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Impacts of Land use Laws and Policies Massachusetts State Superfund Program

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**IMPACTS OF LAND USE LAWS AND POLICIES
MASSACHUSETTS STATE SUPERFUND PROGRAM**

STATE OF MASSACHUSETTS

FALL, 1990

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Introduction

Seven years after passing Massachusetts General Law Chapter 21E (the Massachusetts Oil and Hazardous Materials Release Prevention and Response Act of 1983), the Commonwealth, once again, is deliberating further changes to this already modified law. The Massachusetts State Superfund program has made great progress, however, uncertainty about the health risks, environmental effects, and economic impacts that surround the law still exist. With the benefit of additional information about hazardous waste and its effects, the Massachusetts Department of Environmental Protection (DEP) hopes to further strengthen and support the law's intentions.

Today, determining the number of hazardous sites and the extent of contamination is clearer, but there are still many questions and debates on how to strengthen the existing program. How can sites be prioritized? Can site clean-up goals be established more quickly? How should risk assessment be used? What are the impacts on the state budget and economy?

Because of the large funding issues regarding 21E, little emphasis has been placed on the questions which might address areas such as research and development, new more efficient clean-up technologies, and adequately trained technical personnel to refine the fledgling program. This study concentrates on what can be learned from the effects of the first years of the 21E program.

Background

The goal of our project was to assess the adequacy of the existing state Superfund law and the statutory remedies that Massachusetts relies on to recover the costs associated with the clean up of oil and hazardous materials released into the environment. Initially, the major focuses of our study were liability and economic issues that result from the state laws and regulations associated with hazardous waste site remediation. Our specific study areas were locally-significant businesses in rural western Massachusetts involved

in the 21E process. Throughout our study we interviewed experts in the field and all of the different players in the 21E process.

During the first half of our study we searched for evidence showing that the Massachusetts Superfund law does not provide adequate liability provisions for the innocent purchaser and lender (buyers and lenders who had no part in the contamination process) relating to clean-up costs. Our research showed, however, that the law does provide adequate liability provisions for the innocent landowner, which we will discuss later. As for the innocent lender, the United States Supreme Court will soon be deciding the "Fleet Factors" case which may eliminate banks from the liability "loop." (The Massachusetts Superfund law is modelled after the federal Superfund law, therefore any changes in the federal law may also be reflected in the Massachusetts law.)

Because of our initial findings, we redirected the focus of our inquiry and examined the problems within the law that detract from program effectiveness and efficiency. In the second half of our study, we evaluated case studies to expose the problems inherent in the 21E process. A brief description of the more revealing case studies we investigated can be found in Appendix A.

Through studying the cases, we determined that the underlying problem within 21E is the constant confrontation between the players necessary to carry out the process. Opposing values, interests and motivations have historically created a difficult atmosphere for effective management and implementation of the program.

One of the causes of this confrontation problem is the lack of strict standards for risk assessment. With a multitude of views on the effects and risks to the public health and the environment, cleanup costs are a bone of contention that often delay the clean up of a site for years. This stems from the lack of clear environmentally - based program priorities and has compromised the intent of the law. Before addressing this problem and others, we examined the history of the federal and state Superfund laws.

The History of Superfund

The United States produces more than 260 million metric tons of hazardous waste per year. Approximately two-thirds of all this waste is disposed of directly into pits, ponds and landfills. All of these disposal methods are subject to leaks which can contaminate ground water. Another 22 percent of hazardous waste is discharged directly into surface waters.

In 1987, in the first report of its kind, the U. S. Environmental Protection Agency (EPA) released a study that showed that 550 million pounds of toxic substances were dumped into the nation's waters. Of this amount, it was determined that 10.5 million pounds were carcinogenic compounds. In 1983, the U.S. Department of Commerce estimated that Massachusetts alone had generated close to one metric ton of hazardous waste per person. Since it only takes one quart of gasoline or oil to contaminate several million gallons of drinking water, the severity of the nation's hazardous waste problems are obvious.

As a result of earlier and similar findings, the Resource Conservation and Recovery Act (RCRA) of 1976 was enacted to manage the amounts of newly generated hazardous wastes. Not long after the passage of this legislation, it became apparent that a separate federal program was needed to manage the cleanup of previously contaminated or uncontrolled hazardous waste sites. In 1980, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) was established. It was the responsibility of the CERCLA's Superfund program to handle emergencies at uncontrolled sites, clean up these sites and manage any other related problems.

At the time of enactment, the extent and scope of the problems that the CERCLA program would be facing at these uncontrolled sites was not clear. There was little scientific and comprehensive understanding of the risks associated with hazardous releases, especially with the long-term effects. As a result, Congress limited the scope of the Superfund program by directing the EPA to set up a Hazard Ranking System to obtain a numerical rating for sites which would then determine whether or not a site would be included on the

National Priority List (NPL). A site had to be listed on the NPL before it could be considered for any site remediation. The Superfund program was directed to list at least 400 sites on the NPL which needed remedial cleanup. In spite of the controversy over the amount needed to support the Superfund program, Congress limited the program to \$1.6 billion over 5 years.

Due to the limited nature of the Federal Superfund program, some states have enacted their own State Superfund program to deal with the smaller and more numerous uncontrolled hazardous waste sites within their state lines. One such state is Massachusetts. We briefly examined a similar law in Connecticut for comparison. We soon discovered that the Connecticut law is not as well-defined as the Massachusetts law.

Massachusetts General Law Chapter 21E

On March 24, 1983 the Massachusetts Legislature approved M. G. L. Chapter 21E. There have been seven major changes to 21E since its enactment which have further strengthened the law's regulatory provisions:

- Section 3 - "Authorized and directed" the DEP to prepare the Massachusetts Contingency Plan (MCP)
- Section 3A - The 1986 Ballot Question 4 Amendment
- Section 4 - Response Actions to be taken by DEP or Potentially Responsible Party (PRP)
- Section 5 - Persons Liable; "Innocent Owner" Language
- Section 7 - Notification Process of Release by Liable Parties
- Section 11 - Penalties for Noncompliance
- Section 13 - Cost Recovery through Liens and "Superlien"

The Massachusetts Contingency Plan (MCP)

The MCP was referred to in the 1983 Chapter 21E legislation, however, it was not filed with the Secretary of State until May 13, 1988. The MCP is a set of

regulations which establish requirements and procedures for identifying, evaluating and cleaning up releases of oil or hazardous materials. These matters had been previously governed by the general provisions of 21E.

The MCP put forth regulations that detailed the comprehensive process necessary for addressing contaminated property. Directed primarily at historic contamination, the MCP begins the process with notification requirements, then proceeds to placement of the site on a list and then through a number of phases of investigation and remedial response actions. All of these aspects are described in brief below.

Site Investigation and the Remediation Process

Notification Requirements

The MCP explains in detail how to report to DEP when a release of oil or other hazardous substance is discovered. The notification rules apply to any "release or threat of release" which occurs after August 31, 1988. Pre-existing contamination is also governed by Chapter 21E. For new and potential releases, the MCP states that any person who is liable under Chapter 21E is held responsible to notify DEP "as soon as possible but not more than two hours after obtaining knowledge of a release or threats of release to the environment . . . unless the person responsible for notifying persuades the Department that extenuating circumstances prevented such notification." The penalties for failing to report are substantial fines and/or imprisonment.

The notification regulations define how to determine whether or not the substance released is oil or a hazardous material. The rules also define reportable quantities of oil or hazardous materials, the release of which determines the reporting obligation. The MCP states that the notification rules do not only apply to an accidental spill but also to a continuous or intermittent release.

Site Listing

Most places where there is either an oil or a hazardous substance release is called a "disposal site." These sites are subject to the MCP requirements and regulations. DEP maintains four classification lists of disposal sites:

- Locations To Be Investigated (LTBI) - locations which DEP considers likely to be disposal sites;
- Confirmed Disposal Sites;
- Remedial Sites - sites which have been cleaned up to DEP's approval; and
- Deleted Sites - sites which for one reason or another no longer need remediation.

Site Assessment and Remedial Response

The MCP dictates five stages of remedial response actions that the Potentially Responsible Party must go through. These stages go from the initial assessment of site contamination to the final cleanup and monitoring of the site. Deadlines are imposed which should assure the completion of DEP criteria at different stages in the process. Failure to meet a deadline is in violation of the MCP and threatens civil and administrative penalties.

1) **Preliminary Assessment (PA):**

The PA is the initial evaluation of a site which determines whether it is a disposal location, whether any immediate clean-up measures need to be taken or whether further remedial response actions need to occur. The PA must be completed one year from the initial listing of the site on the LTBI or Disposal list.

2) **Phase One - Limited Site Investigation:**

Phase one investigation confirms that the location is a disposal site. It provides information to DEP so that it can classify the site as either a priority or non-priority disposal site. This classification determines the degree of attention the site receives from DEP and the ability of the Potentially Responsible Party to bypass certain DEP requirements through a waiver.

Classification as a priority site results in the site being placed on a fast-track cleanup schedule and it may also trigger public involvement requirements.

3) Phase Two - Comprehensive Site Assessment:

The Comprehensive Site Assessment is just what its name implies, a comprehensive investigation and assessment of the environmental risks and problems at the site. This phase determines the extent and nature of the contamination, determines the type and quantity of oil or hazardous substance and characterizes and evaluates the risk to the public and environment presented by the site. A phase two report must be presented to the DEP for approval

One of the most significant aspects of this phase is the risk characterization provision. The MCP requires that the level of contamination at the site be compared to nationally-recognized standards. It also may require a process that attempts to scientifically and numerically determine the health risks posed by the site. If the level of contamination exceeds the national clean-up standards, the site must be cleaned up accordingly. An exception would be if the levels of contamination that exist at the site after removal of the disposal site's contaminants still exceed the pertinent national standards. In this case, DEP may approve a remediation process that cleans the site only to the background levels.

There is no deadline for completion of this phase, however, there is a deadline for implementing the chosen remedy which drives this time frame.

4) Phase Three - Development of Remedial Response Alternatives and the Final Remedial Response Plan:

After completion of Phase Two, the PRP must develop a number of alternatives for site remediation, evaluate their feasibility and recommend one for approval by DEP. The MCP specifies different categories of alternatives that fall under on-site treatment, off-site treatment, on-site containment or disposal, off-site disposal and no action. The recommended response action must be one that meets the clean-up standards identified in Phase Two.

A Phase Three report, which includes the proposed remedy, must be submitted to the DEP for approval. It may be submitted concurrently with the Phase Two report with prior permission from the DEP.

5) Phase Four - Implementation of Approved Remedial Response Alternative:

Phase Four involves three activities: the development of a Remedial Response Implementation Plan; the construction, initial operation and maintenance of the proposed remedy; and the preparation of the final inspection report upon construction completion. Both the plan and the report must be submitted to the DEP for approval.

The MCP requires that priority disposal sites have a permanent or temporary solution implemented within four years of initial listing as an LTBL. Non-priority disposal sites must have a Final Remedial Response Plan completed within seven years. Once there is satisfactory completion of Phase Four activities, DEP determines that the work has been completed and approves the final inspection report.

Short-Term Measures:

The MCP states that when and if situations arise that pose an immediate threat to human health or the environment, an immediate response is required in the form of "Short-Term Measures." A Short-Term Measure is not subject to the lengthy requirements described above, although once completed it must go through the remaining phases of remedial response. DEP approval must be obtained before initiating a Short-Term Measure.

Summary

The Massachusetts Contingency Plan is notable in its thoroughness and detail in addressing contaminated sites. It is the result of the public's clear mandate that called for the development of a clean-up process that was consistent, strict and highly protective of the public health and environment. A number

of states have extended the Federal Superfund concept to cover real estate transactions but Massachusetts is the one state that has taken the lead in this type of regulation. It is almost certain that Massachusetts' regulatory initiatives will be followed and adopted by other states.

As shown by the chart in Appendix B, 21E, in spite of its progress, does have problems. The chart illustrates that there is a backlog of sites in the Preliminary Assessment stage and in Phase One of the MCP. This backlog promotes a continued risk to public health and the environment. We question whether this fact is representative of the law's original priorities and goals.

This backlog exists primarily due to the lack of commitment from the state to support this program. There is a lack of funding to support the necessary personnel, management and technical assistance needed for the program to succeed. Support for the appropriate work force and clean-up technologies needs to be developed to promote improvement and expansion in the areas of research and development, and a better trained work force.

Another area of concern is the governmental management of the program. The management needs more clarification to improve DEP's consistency with the statutory requirements. Moreover, the state needs to direct the determination of what a permanent remedy is, how clean is clean enough, and where the government's oversight is best focused in the program.

Below is a list of "bugs in the system" that we discovered during our assessment of the law's effectiveness in cleaning up hazardous waste sites.

Summary of Systemic 21E Problems

Health and environment are not priority reflected by the following:

- An unaddressed backlog of sites in initial phases.
- Risk assessment is not used to determine priority sites.
- There are no established minimum clean-up standards.
- More concern for who is going to pay than getting started with clean up.

Not enough support to workers in program reflected by the following:

- Weak management, information and technical assistance.
- No long-term government support.
- No technology policy which results in less efficient and less cost-effective clean ups.

Bureaucracy and weak state management reflected by the following:

- Weak DEP direction and oversight of process.
- Financing and enforcement of liabilities causes delays.

Recommended Short-Term Changes:

We determined the above problem areas to be critical in terms of the 21E program's effectiveness and efficiency. We divided these stumbling blocks into three key areas: 1) a need to prioritize the law's goals and objectives; 2) a need to strengthen the state's cleanup work force; and, 3) a need to improve the state government's role in management of the program. We have developed both short-term and long-term remedies to address these problems. The short-term remedies concentrate on changes within the existing program that can be installed incrementally and are not as substantial as the long-term plans. These initiatives include the following:

Set Clean-up Goals and Priorities:

- Set clean-up priorities based on current and future risks of contaminated sites.
- Establish minimum clean-up standards for the nation.
- Establish definition of permanent cleanup.

Establishing a hazard-ranking system based on present and potential threats to the health, welfare and environment, is key to the law's intention. Chapter 21E does address the need to cleanup sites that pose an imminent threat through the Short Term Measures language. However, once a site has undergone the containment or cleanup of the imminently threatening situation, the site's future risks are considered in a limited fashion through

the placement of the site on a priority or non- priority list. Contaminated sites should be placed on a hierarchical, highest priority list. Evaluating the potential of contaminant migration should be one of the key factors for prioritizing site cleanups. Might the site contaminate a sole supply of drinking water? What are the possible future uses of the site?

Minimum national clean-up standards will address up many of the conflicts regarding how clean is clean. The many competing interests will have minimum clean-up standards to reach which would satisfy the variations among communities, responsible parties and government officials as to a site's risks to public health and the environment. Therefore, the environmental mitigation of a site will not be hindered by that kind of conflict of interest. Defining what constitutes a permanent cleanup is another way to resolve conflicts of interest and will help unclog the MCP pipeline.

Develop Program Workers:

- Establish hierarchy of clean-up technologies and methods.
- Expand DEP/EPA work force.
- Establish a division of DEP/EPA as a clearinghouse for clean-up technology ideas.

The establishment of a hierarchy of clean-up methods would also reduce confrontation between PRPs and the State about cleanup costs and which method is preferred for a specific type of contamination. This remedy can not stand alone, however. Only through the expansion of the DEP work force and the support for research and development within the government will this suggestion work. With the increase in the number of firms specializing in hazardous waste, an emergence of new technologies is appearing that the state can not recognize due to lack of support for this area and because of a limited work force.

Strengthen Government Management:

- Reexamine financing and enforcement of liability laws.
- Improve DEP oversight and management of process to improve environmental performance.
- Commit to permanent program.

In some instances where a PRP's economic hardship is evident due to extenuating circumstances, a low-interest loan should be available that will insure adequate and prompt remediation of the site. As it stands today, again, the funding for this type of program is extremely limited. The enforcement of liability under the state Superfund law should be expanded to include educational resources. This would alleviate some of the burdens of innocent landowners who otherwise would not know how to proceed under the law to be fully informed of their rights, and where to go for assistance.

The state's management of the program should be strengthened so that the direction and oversight of their implementation methods are clearer for all of those involved. Through national clean-up standards and a definition of how clean is clean, the DEP can become more consistent in their interpretations of site risks. There should be little or no conflict between the cost of a cleanup and the assurance of environmental protection. All of the above recommendations will not be possible without the commitment of the federal and state governments to establish a permanent program. Until there is such a commitment, long-range planning will not be perceived of as a necessary technique for solving the hazardous waste problems within Massachusetts and other states.

Proposed Long-Term Changes:

Once the short term initiatives have been developed and implemented, the next stage of more substantial and long range planning for the 21E program will be set. The first area of consideration we focused on is, again, in the development of the law's cleanup priorities and goals.

Set Clean-up Goals and Priorities:

- Limit use of existing ranking system.
- Strengthen cost-effectiveness requirements for remedy selection.
- Integrate community perspective into site decisions (priority sites).

The use of the existing ranking system within 21E has two objectives. First of all, it determines if a site should be listed on the contaminated site list or not. The next determination is whether the site should be listed as a priority or non-priority location. As mentioned earlier, once a site is decidedly contaminated it has to follow the stages in the MCP. Priority sites do have rank in terms of getting the DEP's attention. There is, however, little distinction between these priority sites in regard to each location's respective cleanup urgency. Triage is necessary, even among priority sites.

As previously mentioned the cost of site remediation is a very controversial issue among PRP's and the DEP. Due to the current lack of support for the 21E program, poor funding and inadequate personnel have made it very difficult for the DEP to keep on top of the new clean-up technologies. Cost-effective and environmentally-friendly technologies are emerging as options. Therefore, the cleanup methods made available to PRP's are often inappropriately costly for the amount and type of contamination. They are usually not time efficient, either. Cost-effectiveness of a cleanup needs to be measured against such things as the risks posed by the contamination, the value of the property and the economics of the entire situation.

One idea to remedy this situation is the incorporation of all the suggested solutions, looking at the cost of the cleanup versus the use of the site in the future. If an industrial site is cleaned up to the standards necessary for an industrial area, as opposed to the standards necessary for a daycare center, and the property in question is somehow restricted for specifically that type of use in the future, this could be more cost-effective and practical for all parties involved. Extensive consideration to the potential situations that might arise from this type of restriction would need to be evaluated. This kind of "performance standard" would need to be taken into account

Develop worker skills and technologies:

- Establish site managers.
- Establish environmental auditors.
- Increase research and development activities.

A licensed site manager would have operational management responsibility for a site from the time of its initial site listing to the monitoring of the completed remediation. The site manager would limit the amount of overlap and redundancy in the activities that pertain to the site cleanup. The job of a site manager would become a profession in itself made up of specialists who understand the workings of the program in its entirety. This idea for licensed site managers is currently being considered in both Massachusetts and Connecticut.

Without a program to establish certified environmental auditors, the consistency of site managers in their management responsibilities might not be able to be policed as effectively as it should be. Auditors would go from site to site for on-site investigations as well as do environmental engineering activities that test their site analysis audits. Criteria for the testing and certification of auditors would be compiled from the DEP and EPA as well as with professionals in the fields of engineering, hazardous waste, scientists and others.

Increasing the funding for research and development would enable the DEP to become highly knowledgeable about the emerging hazardous waste clean-up technologies. Working in the area of research and development will also bring the DEP closer to identifying problems within the law in the area of site remediation.

Improve Government Management:

- Combine the PA and Phase One.
- Reexamine program deadlines.
- Reduce the need for formal compliance of on-site cleanup.
- Establish evaluation program for completed cleanups and ones in progress.
- Establish standards for measuring the program's environmental progress.
- Address conflicts with technology selection.

By combining the preliminary assessment of a site and Phase One of the site remediation, the MCP could become more streamlined and time efficient.

Since the two phases are very similar in their objectives and results the need for two phases could be reduced to one. This change might influence the deadlines of other areas of the site cleanup which triggers the need for examination of phase completion deadlines. Today the initial phases of the MCP represent gridlock to the DEP and the PRPs. These areas, in particular, need careful examination.

Integrating licensed site managers will reduce the existing need for formal DEP oversight for every step of the MCP process. This will in turn allow the DEP work force to put their efforts to better use; such as the establishment of an environmental evaluation program; research and development and; establishing standards for measuring environmental progress after site remediation.

Conclusion

These ideas are reflective of the many diverse interests that we encountered through our investigation of the law. Although it is impossible to recommend alternatives to the law that will meet the requirements of every interest, our attempt here is to try, first and foremost, to satisfy the foundation of what 21E was built on: the cleaning up of sites contaminated with oil and hazardous waste so that there is little or no risks to public health, welfare or the environment.

As previously mentioned other cleanup programs do exist but none seem to offer the stringency that 21E does. If, in the future, Massachusetts does receive the monetary support needed to implement the changes we have recommended above, the Commonwealth, apart from its effective program for cleaning up hazardous waste sites, will also help prevent the inevitable problem of increasing hazardous waste generation that it and the nation face.

In 1989, Massachusetts took a step in the right direction in an attempt to further solve the mounting problems associated with the generation of hazardous waste by passing the Toxic-use Reduction Law. This law mandates the reduction of the use of toxic chemicals. Not only will this law reduce the

amount of hazardous waste generated, but it will also illustrate that industries' costs and benefits associated with hazardous waste will change. Source reduction will reduce industries' waste disposal, waste storage and liability costs.

Supporting regulatory approaches to hazardous waste remediation is perhaps the only resolution to a problem that is affecting every nation across the globe. Massachusetts has a strong, but controversial regulatory approach. Chapter 21E and the new source reduction law are doubly effective in solving problems associated with hazardous waste. The two laws, in effect, complement one another and will work given appropriate commitment through budgetary and management support.

Appendix A

Site Investigations:

- Century Brass, New Milford, CT
- Hamden Power Plant, Chicopee, MA
- Herbicide Spill, Chesterfield, MA
- Omega Corporation, Monson, MA
- Thermotech, Monson, MA

Case Study #1 - Century Brass

- Listed in 1984 with DEP/EPA as a confirmed site.
- DEP/EPA Status: Priority site
 - Short-term measures have been taken.
 - Now in clean-up phase.
- Elapsed time: 6+ years
- Site Description:
 - 72 acres with a 320,000 sq. ft. building.
 - Only a few acres are contaminated.
- Contaminant: Metal Hydroxides (cadmium, zinc, copper, brass)

The interesting point about this case study is, first of all, it is in Connecticut. Secondly, the remediation took awhile to begin because the clean-up technology that the PRP wanted to use is new, and the Connecticut DEP had no knowledge of its effectiveness. It took approximately four years to get DEP approval for cleanup. In the meantime, a large recycling company was interested in leasing the entire building. Because of the delays, the company was not able to move in, and thus, moved its business elsewhere. The recycling company waited one full year in the hopes that DEP would come through for the PRP.

During our interview, the engineers cleaning up the site mentioned how much more they enjoyed working in Massachusetts than Connecticut. They said this is because Chapter 21E is more informative as to what the procedures and requirements of site remediation are than is Connecticut's law.

Case Study #2 - Hampden Power Plant, Chicopee, MA

- Listed in 1987 as a confirmed site.
- DEP Status: Priority site
 - Short-term measures have been taken.
 - Now in clean-up phase two.
- Elapsed time: 3+ years
- Site Description:
 - 22 acres with five acres buildable, 17 acres in floodplain.
 - Only a few acres are contaminated.
 - At the confluence of the Connecticut and Chicopee rivers.
- Contaminants: Underground oil, asbestos, and landfill materials.

Chicopee's case study is one of the more interesting studies we investigated due to the amount of work already put into the site's prospects. The City of Chicopee is the PRP, however, some of the site contamination is linked to an adjacent parcel of land that once housed a drop forge industry. If the link can be proven, the City will not have to bear the entire costs of site remediation. There have been a number of ideas for converting the old power plant, but the most exciting and well thought out is the development of "AMAZONIA." Amazonia would be an indoor Amazonian rain forest that would offer educational as well as research facilities. Much conceptual work has been done on this idea, however, the building sits empty, constantly deteriorating due to the problems of liability. The oil contamination at the site is very visible, particularly during the wet seasons.

Case Study #3 - Town of Chesterfield, MA

- Listed in 1989 as a confirmed site.
- DEP Status: Priority site
 - Short-term measures have been taken.
 - Now in clean-up phase two.
- Elapsed time: 1+ years
- Site Description:
 - Small area contaminated by a chemical spill from 55-gallon drum behind highway department garage..

- Contaminants: Herbicide.

This study is unusual because the town is the PRP. A leakage of herbicide was found behind the town's highway department garage. The DEP sent their emergency response team to investigate and remove any chemicals causing imminent danger. The town paid the initial bill, but was denied reimbursement by the DEP. Due to the town's lack of funds, contaminated soil still sits at the site. The town is in the process of obtaining the funding necessary to dispose of the contaminated soil. The effects of this financial burden will be felt throughout the town's budget for some time.

Case Study #4 - Omega Processing, Monson, MA

- Site confirmed and listed in 1989.
- DEP STATUS: Priority site
 - Short-term measures have been taken.
 - The property has been foreclosed.
- Elapsed time: 1 + year
- Site description: Chemical release in nearby brook.
- Contaminant: zinc cyanide

Omega Manufacturing was an electroplating company serving as a major employer in the Monson area. Shortly after April of 1989 when an above ground storage tank released hundreds of gallons of zinc cyanide into the nearby Chicopee Brook, the plant closed. This leak was so significant that the town had to shut off one its water wells for fear of possible contamination. Emergency measures were taken by the DEP. The company was in financial trouble before this event occurred and this problem tipped the scales for them. As a result, the company has declared bankruptcy and the building sits empty.

Case Study #5 - Thermotech Plastics, Monson, MA

- Confirmed and listed in 1988 as a site.
- DEP Status: Phase Five

- Elapsed time: 2+ years
- Site description: 12 acres, flat, near small brook.
- Contaminants: underground oil and cleaning solvents.

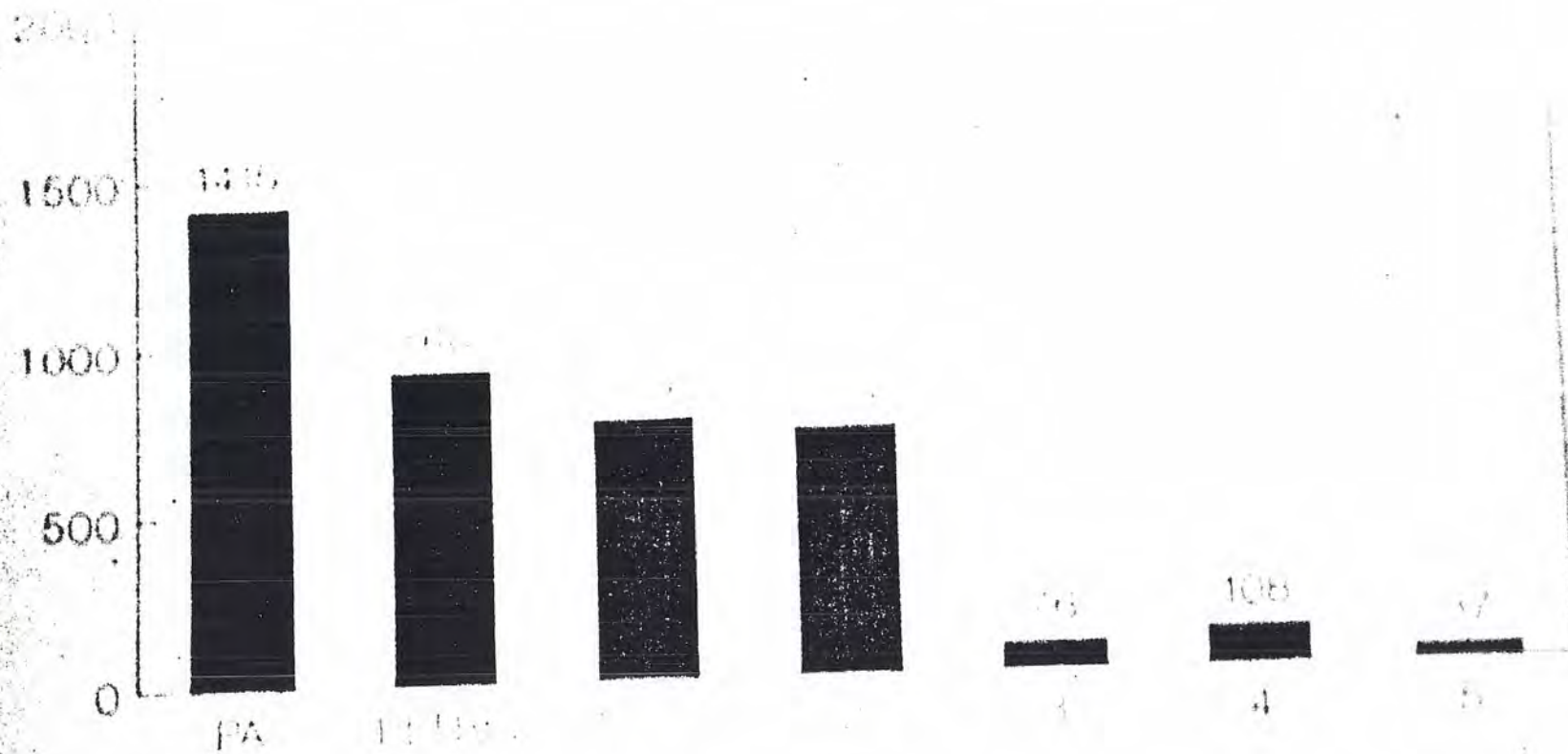
Thermotech is the one case that we studied that had a successful cleanup of its contamination. The DEP contact person who handled this case is highly valued for his ability to speed the process up and he did just that for this case. Part of the diligence is due to the company as well. This is a forty-year old company that is respected for both its support in community affairs as well as for its standing as a valued business in the area. It is the second largest employer in the town.

The problems encountered in this cleanup mostly surrounded the removal of the contaminated soil from the business yard. It sat for two years before DEP gave its consent for removal. The PRP believes this occurred due to some bureaucratic technicalities. Although the site has been cleaned, the DEP will not sign the final papers that state that the site has been cleaned to the DEP standards. Nor has the DEP given the PRPs any idea concerning the amount of time they have to continue to monitor the site.

Appendix B

STATUS OF RESPONSE ACTIONS

Total # Sites: 3,962 - As of 6/30/90

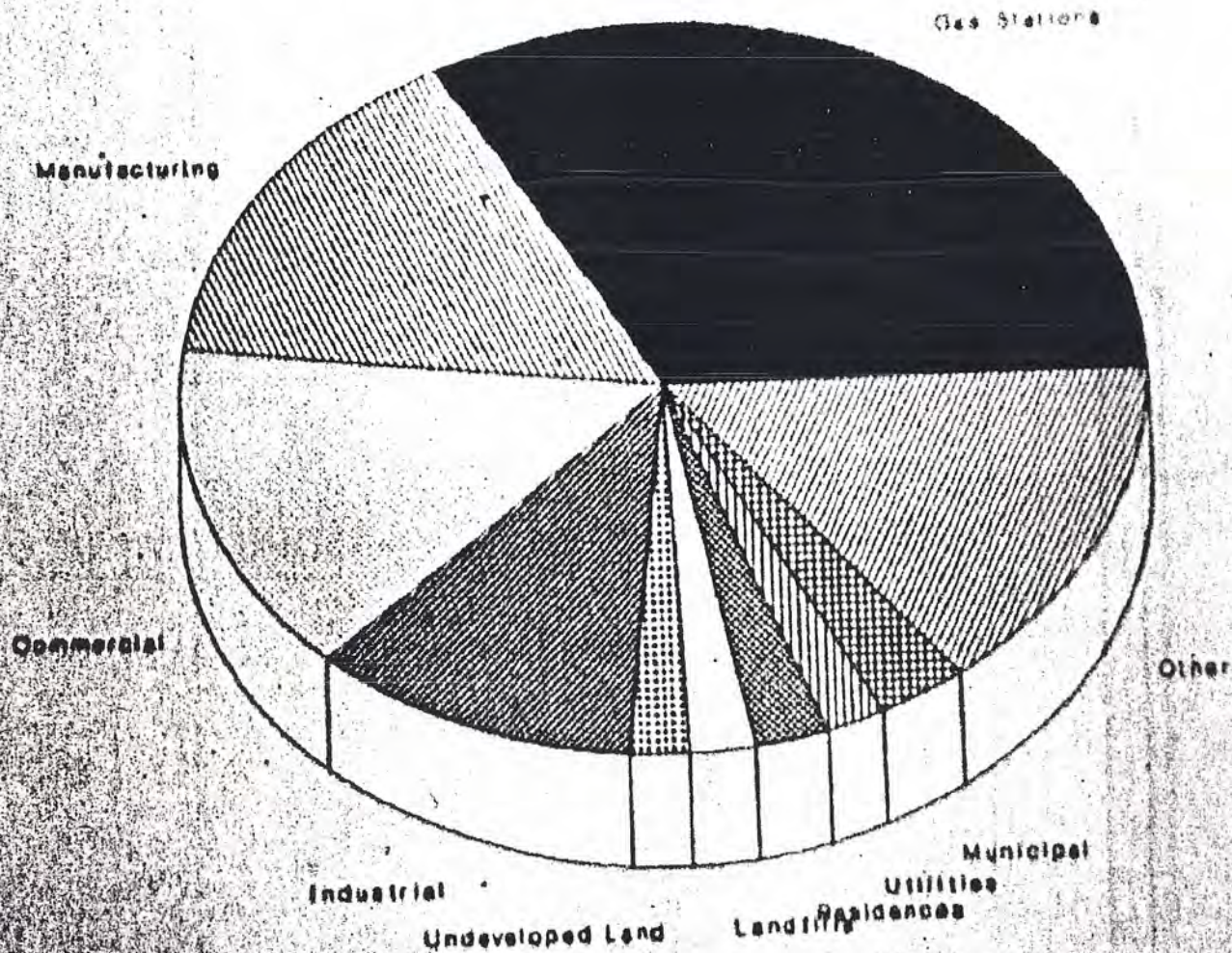


Source: Mass. DEP

Chart One

TYPES OF LAND USES AT CONFIRMED SITES

Percent of Total - As of 6/30/90



Source: Mass. DEP

Chart Two

25

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4. Larry Hanson, DEP Hazardous Waste Site Manager, telephone interview, 7 November 1990
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