that local opposition could not be overcome. Given that the lack of disposal capacity will have a severe impact on industry, states may have to acquire and operate sites. If this option is chosen, WRA already has the power to condemn land for sites.

MES has had more experience in siting then WRA and expects to be more directly involved in future siting efforts. MES feels there is a clear need for state assistance in developing one or more secure landfills. It was involved in an unsuccessful siting attempt for a facility to serve Allied Chemical (see the Allied case study elsewhere in this report). In part because of that experience MES feels that a multi-county regional approach to developing facilities should be adopted with facilities serving all regional generators. This would reduce problems associated with single industries siting facilities outside of the community which receives economic benefits from that industry. A regional approach might also reduce political pressures on local officials. If states were to take strong positions, possibly by overriding local controls, then political pressures could be directed away from the local level and towards the state level where they could be more easily endured. Because most facilities would likely be located in rural communities distant from industry, amenities and financial compensation may be politically necessary incentives. However, the use of such incentives in and of themselves was seen as probably ineffective in overcoming opposition.

Industry was seen as being in a position to facilitate siting. Industry could publicize its need for disposal facilities to make the public aware of the hazardous waste problem. More effective use could also be made of industry's political power to ensure that government is aware of its needs.

MES officials felt that EPA should probably not require all states to have hazardous waste landfills. States would resent this federal intrusion which would likely involve an unnecessarily large and burdensome set of regulatory and administrative requirements. Only if states are totally unable to solve the hazardous waste problem should EPA become directly involved in siting.

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING

The Massachusetts Department of Environmental Quality Engineering (DEQE) has regulatory responsibility for hazardous waste. The responsibility for hazardous waste planning and management rests within the Department of Environmental Management (DEM).

AGENCY CAPACITIES AND COMMERCIAL HWMFs

Staff Positions: 4¹

Agency Budget: \$100,000¹

Commercial HWMFs: 28 licensed firms²

SELECTED ASPECTS OF STATE HAZARDOUS WASTE PROGRAM

Facility Inspections -- DEQE may inspect any facility at reasonable times on reasonable notice for purposes of examining the facility, its records and inventory and taking any samples of wastes.

Enforcement Actions -- Violations of regulations are subject to fines of up to \$1,000. DEQE may also revoke any license subject to applicable hearing requirements.

Monitoring -- Existing regulations do not specify any monitoring requirements. In developing plans for a facility in Sturbridge, however, proposed RCRA regulatory requirements were followed by DEM, including the provision of monitoring wells.

Manifest System -- Transporters of hazardous waste must carry records describing the origin, quantity, and destination of their loads. These records must be retained for one year, and monthly summary reports must be forwarded to DEQE.

¹ Source: U.S. General Accounting Office, "Hazardous Waste Management Programs Will Not be Effective," January 23, 1979. Data refer to DEQE.

² In 1978 DEQE records showed 22 commercial firms licensed for the storage of hazardous waste, the majority of which handled waste oils or oil spill debris. Of six licensed commercial treatment and disposal firms, half were restricted to waste oils or solvents. No major commercial facilities which ultimately disposed of a broad range of hazardous waste were licensed. Consequently, out-of-state facilities were used.

Defining Hazardous Waste -- The definition encompasses waste which is or may be dangerous to public health or the environment by virtue of its chemical, radioactive, flammable, explosive, or other characteristics. These wastes are also classified by groups, and disposal methods emphasizing reuse or detoxification are prescribed for each group.

Coverage of Permit System -- Transporters, storers, and disposers are covered by the regulations, as are facilities for the storage, treatment, reclamation, incineration, and land disposal of hazardous waste. Generators are exempted from existing regulations but will be covered by new legislation expected to take effect by early 1980.

AGENCY VIEWS

A DEQE official saw essentially two roles for that agency. One was to encourage in a general fashion the development of disposal facilities. In support of this role the agency sponsored an evaluation of ten prospective sites in the state; it also has made public presentations to explain the nature of the state's hazardous waste problem. The other major role is the enforcement of existing regulations to ensure proper disposal of waste.

DEM as a planning and management agency is more directly involved in the siting of specific facilities and managing the disposal of waste. A DEM official indicated that the agency has taken a position of promoting waste reduction, the use of waste exchanges, and processing and treatment over land disposal which is considered a last resort solution. Hazardous waste management was seen as a private sector problem requiring a private sector solution. Industry faces formidable obstacles to siting facilities, however, and DEM can play a needed role in overcoming that barrier. (Unlike private industry, DEM does not need local approval to acquire a disposal site.) While DEM originally envisioned a role primarily confined to site acquisition and facility planning, its recent experience has led to greater involvement. A DEM-sponsored state plan is being prepared which addresses a range of general hazardous waste issues and may lead to greater state control over the treatment and disposal of waste. In part this evolving role has resulted from public concerns expressed over the potential development of disposal facilities at three sites in the state.¹ Among the options to be considered is compensation to host communities to offset the disincentives of developing a facility.

From DEM's perspective, EPA must be willing to support the states which are attempting to develop facilities and must be willing to absorb the inevitable abuse and criticism from opponents of state efforts. Because of its public credibility, EPA can play a major public relations role. EPA's Region I office was considered quite useful in supporting state

¹ For a discussion of DEM's siting experience, see the Sturbridge, Massachusetts case study in Appendix A.

efforts. On the other hand, EPA headquarters was seen as having a more academic understanding of problems, but not being implementation oriented and having no practical experience. As a result, EPA headquarters was seen as having no appreciation of the real problems in siting hazardous waste facilities. One role DEM specifically did not want EPA to play was that of needlessly scrutinizing and criticizing minor points of state efforts to site facilities and thereby avoiding any real involvement in or support of state efforts. Finally EPA was seen as a potential provider of liability funds in case of operational problems at facilities. Liability and long-term care of facilities was seen as a governmental (though not necessarily federal) function because these burdens could markedly discourage any private sector involvement.

MINNESOTA POLLUTION CONTROL AGENCY

The regulation of hazardous waste management in the state of Minnesota is primarily the responsibility of the Minnesota Pollution Control Agency (MPCA). Hazardous waste regulations in Minnesota have only recently been approved and take effect in June 1979. It is anticipated that these regulations will be challenged in court by a group of industries which generate hazardous waste.

AGENCY CAPACITIES AND COMMERCIAL HWMFs

Staff Positions: 4¹

Agency Budget: \$140,000¹

Commercial HWMFs: None²

SELECTED ASPECTS OF STATE HAZARDOUS WASTE PROGRAM

Facility Inspections -- The MPCA does have the authority to inspect HWMFs, but there is no requirement that they do so on a periodic basis.

Enforcement Actions -- The MPCA itself has authority to invoke sanctions such as site closure to enforce its regulations, although such a severe penalty is not common. A stipulation agreement requiring the correction of a violation is a more likely result if regulations have been found to have been broken. The regulations do not provide for specific civil or criminal penalties for violation other than site closure.

Monitoring -- MPCA regulations require that the operator of a hazardous waste management facility have in operation a monitoring system before accepting any hazardous wastes. The nature and extent of the monitoring system depends on the type of facility and is determined on a case-by-case basis, subject to approval by the MPCA.

Manifest System -- The regulations require that each generator prepare a manifest ("shipping papers") for each shipment of hazardous wastes. The hauler and management facility operator in turn are required to sign the manifest and are forbidden to accept any wastes not accompanied by a manifest. On-site facilities and generators and haulers of waste crankcase oil are exempted from these requirements.

Defining Hazardous Waste -- Hazardous waste is defined as "any refuse or discarded material or combinations of refuse or discarded materials

¹ Source: U.S. General Accounting Office, "Hazardous Waste Management Program Will Not Be Effective", January 23, 1979.

² The 3M Company operates an incinerator and landfill (temporary) for its own hazardous wastes in Cottage Grove, Minn.

in solid, semi-solid, liquid or gaseous form which cannot be handled by routine waste management techniques because they pose a substantial present or potential hazard to human health or other human organisms because of their chemical, biological or physical properties."¹

Wastes specifically excluded include:

- o wastewater discharge pursuant to an NPDES or State Disposal System permit;
- o air contaminants or emissions pursuant to an Emission Facility Operating Permit;
- o radioactive wastes covered by other regulations; and
- o asbestos in taconite wastes.

Coverage of Permit System -- An MPCA permit is required for any facility "used for the management of hazardous waste,"² including transfer stations and storage, treatment and disposal facilities. Such a permit is required to construct a new facility or modify an existing one, as well as to operate an existing facility. The only exceptions are for on-site facilities that are operated solely to recycle wastes produced by that generator, and for hazardous waste containerized storage facilities with capacities of less than 5000 gallons, if no other hazardous waste facilities are located on the same site. Such storage facilities are not required to have an MPCA permit.

AGENCY VIEWS

MPCA officials have noted four factors which have caused particular difficulties in attempting to site hazardous waste management facilities. These are:

- o public misperceptions of the hazards associated with properly sited and operated hazardous waste management facilities,
- o the difficulties involved in developing a mechanism for public participation in the siting process,
- o institutional barriers, in particular existing zoning and development plans, and
- o economies of scale -- whether the state produces enough hazardous waste to justify a facility.

¹ Laws Relating to the Minnesota Pollution Control Agency, Section 116,06, subd. 13.

² State of Minnesota Hazardous Waste Regulations, Section HW-1, A.16.

Reacting to these and other problems, the MPCA has proposed several strategies for siting hazardous waste management facilities, as follows:

- o state ownership of the site and of a buffer zone,
- o state preemption of local zoning and/or use of eminent domain,
- o financial compensation for the affected community to make up for disincentives such as lost property tax revenues and to provide an incentive, and
- o a public participation program that involves interested publics in the siting process from the beginning.

They noted in particular that on-site facilities have not faced such difficulties and do not require such strategies.

The MPCA recommended then that the federal government role in siting of hazardous waste management facilities be limited to coordinating the development of regional facilities. They felt that state governments, on the other hand, could either be directly involved in the siting process--through preemptive zoning or eminent domain--or could merely encourage the development of sites by other parties (e.g., industry or regional governments). They stressed that an important issue to be resolved in this regard is the issue of site ownership.

The state should, they felt, also be responsible for public education and participation and for long-term liability if the federal government is not. They proposed that local government be involved in the long-term planning for hazardous waste management facilities as well as in particular siting attempts, but that they not have veto power over sites within their jurisdiction.

With regard to Minnesota's particular situation, an MPCA official has stated that the state must take either of two options to enable the future siting of hazardous wastes facilities. One would be to permit a site in the face of local zoning and then let the local government concerned take them to court (assuming that the MPCA would win such a case). The other is for the legislature to grant the state the power of eminent domain, either for a particular hazardous waste facility or for any such facility.

The private disposal industry has been contacted by the MPCA with regard to siting a hazardous waste facility in Minnesota, but is said to have adopted a wait-and-see attitude. Currently both the market and the political climate are uncertain. The only option now available to most firms which produce chemical wastes is long distance hauling to sites in other states. This is not a viable long-term solution because of the hazards involved, and for economic and political reasons.

The MPCA saw no technical reason that there should not be a site in Minnesota, although it was noted that there are few if any desirable sites close to generators in the Minneapolis-St. Paul metropolitan area where the bulk of the state's industry is located.

MISSOURI DEPARTMENT OF NATURAL RESOURCES

The Missouri Department of Natural Resources (DNR) has sole regulatory responsibility for hazardous waste management in the state.

AGENCY CAPACITIES AND COMMERCIAL HWMFs

Staff Positions: 2¹

Agency Budget: \$60,000¹

Commercial HWMFs: 3 permitted facilities

SELECTED ASPECTS OF STATE HAZARDOUS WASTE PROGRAM

Missouri's hazardous waste law was enacted in 1977 and it called for the adoption of all rules and regulations by September, 1979. The following material is taken from the 1977 law and proposed regulations developed as a result of that law.

Facility Inspections -- Missouri law allows DNR representatives to inspect facilities at reasonable times on reasonable notice for purposes of investigation and of enforcement of rules and regulations.

Enforcement Actions -- A broad range of enforcement options are defined. These include meetings to persuade violators to correct inappropriate actions, written abatement orders, the modification or revocation of any DNR-issued permit and penalties up to \$50,000 per day and/or two years in jail for repeated violations.

Monitoring -- The law permits DNR to require any monitoring activities considered necessary. Proposed regulations require groundwater monitoring wells for landfills and monthly analyses of samples. Monitoring provisions are also established for incinerators and landfarms.

Manifest System -- Regulations establish a manifest system to describe and to track waste from generator to transporter to disposer and these parties must retain copies for three years. Disposers must file copies with DNR quarterly.

Defining Hazardous Waste -- State law defines hazardous waste as that which poses a threat to human health or other living organisms by virtue of its quantity, concentration, or physical, chemical, or infectious characteristics.

¹ Source: U.S. General Accounting Office, "Hazardous Waste Management Programs Will Not Be Effective", January 23, 1979.

Coverage of Permit System -- All generators, transporters, storers, and disposers of hazardous waste are covered by state regulations and/or permits. Permits must be obtained for all storage, treatment, and disposal facilities with the exception of on-site interim treatment facilities.

AGENCY VIEWS

In recent years DNR has had experience with one successful and one unsuccessful hazardous waste landfill siting attempt. Both involved substantial opposition from area residents. That experience has convinced DNR officials that many facility opponents are not motivated by a desire to guarantee safe facilities but by the desire to prevent any facility from being developed.

A natural outgrowth of this finding is DNR's conclusion that the only apparent solution to siting is to have a state regulatory agency willing to issue permits in the face of political pressure and citizen opposition which may reach strident levels. Two additional factors are seen as significant. One is whether local zoning exists. (In much of Missouri which is suitable for developing disposal facilities no zoning exists.) The other is the existence of a strong state regulatory program to enhance public confidence in governmental decision-making. The final promulgation of Missouri's hazardous waste regulations in late summer, 1979, was seen as a major step in enhancing DNR's credibility.

In addition to issuing strong regulations state agencies should create more publicity for proper hazardous waste management than improper management. A DNR official, however, did note that the media's predilection for hazardous waste disaster stories has made it difficult for the other side to be heard. The use by states of special authority to override local decision-making (e.g., zoning regulations) was seen as a last resort option. It was felt that such actions would be seen as an unwarranted intervention in local government affairs and would generate stiff opposition.

It was considered possible that localities with major industrial development would support the development of disposal facilities and would be able to overcome zoning problems. In some cases local governments could own sites with private industry developing and operating facilities.

DNR saw one role the federal government should play and one it should avoid. EPA could make a concerted effort to create favorable publicity for proper hazardous waste management practices. It was specifically suggested that EPA release ten favorable press releases for every press release describing improper practices. The federal government, however, should not develop any special authority whereby it became directly involved in siting. Such actions would delay sitings for years and lead to major cost increases. Opposition to siting might well increase because of a general dislike for federal intervention in local actions.

Finally, the inability of the federal government to site radioactive disposal facilities after years of efforts was seen as dubious evidence of the likelihood of successful federal action in the area of hazardous waste.

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

In New Jersey hazardous waste management is primarily the responsibility of the Solid Waste Administration (SWA) of the New Jersey Department of Environmental Protection.

AGENCY CAPACITIES AND COMMERCIAL HWMFs

Staff Positions: 7¹

Agency Budget: \$225,000¹

Commercial HWMFs: 1 permitted treatment facility²

SELECTED ASPECTS OF STATE HAZARDOUS WASTE PROGRAM

Facility Inspections -- As of January, 1979 the New Jersey state legislature was considering legislation that would require SWA to inspect all special (i.e., hazardous and chemical) waste facilities on a weekly basis. For SWA a critical question with respect to the legislation was whether funds would be appropriated to cover the costs of inspections or whether it would have to allocate existing scarce resources to cover these inspections.

Enforcement Actions -- SWA has an enforcement section responsible for inspecting facilities on a routine basis. Criminal and/or civil actions are possible. Civil actions may be carried out at three levels. In order of increasing severity they are notice of violation (the most routine action), notice of prosecution (this may include levying of fines), and administrative order for appropriate action (including the option of closing facilities). Actions may begin at any level and may progress from lower to higher levels of severity.

Monitoring -- State regulations cover monitoring in two areas. Provisions for monitoring ground and surface water must be established at special waste facilities prior to the beginning of operations and the acceptance of wastes. Analyses of monitoring must be submitted to SWA as determined by SWA. Based on gas generation potentials of accepted wastes, SWA may require the implementation of a gas monitoring program.³

¹ Source: U.S. General Accounting Office, "Hazardous Waste Management Programs Will Not Be Effective", January 23, 1979.

² SWA has granted permits for six on-site hazardous waste facilities.

³ Proposed new rules and amendments concerning the operation, registration and engineering plan requirements for special waste (chemical and chemical waste) facilities. These proposed regulations were expected to be adopted by late spring 1979.

Manifest System -- The Special Waste Manifest Regulations provide for a manifest system covering the transport of special wastes and include requirements for facilities to maintain records and provide reports to SWA.

Defining Hazardous Waste -- State regulations generally define special wastes by criteria used in RCRA. To determine if a specific waste qualifies as a special waste the state uses methodologies developed by OSHA, U.S. DOT, U.S. EPA, and/or the International Agency for Cancer Research.

Coverage of Permit System -- Types of facilities requiring state permits are secure landfills, incineration, transfer stations, and facilities for resource recovery, processing, treatment, and storage. The only exception is for on-site storage facilities owned by generators if storage is for less than six months or the quantity of wastes is below a set minimum. Regulations apply to disposers (i.e., operators) and to transporters.

AGENCY VIEWS

New Jersey's hazardous waste program is in a developmental period, particularly with regard to regulations. For SWA a strong regulatory framework is a necessary factor in future siting of facilities. One area of particular concern is perpetual care. The state has contemplated the creation of an escrow fund to finance monitoring and maintenance of facilities after closure. However, any final development of perpetual care provisions will be delayed until U.S. EPA has developed its regulations governing this area. In its proposed regulations, New Jersey has explicitly reserved a section governing perpetual care financing provisions pending U.S. EPA action. In the long run, an SWA official indicated, perpetual care will become the responsibility of government because government will endure longer than any given hazardous waste disposal firm. He felt the responsibility should be assigned to states rather than the federal government because the former are able to respond more quickly.

New Jersey will benefit from two ongoing or anticipated studies of siting. The Delaware River Basin Commission (DRBC) is conducting a broad-based siting study which will have a number of outputs including siting criteria, institutional arrangements for ownership and operation, and siting alternatives. SWA anticipates preparing a statewide survey to find the most geologically suitable sites for hazardous waste facilities. This state-sponsored study will be incorporated into DRBC's study. According to SWA, both studies should facilitate future siting attempts by increasing public confidence in the state's ability to

arrive at sound, independent conclusions on the viability of specific sites. (Currently, SWA's lack of resources compel the agency to rely primarily on industry-generated data.)

Various dispute resolution techniques were seen as having limited impacts on siting. Based on recent state experience, industry offers of compensation and/or amenities to host communities were not seen as being effective inducements. Negotiation or other methods of reaching compromise between host communities and facility sponsors would likely not have any impact on siting because, from a local perspective, facilities would not be seen as inevitable. Siting opponents would not feel compelled to compromise so long as their major goal was not to have the facility developed.

Finally SWA saw a major long-term trend towards fewer commercial disposers. Because the costs of securing sites and operating facilities will inexorably rise, small firms with little capital will drop out of the market. An SWA official speculated that in ten years' time, only a half dozen large companies will be operating hazardous waste facilities on a national basis.

NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION

In New York state, authority for regulating hazardous waste management activities rests with the Department of Environmental Conservation (DEC).

AGENCY CAPACITIES AND COMMERCIAL HWMFs

Staff Positions: 7¹

Agency Budget: \$140,000¹

Commercial HWMFs: 3 permitted facilities²

SELECTED ASPECTS OF STATE HAZARDOUS WASTE PROGRAM

Facility Inspections -- The responsibility for inspecting HWMFs may be delegated by DEC to county health departments if those departments can demonstrate the requisite expertise. All three HWMFs permitted by DEC are in Niagara County and the Niagara County Health Department has assumed the primary responsibility for inspections, which are conducted as frequently as once a week.

Enforcement Actions -- DEC uses consent decrees as the primary means of enforcing state regulation and individual permit conditions. In practice the Niagara County Health Department documents violations and forwards this documentation to DEC. Violations may result in fines. In extreme cases DEC may close a facility by issuing a summary abatement order.

Monitoring -- For landfills state regulations require a minimum of three monitoring wells, two of which must be downgradient from fill areas. More wells may be required if deemed necessary by DEC. The permit for the facility will specify the testing and frequency schedules of the water monitoring program. Secure landfills must also monitor leachate collection and treatment systems.

Manifest System -- State law has established a manifest system for the transportation, storage, and disposal of hazardous wastes; this system conforms to RCRA requirements.

Defining Hazardous Waste -- State law defines industrial hazardous wastes as those that contribute to irreversible or incapacitating illness or

¹ Source: U.S. General Accounting Office, "Hazardous Waste Management Programs Will Not Be Effective", January 23, 1979.

² One facility provides treatment and processing; the others provide land disposal and some treatment and processing.

that pose a substantial hazard to human health or the environment. Waste is also defined by criteria derived from RCRA regulations.

Coverage of Permit System -- Permits must be obtained for any facility that stores, treats, processes, incinerates, or land disposes of hazardous waste. Regulations apply to generators, transporters, and disposers of such waste.

AGENCY VIEWS

Public opposition has arisen to the two HWMFs in New York which use land disposal technology. Given this experience, DEC considers public opposition to be one of the major problems in developing and maintaining disposal facilities. Two manifestations of this opposition--citizen lawsuits resulting in court injunctions and restrictive local laws--were specifically noted.

Overcoming this opposition to the extent of achieving local public acceptance of facilities may be impossible. Two approaches, however, can contribute to reducing opposition. Public education was considered helpful but by no means a panacea. Probably more important were concerted efforts to upgrade disposal technologies to reduce the need for land disposal. Specifically, technologies which destroy the hazardous components of waste must be developed. Recent European experience with such facilities was cited as a model for the U.S.

The Niagara Falls area of New York has received enormous publicity because of Love Canal and other disposal sites. This publicity has stimulated a great deal of government action which has helped to upgrade New York's hazardous waste program. (A DEC official described that program as the least mature of the state's environmental programs.) The recent interest in disposal problems plus the current problems associated with developing facilities may lead to a need for direct government involvement. Thus it was considered possible that states may have to site and construct disposal facilities and use general funds and/or user fees to defray costs. Finally, EPA must insure that hazardous waste management be a national program. For the program to be effective, no state can become a haven for the disposal of hazardous wastes.

OKLAHOMA STATE DEPARTMENT OF HEALTH

Primary responsibility for the regulation of hazardous waste management in Oklahoma rests with the state Department of Health (ODH). The regulations covering hazardous waste management (Rules and Regulations for Industrial Waste Management) have recently been modified. These modified regulations took effect on June 12, 1979. The discussion below refers to these revised regulations.

AGENCY CAPACITIES AND COMMERCIAL HWMFs

Staff Positions: 2¹

Agency Budget: \$80,000¹

Commercial HWMFs: 3 permitted facilities

SELECTED ASPECTS OF STATE HAZARDOUS WASTE PROGRAM

Facility Inspections -- Inspection per se is not mentioned in ODH hazardous waste regulations. However, Oklahoma case law has determined that when a person applies for a permit and/or receives a license or permit he has waived the right to a search warrant. On this basis the ODH conducts periodic inspections of hazardous waste facilities (with the exception of storage facilities: see below).

Enforcement Actions -- Enforcement of ODH regulation is carried out by the state Attorney General or by county district attorneys with the assistance of ODH attorneys. Sanctions include injunctive action, permit revocation or suspension and civil or criminal penalties. Civil penalties range up to \$2,500 per violation per day, and criminal penalties up to 30 days in jail per violation per day.

Monitoring -- State regulations provide for monitoring of ground and surface waters and, in certain cases (e.g., incineration or disposal of volatile hydrocarbons), air monitoring.

Manifest System -- The regulations require that every shipment of hazardous waste must be accompanied by a manifest which specifies the generator, hauler and disposal plan, and "information regarding emergency procedures to be used in the event of spillage, leakage, or accident."²

Defining Hazardous Waste -- In these regulations hazardous waste is termed "controlled industrial wastes," and is defined as solid or

¹ Source: U.S. General Accounting Office, "Hazardous Waste Management Programs Will Not Be Effective", January 23, 1979.

² Rules and Regulations for Industrial Waste Management, Section 11.3.1.2.

liquid refuse products which are to be discarded by the producer and which are toxic to humans, animals or plants and which are produced in such quantities that they cannot be safely disposed of in state-approved sanitary landfills, or in waste or sewage treatment facilities. This does not include radioactive wastes. In addition, state law excludes oil and gas brines and drilling muds from ODH purview.

Coverage of Permit System -- The permit system covers all hazardous waste processing, treatment and disposal facilities, with the exception, as implied above, of oil and gas field operations. Permits are not required for storage facilities, which do, however, require ODH approval. The latter differs from a permit in that it is not subject to a public hearing and does not have insurance and bonding requirements.

AGENCY VIEWS

The ODH has in the past few years successfully sited a hazardous waste landfill and a few injection wells. Such siting attempts have only recently begun to face public opposition, and this opposition has been successful only in those cases where the proposed site was not technically suitable. Although the ODH does think that it is possible that public opposition may become more of a problem in the future, currently they feel that site selection can be left to industry. They do propose that some sort of general public education program be developed to alleviate "unfounded" fears about hazardous waste management facilities. Another problem they are aware of but do not yet have a solution to is the effect of such sites on surrounding property values, particularly in non-industrial areas.

In summary, the ODH position is that proposed solutions to the siting problem such as eminent domain or even government-owned and operated sites are not yet necessary because the private sector is doing an adequate job at this time.

TEXAS DEPARTMENT OF WATER RESOURCES

The Texas Department of Water Resources (DWR), formerly called the Texas Water Quality Board, has principal responsibility for the regulation of hazardous waste management in Texas. The Texas Department of Health (DOH) has jurisdiction over municipal solid waste disposal sites which currently accept some low-level hazardous wastes. However, the DOH is of the opinion that EPA's proposed new regulations will preclude these sites from accepting any hazardous wastes. The disposal of drilling muds and brine wastes from oilfield operations is regulated by the Texas Railroad Commission.

AGENCY CAPACITIES AND COMMERCIAL HWMFs

Staff Positions: 32.5¹

Agency Budget: \$753,122¹

Commercial HWMFs: 25 (including 3 permitted hazardous waste landfills).

SELECTED ASPECTS OF STATE HAZARDOUS WASTE PROGRAM

Facility Inspections -- The DWR has the authority to inspect all permitted hazardous waste management facilities, as is specified in their permits. Inspections are conducted out of the 12 DWR regional offices to ensure that these facilities are being operated in accordance with their permits.

Enforcement -- "The Executive Director is authorized to institute or cause to be instituted [by the state Attorney General's office]...legal proceedings for injunctive relief or to recover a civil penalty [or both]..."² Injunctive relief might mean site closure or merely future adherence to the regulation violated. The civil penalty can range from \$50 to \$1,000 per day per violation.

Monitoring -- Permit stipulations require that each facility monitor groundwater. Monitoring data--usually less than 10 parameters--are required to be submitted monthly the first year of the permit and quarterly thereafter. Air quality is under the jurisdiction of the Texas Air Control Board, which, however, does not require gas monitoring programs.

Manifest -- A "Shipping Control Ticket" must accompany all shipments of Class I industrial waste being hauled to off-site facilities. Neither

¹ Source: U.S. General Accounting Office, "Hazardous Waste Management Programs Will Not Be Effective," January 23, 1979.

² Texas Department of Water Resources, Rules of the Texas Water Development Board Pertaining to Industrial Solid Waste Management, 156.22.01.011.

haulers nor management facility operators are allowed to receive any Class I waste without this ticket.

Defining Hazardous Wastes -- "Hazardous Industrial Waste" is defined as any waste or combination defined as such by the EPA. However, some sections of the DWR regulations do not make use of this term and refer instead to Class I wastes. Class I wastes are defined as "any industrial solid waste or mixture of industrial solid wastes which because of its concentration, or physical or chemical characteristics, is toxic, corrosive, flammable, a strong sensitizer or irritant, a generator of sudden pressure by decomposition, heat or other means, and may pose a substantial present or potential danger to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed, including hazardous industrial waste."¹ Specifically excluded are wastes which result from oilfield operations and material in sewage and irrigation return flows.

Coverage of Permit System -- All hazardous waste management facilities--storage, treatment, processing and disposal--are required to have a permit to operate. However, such a permit may be obtained, depending on the type of facility, from the DOH or other state agency.

AGENCY VIEWS²

Texas DOH officials view political and public opposition to the siting of hazardous waste management facilities as an insurmountable problem. Many Texas public officials have informed DOH that they are unwilling to subject their communities to public hearings involved in the issuance of permits and that they are certainly unwilling to advocate facilities. Indeed, these officials have told DOH that such advocacy would be tantamount to political suicide and they would actively resist siting attempts.

DOH feels that public opposition is associated automatically with any hazardous waste. Because current EPA regulations do not distinguish between degree of hazard, DOH feels that EPA has magnified the public opposition problem and foreclosed the opportunity to dispose of less hazardous wastes in ways that would not engender public concern. Specifically, DOH feels that through the application of sound scientific and engineering principles, existing solid waste disposal sites can provide capacity for a large portion of hazardous waste that is hazardous only if improperly handled.

¹ Texas Department of Water Resources, op. cit., 156.22.01(c).

² These views are derived primarily from communications between the Director, Division of Solid Waste Management, Texas Department of Health and U.S. EPA. Views of the Department of Water Resources, also communicated to U.S. EPA were not available to Centaur in time to be included here.

In DOH's view, by demanding that every hazardous waste disposal facility be engineered to stringent standards designed for the most hazardous waste, many sites will be overengineered and disposal costs will be unnecessarily high. In turn, this will lead to more illegal disposal practices.

WASHINGTON DEPARTMENT OF ECOLOGY

The agency in the state of Washington with the principal responsibility for regulating hazardous waste management is the State Department of Ecology (WDOE). The Washington Department of Agriculture has authority over matters involving pesticides, including inspection of disposal areas and investigation of complaints of injury to humans or to land. The Washington Utilities and Transportation Commission regulates garbage and refuse collection companies, and the Washington State Patrol regulates the transport of dangerous materials over state highways.¹

AGENCY CAPACITIES AND COMMERCIAL HWMFs

Staff Positions: 4²

Agency Budget: \$100,000²

Commercial HWMFs: None

SELECTED ASPECTS OF STATE HAZARDOUS WASTE PROGRAM

The WDOE currently has only limited authority to regulate hazardous waste management. They have proposed legislation which would give them much broader authority and would bring them into compliance with EPA/RCRA requirements. However, this legislation is not expected to be enacted until 1981 at the earliest.

Currently, the WDOE only regulates the transportation, storage and disposal of extremely hazardous wastes. Extremely hazardous wastes are those wastes which are acutely toxic or which are persistent and represent a long-term hazard (and are a subset of hazardous wastes). The WDOE has the authority to force a generator to dispose of extremely hazardous wastes in an approved facility, and as of this summer will implement a manifest system for all extremely hazardous wastes. Otherwise, even their authority over extremely hazardous wastes is limited to their soon-to-be operational, extremely hazardous waste disposal site on the Hanford Reservation. At this facility, which WDOE will own but which will be privately operated, they will regulate the methods of treatment, storage and disposal.

AGENCY VIEWS

WDOE comments on the siting process, hazardous waste management, and the EPA role can be found in the Appendix to the Resource Recovery

¹ U.S. EPA, State of Hazardous Waste Regulations and Legislation.

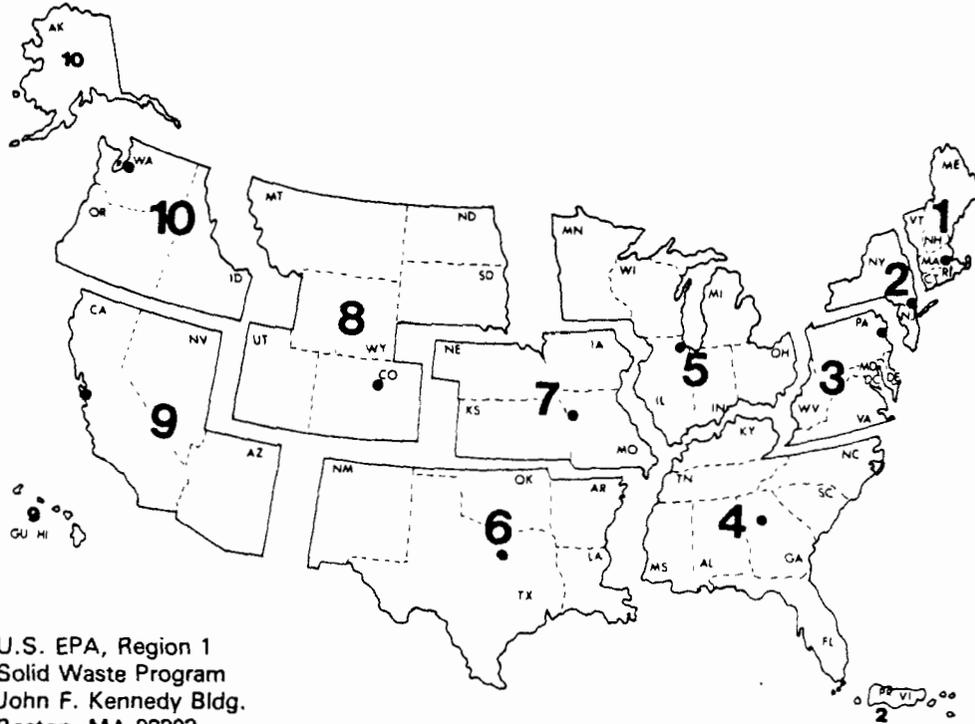
² Source: U.S. General Accounting Office, "Hazardous Waste Management Programs Will Not Be Effective", January 23, 1979.

Corporation case study, "A History of Efforts to Acquire a Hazardous Waste Site in the State of Washington." Briefly, these comments indicate that WDOE feels the following are major aspects to be considered in siting hazardous waste facilities:

- o the need for state laws and regulations to detail and authorize the siting implementation system,
- o the involvement of local elected officials,
- o the hiring of appropriate staff, and
- o the involvement of the local community in a way that does not necessarily lead to its being opposed to the facility; this might include intelligent publicity and financial incentives.

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EPA REGIONS



U.S. EPA, Region 1
Solid Waste Program
John F. Kennedy Bldg.
Boston, MA 02203
617-223-5775

U.S. EPA, Region 2
Solid Waste Section
26 Federal Plaza
New York, NY 10007
212-264-0503

U.S. EPA, Region 3
Solid Waste Program
6th and Walnut Sts.
Philadelphia, PA 19106
215-597-9377

U.S. EPA, Region 4
Solid Waste Program
345 Courtland St., N.E.
Atlanta, GA 30308
404-881-3016

U.S. EPA, Region 5
Solid Waste Program
230 South Dearborn St.
Chicago, IL 60604
312-353-2197

U.S. EPA, Region 6
Solid Waste Section
1201 Elm St.
Dallas, TX 75270
214-767-2734

U.S. EPA, Region 7
Solid Waste Section
1735 Baltimore Ave.
Kansas City, MO 64108
816-374-3307

U.S. EPA, Region 8
Solid Waste Section
1860 Lincoln St.
Denver, CO 80295
303-837-2221

U.S. EPA, Region 9
Solid Waste Program
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U.S. EPA, Region 10
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1200 6th Ave.
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