

A PLANNER'S GUIDE TO LOCAL LEGAL ISSUES CONCERNING
THE SITING OF HAZARDOUS WASTE FACILITIES

by

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Chapter 1 - Introduction

In 1980, the U.S. Environmental Protection Agency estimated that between 50 and 125 new sites for hazardous waste facilities would be needed in the near future. Since that time no major hazardous waste facility has been sited anywhere in the United States (Mitchell and Carson 1986). Public opposition has created obstacles for future siting attempts. Most people agree that hazardous waste facilities are necessary but few are willing to accept these facilities in their backyards (O'Hare 1983).

Rational citizens have much to gain by opposing the siting of new hazardous waste facilities near them. Their resistance, however, imposes costs on society as a whole, since toxic chemicals are being held in temporary and deteriorating storage conditions as they await destruction or a permanent home. This creates strong incentives for illegal or improper disposal of hazardous waste (Mitchell and Carson 1986).

Citizens are at the heart of litigation related to hazardous waste. Challenges have been made to those who handle, transport, store and dispose of hazardous materials.

The purpose of this report is twofold. First, to identify the legal issues in the siting of hazardous waste facilities. Second to provide planners and public

officials with a guide to aid their understanding of the legal concerns in siting hazardous waste facilities. Once these issues are understood then intelligent planning decisions regarding the siting of hazardous waste facilities can be made.

This report is a survey of current literature and judicial decisions organized around planning concerns. Planners at all levels of government are asked for input in decisionmaking concerning the siting of hazardous waste facilities. At the local level the informed planner can make rational decisions concerning siting issues. It is the local planner who is closest to the opposition and therefore in a position to minimize conflict.

The second chapter of this report provides an overview of hazardous waste and facility siting. Included is the history of hazardous waste and definitions. Waste producers and means of disposal are identified, which is important for planners and citizens interested in identifying producers in their community. Finally, a detail of why there is a problem concerning hazardous waste and public opposition to siting.

In environmental law, courts, whether state, federal, or local, hear cases or disputes that fall under two general categories: common law and statutory law. Statutes are laws passed by the legislature,

signed into law by the executive, enforced by the executive and applied by the judiciary. The common law - traditional areas in which rights developed through the decisions of individual judges, independent of statutory law - gives one citizen the right to bring a "cause of action" against another citizen for wrongs committed by a second citizen against the first citizen's legally protected rights. Statutory law, however, imposes the state between the two citizens. A statute may modify or abolish common law rights, it may even create a wholly new right that did not exist in common law or it may regulate behavior by making individuals directly responsible to the state (Hoban and Brooks 1987).

The third chapter briefly covers those statutes which regulate hazardous waste. The two most important being - The Resource Conservation and Recovery Act (1976) and the Comprehensive Environmental Response, Compensation and Liability Act (1980). The Environmental Protection Agency is the regulatory agency responsible for setting standards to conform with environmental legislation passed by Congress. The EPA's policy stance on hazardous waste and their role is briefly discussed.

The fourth chapter is a discussion of common law theories and their application to the hazardous waste

dilemma. Each theory is discussed and the difficulties that plaintiffs may have in pursuing their cause.

Not only do planners and public officials need to know the statutes governing hazardous waste, and theories of common law, but who is in control of the siting process. Beyond this, problems which their communities may face in opposing siting of a facility in their area. Determining who is in control of the siting process is the focus of the fifth chapter. States have attempted to use a variety of means to control the siting process, some successfully and others challenged in a court of law. This chapter outlines the different paths which states have pursued in attempting to control the process of siting. Other legal concerns, such as "home rule", exclusionary zoning, the commerce clause, liability and regional compacts are discussed along with implications of each.

Recommendations and conclusions for the local planner and public official are discussed in the sixth chapter. What should the role of the local planner be in this siting nightmare? What happens when a community is selected as a host community? How are problems mitigated to have a successful facility siting?

Legal issues are not the only cause of concern for planners. Other areas of interest, particularly at the local level, include: emergency response and

preparedness, transportation of hazardous materials,
health and safety concerns to name a few.

Chapter 2 - Hazardous Waste and Facility Siting

As a result of Love Canal and other problem dumps across the country, the safe storage, treatment and disposal of hazardous wastes has become one of the most controversial environmental issues of the 1980's. The siting of new or the expansion of existing hazardous waste treatment, storage, or disposal (TSD) facilities is one reason for this controversy. Central to the hazardous waste facility siting controversy is the public's perception that these facilities pose health and environmental threats. This chapter briefly details what the nature of hazardous wastes are and problems associated with them.

Historical Context

Hazardous waste in some form or another has been generated with almost every advanced technology. For instance, the ancient Greeks were aware that asbestos used in making garments were dangerous to slaves who made the cloth. Mining of fossil fuels became a major source of toxic waste beginning with the Industrial Revolution. In England, coal mine tailings mixed with rainwater to poison streams. In 19th century Germany, the textiles industry began substituting natural dyes with coal-tar dyes, creating hazardous waste by-products. The invention of photography in the 1850's created acids as by-products needing disposal. The new

technology of electricity required huge quantities of lead storage batteries. Lead smelters and battery plants all left toxic lead wastes in the soil, air, and waters (Epstein 1982).

After 1850 came the age of petroleum, along with it toxic metals, leads and flourides needing disposal. Radioactive materials used to illuminate wristwatch dials left tailing piles from radium mines creating new problems of disposal.

In the twentieth century, the rapid growth of petroleum-based organic chemistry made possible a host of new and useful materials - synthetic fabrics, pesticides, wood preservatives, plastics, drugs, new paints, and solvents. Each entered the market place and each created a new by product needing disposal (Epstein 1982).

Definitions

What exactly are hazardous wastes and hazardous waste facilities? Hazardous waste as it is defined in Section 1004, subsection 5 of the Resource Conservation and Recovery Act (RCRA):

means a solid waste...which because of its quantity, concentration, or physical, chemical, or infectious characteristics may -

a) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or

b) pose a substantial present or potential hazard to human health or the environment when improperly

treated, stored, transported, or disposed of, or otherwise managed.

This definition excludes nuclear wastes regulated under the Atomic Energy Act of 1954 by the Nuclear Regulatory Commission (NRC) and the Department of Energy (DOE) (Boyle 1982).

A hazardous waste facility may be defined as a facility that treats, stores, and disposes of hazardous substances. This includes: landfills; incinerators; thermal, physical, biological, or chemical treatment units; injection wells; and storage facilities such as tanks and surface impoundments (Boyle 1982).

Hazardous wastes are conventionally classified into the following six categories according to Epstein (1982): 1) radioactives; 2) flammables; 3) heavy metals; 4) asbestos; 5) acids and bases; and 6) synthetic organic chemicals. The following provides a brief explanation of each.

1. Radioactives: Those elements that are unstable and emit energy or charged particles as they decay into other forms are termed "radioactives" and are collectively known as "radionuclides". Radionuclides are highly hazardous. Their effects include: immediate death, burns or injury, and in small quantities lead to birth defects, cancer, and other chronic disease. Radioactive minerals include: uranium, thorium, and radium. By the 1960s, radioactive materials were being

used in a wide diversity of industrial settings, although by far the largest source of man-made radioactive materials remained the nuclear weapons industry and nuclear power plants. The amount of time it takes for one-half of the total amount of radiation to be released is called a half-life. For example, the half life of plutonium 239, the most lethal of radionuclides, and a by-product of nuclear power plants, (also the main component of nuclear weapons) is 24,000 years. After 24,000 years, one half of the plutonium will have decayed to a stable form.

2. Flammables: This is a miscellaneous category of chemicals whose danger derives mainly from their tendency to react strongly with other materials. The most important being petroleum and natural gas by-products.

3. Heavy metals: Among the most important are: lead, arsenic, zinc, cadmium, copper, and mercury. These are often found in close proximity to each other in nature, and are easy to separate from their natural ores through smelting. In addition, they are easy to mold and shape, either alone or alloyed with other metals.

4. Asbestos: This is a generic name for a group of minerals composed of calcium or magnesium silicates formed into long, threadlike fibers. These fibers can

be woven or spun into cloth and shaped into materials by mixing with cement or other substances. They have a wide variety of uses including insulation, firemen's suits, and automobile brake lining. The tiny fibers penetrate to the lungs, causing cancer and other health disorders.

5. Acids and Bases: Materials that are very acidic or basic are extremely chemically reactive and corrosive. Hazards related to acids and bases are likely to be shortlived; but they can cause considerable damage such as fish kills if released into water bodies.

6. Synthetic Organic Chemicals: Whether these are manufactured or synthesized from coal, natural gas, or petroleum they have a wide variety of uses. These include simple chemicals used as industrial solvents or degreasing agents to more complex chemicals such as pesticides (DDT, mirex, and chlordane). Also included: PCP (pentachlorophenol) a wood preservative used to resist termites; PBB (polybrominated biphenyls) a fire retardant; PVC (polyvinyl chloride) used in records, plastic pipe, and more. Once these complex chemicals enter the ecosystem serious consequences result. For example, benzene induces aplastic anemia and leukemia; VC is a highly potent carcinogen; the entire class of chlorinated hydrocarbon pesticides (DDT, dieldrin, endrin, chlordane) produce adverse reproductive effects

in birds and is carcinogenic; also included are PCB's, dioxin and many more.

Waste Producers and Disposal Methods

Every process which produces useful things - food, clothing, equipment, drugs and housing - also produces wastes. Most of these by-products are harmless, but a small percentage of all these substances are dangerous. At the end of World War II, the United States produced approximately 1 billion pounds per year of what is now considered hazardous waste. Almost three decades later the U.S. has experienced an 80 fold increase in production of waste. The largest contributors of this waste are the organic chemicals and metals industries (see Table 1).

Table 1. Hazardous Waste Volume by Industry

Generating Industry	Pounds (billions)
Organic Chemicals (pesticides, explosives)	26
Primary Metals	29
Electroplating	9
Inorganic Chemicals	9
Textiles, Petroleum Refining, Rubber, and Plastics	3
Total	76

(source: Epstein 1982)

Table 2 further explains physical and chemical classifications of hazardous wastes. Table 2 is based on a 20-billion pound survey of hazardous wastes conducted by the EPA.

Table 2. Physical and Chemical Classification of Hazardous Wastes (conducted by EPA)

Classification	Pounds (billions)
Liquid inorganic wastes	7.0
copper and lead	.8
brine sludge from chlorine	.1
steel plant wastes	.5
Organic chemicals	1.0
gasoline blended waste	.4
solvent residues	.3
outdated/contaminated tear gas	.3
Aqueous organic chemicals	10.0
pesticide/herbicide waste	1.0
drug manufacturing waste	5.0
Solids, slurries and sludges	.7
sodium dichromate wastes	.3
arsenic trioxide from smelters	.02
recovered arsenic from smelters	.04
battery manufacturing sludges	.05
refrigeration equipment wastes	.2
Total	20.0

(source: Epstein 1982)

Table 3 shows the correlation between industry and chemical composition of wastes.

The Environmental Protection Agency (EPA) now estimates that approximately 80 billion pounds of hazardous waste material is generated annually - nearly 350 pounds per person in the U.S. The EPA further estimates that only 10% of this waste is disposed of properly, the rest is dumped in ponds, lagoons, the ocean and other easily accessible sites (see Table 4).

Table 3. Chemical Composition Produced by Industry

Industry	Chemical Composition of Waste							
	As	Cd	Cr	Cu	Cn	Pb	Hg	ClHC
Mining & Metallurgy		x	x	x	x	x	x	x
Paint & Dye		x	x	x	x	x	x	
Pesticide	x				x	x	x	x
Electrical & Electronic				x	x	x	x	x
Printing & Duplicating	x		x	x		x		
Electroplating	x		x	x		x		
Chemical			x	x			x	x
Explosives	x			x		x	x	
Rubber & Plastics					x		x	x
Battery		x				x	x	
Pharmaceuticals	x		x	x				
Textiles			x	x				
Petroleum & Coal	x					x		x
Pulp & Paper							x	
Leather			x					

(source: Epstein 1982)

As=arsenic; Cd=cadmium; Cr=chromium; Cu=copper; Cn=cyanide; Pb=lead; Hg=mercury; ClHC=chlorinated hydrocarbons.

Table 4. Hazardous Waste Disposal Methods

Method	Pounds (billions)
Properly Disposed	7.6
On-Site Disposal	5
Secure Landfill	2.6
Improperly Handled	68.4
Unlined Lagoons and Ponds	34
Nonsecure Landfills	20
Ocean Dumping, Sewers, Roads, Deep- Well Injection, Incinerators	14.4
Total	76

(source: Epstein 1982)

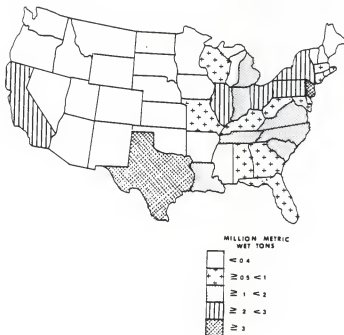
Geography of Wastes

To aid understanding of hazardous waste, it is important to know which states generate the most waste. Figure 1 indicates that Texas and New Jersey produced the highest amount of hazardous waste in 1982 with 3.01 and 3.12 million metric tons (Greenberg and Anderson 1984).

Problems of Hazardous Waste

The impacts of improper waste management practices are now being linked to a variety of negative effects on human health and the environment. Research has found higher than normal cancer and miscarriage rates in those communities located near waste sites (Epstein 1982). In the late 1970's, a series of well publicized incidents awakened the American public to the dangers posed by improper disposal of hazardous waste. Perhaps

Figure 1. Estimated Hazardous Waste Generation
by State, 1982 (48 contiguous states)



(source: Greenberg and Anderson 1984)

the best known example is Love Canal, in Niagara Falls, New York. At Love Canal chemical wastes buried for 30 years had contaminated streams, homes and an elementary school. Several samples of groundwater and surface water were found to be heavily contaminated with highly toxic chemicals, including pesticides, fungicides and other carcinogenic toxics (National Governors Association 1981).

Chemical exposure at Love Canal has been linked to miscarriages, birth defects, cancer and other diseases. On one block alone three children were born with incomplete skull closures, two with congenital heart defects, five miscarriages and two crib deaths along with a wide variety of other health problems. The State of New York evacuated over 200 families from their homes, and as of 1980 had spent over \$23 million to prevent further human exposure and to find a way to contain the leaking wastes on the site (Epstein 1982).

Hazardous wastes have been linked to air and water pollution as well as complications in the food chain (Boyle 1982). In Japan, persons living at Minamata Bay were afflicted by a neurological disease due to high levels of mercury which had accumulated in the fish they ate (Epstein 1982).

These problems are only the tip of the iceberg. The effects of chemicals poured into the environment,

present and past, are only now coming to light.

Public Opposition

In 1980, EPA issued a study, entitled "Hazardous Waste Facility Siting: A Critical Problem". The study found public opposition to twenty-one proposed or operating hazardous waste facilities. In addition, public opposition often succeeded in preventing the development of proposed facilities.

Farkas (1980) best summarized the sentiments of local opponents:

Opposition is rooted in fears of major and long term risks posed by facilities to the health and welfare of the surrounding community ... The community envisions few benefits from the proposed facility - few jobs and perhaps some tax revenues. Risks are often seen as overwhelming - a "Love Canal" in their 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 ... Opponents question the fairness of having their town bear such a large share of the environmental cost of modern industry. (p. 452)

The EPA study concluded that public opposition is a "critical problem" with "enormous implications" for the success of EPA's efforts to regulate hazardous waste (Farkas 1980).

The central problem in siting new facilities is the opposition by the potential host community to a new facility. The credibility of waste-generating and waste-managing industries has been seriously eroded not

only by revelations at Love Canal, New York but the Valley of the Drums in Kentucky, and the Chemical Control Corporation in Elizabeth, New Jersey to cite only a few examples. The past absence of state regulations or lack of enforcement has weakened public confidence that state government will protect citizens "health and safety" (National Governors Association 1981).

Despite this legacy the need for new and safe facilities is generally recognized by the public. A 1980 opinion survey conducted by the White House Council on Environmental Quality found that a majority of the respondents endorsed a new, secure, regularly inspected facility, but only when it was located over 100 miles from their own homes. This attitude is often referred to as NIMBYISM (Not in My Back Yard) (Boyle 1982). Communities oppose facilities because the benefits flow to the owner, operator, waste-generating industries, and the public at large, while the risks will be concentrated locally (United States, Environmental Protection Agency 1980).

Chapter 3 - Statutory/Regulatory

Essential to understanding legal issues surrounding the hazardous waste problem is knowledge of statutory and regulatory law. Statutes are legislative acts passed by Congress in order to regulate a particular activity. Two pieces of federal legislation dealing with hazardous wastes are the Resource Conservation and Recovery Act (RCRA), 1976 and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 1980 also known as "Superfund" (Epstein 1982). The Environmental Protection Agency is the regulatory agency responsible for setting standards, rules, regulations and enforcement of hazardous waste legislation.

Statutory Law

When statutes are created by Congress a certain balancing of interests has been considered in the design. The violation of a statute or ordinance which was passed to promote safety is negligence. But violation of such law does not, ipso facto, give rise to civil liability. The plaintiff must show that the violation of the law was the proximate cause of injury. The violation of a statute or ordinance, which is not designed to prevent the sort of harm about which the plaintiff is complaining, is not negligence.

An example of a statutory violation is:

A statute, with the express purpose to prevent injuries to employees, required that all factory elevators be provided with a certain safety device. A, an employee in B's factory, is injured when the elevator falls because of the lack of the safety device. B is liable to A as negligence for violating the statute. (Arbuckle et al. 1978, p. 24)

Negligence theory is discussed in greater detail in Chapter 4. A brief discussion of the major statutes concerning hazardous waste regulation follows.

Resource Conservation and Recovery Act (RCRA)

RCRA is an attempt by Congress to address the inadequacies of past management of hazardous waste. Prior to RCRA, hazardous waste management was almost entirely under private control. In a 1976 EPA survey of operating facilities, only 9 out of 110 were municipally controlled (Boyle 1982). The responsibility for siting, financing, owning, operating and closing facilities was the developer's responsibility. Government became involved only when improper waste management was demonstrated to be threatening the health and safety of the public.

Developers, prior to RCRA, made no attempt to win public support for plans of hazardous waste sites. Generally, the developer submitted plans to the local government for land use approval, and if necessary entered into negotiation to obtain zoning variances and

other special agreements such as lower tax rates and guarantees for local citizen employment. The role of the federal government was to formulate waste management policies, provide grants and technical assistance, and enforce environmental legislation (Boyle 1982). The philosophy of the federal government was that waste problems were local in nature and best handled at the local level. State and local roles varied according to area, but by and large each state had general enabling legislation that created a structure for regulation of hazardous waste. For example, New York's Department of Environmental Conservation was responsible for development of a comprehensive waste management program, regulation and enforcement, and providing technical assistance for localities.

Siting of hazardous waste facilities changed under the provisions of RCRA. RCRA provided specific remedies administered by the Environmental Protection Agency (EPA). The EPA published a list of 200 waste streams which are hazardous, as well as characteristics and testing procedures whereby waste generators can identify other waste streams of theirs which are ignitable, corrosive, reactive or toxic (Costle 1980).

When generators ship waste to off-site facilities they have three major responsibilities: first, they must identify an approved facility as the recipient of waste;

second, they must contract with a transporter to take it there; and third, they must track the waste to its destination. All facilities which store, treat, or dispose of hazardous waste, whether onsite or offsite, have to comply with a series of operating standards, which include proper safety measures, development of emergency procedures, monitoring and training of employees, long term financial responsibility, and participation in the system of transportation. Facilities also require a permit for operation based on the latest technological advances in waste management. In addition, generators must make sure the wastes being shipped are properly containerized and labeled. Transporters are obligated to take prompt cleanup actions and report spills or accidents to the proper authorities (Costle 1980).

**Comprehensive Environmental Response, Compensation,
and Liability Act (CERCLA)**

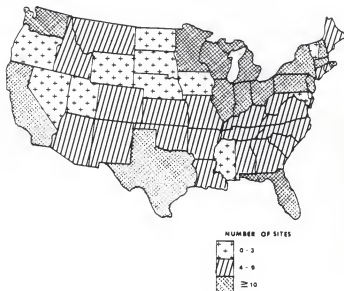
Another major piece of legislation addressing the hazardous waste problem is the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), also known as "Superfund". This act established authority for EPA to respond to past, present, or potential releases of "hazardous substances" into the environment. The scope of the statute goes beyond requirements under RCRA. The intent of CERCLA

is to provide EPA with emergency powers to respond to sudden releases of hazardous substances, to clean up inactive waste sites, and to establish mechanisms for assigning liability and compensation for cleanup costs. Congress also directed EPA to revise and republish the National Contingency Plan (NCP) to include a national hazardous substance response plan to accomplish the objectives of CERCLA (Greenberg and Anderson 1984).

One of the EPA's major responsibilities, under Superfund, is to designate and schedule for cleanup inactive waste sites. Figure 2 shows the locations of 546 waste sites by state (Greenberg and Anderson 1984).

CERCLA has three titles. Title I defines the variety of hazardous substances and releases which are regulated. It also provides authority for EPA to respond itself, or to order those responsible to respond to hazardous substance releases into the environment, according to a planned procedure with specific requirements for financial responsibility. Title II establishes a tax on crude oil, specific petroleum products and 42 chemical feedstocks, to provide a Hazardous Substance Response Trust Fund to be used to finance response actions. Title II also provides for a Post-Closure Tax and Trust Fund which imposes a tax on hazardous waste disposed of in a disposal facility permitted under Subtitle C of RCRA.

Figure 2. Location of 546 Priority Hazardous Waste Sites
by State, 1984 (48 contiguous states)



(source: Greenberg and Anderson 1984)

Title III contains a variety of miscellaneous provisions, including a requirement for reports and studies evaluating the effectiveness of responses and the experience of recovering response costs from liable parties, and identifying options for overcoming new obstacles in the siting process (Greenberg and Anderson 1984).

Regulatory Law

Rules, regulations and general orders promulgated by an administrative agency, pursuant to its delegated powers, have the force and effect of law. They are binding on all persons subject to them without notice, and the courts recognize them. It is necessary for sufficient statutory authority to exist to declare any act or omission a criminal offense. An administrative agency has limited jurisdiction depending entirely on the statute (Arbuckle 1978).

The Environmental Protection Agency (EPA) is the regulatory agency which sets standards to conform with environmental legislation passed by the Congress. EPA's policy statement reflects its priorities in dealing with hazardous waste sites.

EPA's policy is to encourage private sector solutions to the problem of establishing sites. In cases where government involvement is necessary, EPA believes that the States, either separately or in

regional groups, must assume primary responsibility for the establishment of adequate capacity. EPA has adopted this policy for a number of reasons:

1. Congress intended that the States assume responsibility for the implementation of the national hazardous waste management program whenever possible. The creation of environmentally adequate treatment and storage capacity is a key element of an effective hazardous waste program.

2. The States are effective units of regional government in the Federal system; the planning for hazardous facilities is generally, and should be, a regional activity since most facilities will receive wastes from outside their geographic area.

3. The States have broad police powers, including land use authorities and the right of eminent domain. EPA believes that possession of this authority is desirable for the responsible party in the site selection process.

4. The States can more easily tailor programs to local needs and situations. This is critical in dealing with problems that affect local citizens and their representatives (United States, Environmental Protection Agency 1980).

Regulatory agencies may find themselves as a defendant in a law suit. By late 1978, EPA had failed

to issue regulations to carry out RCRA. Since EPA had not issued regulations and was not enforcing RCRA, the Environmental Defense Fund brought suit in the U.S. District Court for the District of Columbia to compel EPA to issue regulations required under RCRA. Another lawsuit was brought against EPA at the same time by the State of Illinois. A federal court order instructing EPA administrator Douglas Costle to issue RCRA regulations was necessary (Epstein 1982).

Chapter 4 - Common Law Challenges

Victims seeking relief from injuries related to hazardous waste contamination may find remedies provided by state and federal statutes reviewed in Chapter 2, notably through CERCLA. In addition to statutory law, victims may bring suit in the traditional common-law causes of action in negligence, nuisance, strict liability and trespass (Last 1982). The most important common law doctrines in a hazardous waste suit include nuisance, negligence, and strict liability for abnormally dangerous activities (Epstein 1982). This chapter is intended to provide an overview of each type of common law action and some difficulties with each theory.

Negligence

Negligence is a broad basis for liability but is often the most difficult to prove. A defendant who fails to act in a reasonable manner is negligent. Negligence is also described as the failure to exercise "due care" (Epstein 1982). A cause of action in negligence is a well-established remedy for personal injury and property damage arising out of exposure to hazardous wastes. According to Last (1982), to maintain a cause of action in negligence, plaintiffs must establish four elements: 1) the existence of a duty to conform to a standard of conduct that protects others

against unreasonable risks; 2) the defendant's failure to conform to that standard; 3) a reasonably close causal connection between the defendant's conduct and the injury resulting to the plaintiff; and 4) the plaintiff's actual loss or injury.

1. Existence of Duty

The threshold determination in a negligence action is whether the defendant had a duty to conform to a standard of conduct that protects others against unreasonable risks. Generally, the duty imposed by law reflects both the magnitude of the risks involved and the existing state of knowledge concerning the activity. In some environmental cases, including solid waste cases, courts have adopted the rule that all persons, including transporters and disposers of hazardous substances, are under a legal duty to use their properties and to dispose of their wastes in such a manner as to protect other persons and property against unreasonable risks of injury or death. In addition, courts have demanded a heightened degree of care, commensurate with the risk, when a dangerous instrumentality is involved. For instance, courts have applied a higher standard of care in cases dealing with exposure to chemical, radiation, and the manufacturing of dangerous products, although this standard has not yet been applied to chemical wastes.

2. Failure to Conform to Standard of Care

Traditional negligence theory imposes the burden of proof on the plaintiff in hazardous waste cases. Plaintiffs must establish that the defendant disposed of the wastes in an unreasonably dangerous manner. This burden is likely to be easier to sustain against owners and operators of a hazardous waste facility than against those waste generators who send their wastes to the facility for disposal.

According to Last (1982), in Ewell v. Petro Processors of Louisiana, Inc., 364 So.2d 604 (La. Ct. App. 1974) plaintiffs, who owned land adjoining an industrial waste disposal site, brought a negligence suit against the corporation that operated the site and the corporate customers who generated the wastes. The plaintiffs alleged damage was caused by leakage of waste onto their land. The court held the site operator liable for negligent construction of the disposal site, but refused to find any waste generators negligent absent a showing that the generator knew or had reason to know of the leakage.

In general, plaintiffs will find it easier to prove a failure to conform to a requisite standard of care against the owner/operator of a waste disposal facility. The reason being those persons are likely to be charged with knowledge of the risks associated with the

substances being disposed of and the manner of their disposal (Last 1982).

3. Causation

Even if plaintiffs successfully establish that the defendant breached a duty of care owed to them, they must prove that negligent waste disposal was the proximate cause of their injuries. Proximate cause is difficult to prove in hazardous waste cases for several reasons. First, there are long delays between the escape of hazardous wastes from the treatment or disposal site and the exposure and injury to the plaintiff. Second, long periods may intervene between exposure and injury to the plaintiff, as a result injuries may not appear for several years after exposure. In addition, because of the lack of reliable and certain scientific and medical data, it is often difficult to establish the necessary causal links between exposure and injury. To establish causation the plaintiff must isolate the harm-causing chemical, trace the pathway from the site to the victim, and prove medically that the chemical caused the injury or disease. Moreover, to prove causation in a negligence action the consequences of the defendant's actions must have been foreseeable at the time of the actual event. In hazardous waste disposal situations this presents a special problem because industry can argue that risks associated with disposal of the wastes

were unknown and they complied with industry standards (Last 1982).

4. Negligence Per Se

Some of the difficulties in proving the traditional negligence doctrine can be overcome in part by using a statutory standard of negligence. In a majority of jurisdictions a violation of a statutory standard of care is treated as conclusive evidence of the defendant's breach of duty of care or "negligence per se" (Last 1982). Legislative and administrative requirements regulating the defendants activities may indicate the particular standard of care to be followed (Epstein 1982). It is important in a negligence action to see whether a particular company has complied with all applicable hazardous waste laws and regulations.

In order to be covered under a statute the plaintiff must show that he or she is to be protected by the statute and that the injury is the type of harm the statute was designed to prevent. The plaintiff must also prove proximate cause between the statutory violation and the alleged injury.

Assuming that causation can be proven, application of negligence per se to violations of environmental or pollution control statutes, may assist a plaintiff to prosecute a successful negligence action even though

there is no independent factual showing of negligence (Last 1982).

Nuisance

Nuisance has been the most widely employed common-law action for recovery of damages resulting from environmental pollution. Several recent decisions have applied a nuisance remedy in hazardous waste disposal cases. Two types of nuisance exist: 1) private nuisance involves the unreasonable and substantial interference with the use and enjoyment of land, while 2) public nuisance involves the unreasonable and substantial interference with a right common to the public (Last 1982).

1. Private Nuisance

Under the private nuisance theory in hazardous waste cases, the plaintiff may allege that the defendant's conduct was a) intentional and unreasonable, b) negligent or reckless, or c) actionable under rules governing liability for abnormally dangerous conditions or activities. Also, plaintiffs must show that the harm suffered constituted a substantial and unreasonable interference with the use and enjoyment of their property.

Toxic waste plaintiffs can satisfy the requirement of a substantial interference by showing personal injury, mental disturbance, or interference with the

physical condition of their land. Those plaintiffs, face a more difficult burden in showing that defendant's conduct was unreasonable (Last 1982). Factors considered in assessing whether an injury is unreasonable include: the extent and duration of the injury, the character of the harm, the social utility, and the nature of the locality (Epstein 1982). Although the operation of a waste disposal facility may not be socially popular, such a facility does satisfy a substantial public need. Therefore, the courts perform a balancing test based on the above mentioned factors. This balancing analysis may add to the difficulty to sustain a nuisance claim (Last 1982).

2. Public Nuisance

Public nuisance is a cause of action that generally is brought only by the state. An individual acting privately cannot initiate a legal action for a purely public nuisance, unless he or she shows special damages not sustained by other members of the general public.

Negligence and intent are not required in an action for public nuisance. One who creates a nuisance through an inherently dangerous activity or use of an unreasonably dangerous product is absolutely liable for resulting damages, regardless of fault, and despite adhering to the highest standard of care (Last 1982). A traditional example of an inherently dangerous activity

would be blasting for gravel and rock.

Application of this theory to hazardous waste disposal is found in State of New York v. Schenectady Chemical, Inc., 13 E.L.R. 20550 (N.Y. Sup. Ct. 1983). In Schenectady the court refused to dismiss the state's nuisance claims for recovery against a generator of wastes which refused to join in an administrative consent cleanup order with other waste generators. The court found the defendant chemical company guilty of nuisance for water pollution resulting from the disposal of chemical wastes at a dump site on another's land.

In public as well as private nuisance cases, the courts engage in a balancing of the harm to the plaintiff and the social utility of the defendant's conduct. Courts have examined such factors as the location of the operation, prior usage, and adherence to applicable safety standards in assessing the utility of the defendant's conduct.

An important discussion of the balancing of equities in nuisance is found in Village of Wilsonville v. SCA Services, Inc., 86 Ill. 2d 1, 426 N.E.2d 824 (1979). In SCA, the Illinois Supreme Court affirmed the issuance of a permanent injunction prohibiting the continued operation of a licensed landfill for the disposal of hazardous chemical wastes and ordering the defendant to remove all toxic wastes buried at the

site (Last 1982).

An application of nuisance theory raises several questions with respect to siting and operation of hazardous waste treatment and disposal facilities. If the SCA case is followed by other courts, they may apply nuisance theory to prevent the siting of a new facility or the operation of an existing facility if it can be shown that foreseeable prospective harm is sufficiently likely to occur. Such an outcome based on the nuisance doctrine may impede the process of siting and operating licensed hazardous waste treatment and disposal facilities.

Strict Liability Theory

Strict liability is a theory of tort law that subjects a defendant to liability even though he/she has not departed from a reasonable standard of care. Such liability makes the defendant an insurer of the consequences of actions, regardless of intent or foreseeability. This theory poses a potential limitation on the activities of hazardous waste generators, transporters, and disposers. There are three major doctrines of strict liability: 1) Rylands v. Fletcher, 2) Restatement (Second) of Torts, and 3) the recently developing seriousness of the risk (Last 1982).

1. Rylands v. Fletcher

The theory of strict liability articulated in

Rylands v. Fletcher is a potential basis for asserting liability against generators, transporters, and disposers of hazardous waste. Under Rylands one who uses land in a nonnatural way, and thereby creates a dangerous condition or engages in an abnormal activity, may be strictly liable for injuries resulting from the condition or activity. Most states now accept some form of the Rylands doctrine. In a recent application of Rylands in Atlas Chemical Industries, Inc. v. Anderson, the defendant was held strictly liable for polluting surface streams with industrial wastes. In Cities Service Co. v. State, the court classified the storage of phosphate slime in a waste reservoir as a nonnatural use. The court determined the nonnatural character by assessing the degree of risk involved. In water law, a natural use is using water for drinking and livestock purposes, while a nonnatural use is using water for irrigation and other purposes.

2. Restatement (Second) of Torts

The strict liability rule of Rylands originated from the Restatement (Second) of Torts which imposes strict liability for activities which are "abnormally dangerous". The critical question for toxic waste plaintiffs asserting strict liability is whether or not the disposal of hazardous waste is abnormally dangerous.

In the context of Love Canal, Baurer (1980) applied

the "abnormally dangerous" clause to the tragedy.

The disposal of chemical wastes in remote sites may yet involve some degree of negligence, but those who dump such material in an urban milieu, notwithstanding any care assertedly taken in the process, do so at their own peril and should be strictly liable for damages which ensue. The interactions of unneutralized and unsegregated chemical wastes indiscriminately mixed together in a common disposal site, especially where water is readily accessible to facilitate mixing of the wastes, make up a congeries of slow chemical reactions having generally unspecific but potentially disastrous consequences over long periods of time. (Baurer 1980, p. 141)

Such chemical disposal sites constitute an abnormally dangerous condition and those responsible should be held strictly liable.

The factors balanced in this determination include the magnitude of the risk of harm, the commonness of the activity, the appropriateness of the location for carrying on the activity, and the ability of the defendant to avoid the risk by the exercise of reasonable care (Last 1982).

When strict liability applies, a defendant will be liable regardless of whether it would have been reasonable to eliminate the risk. The courts often justify strict liability against particular defendants by noting that the defendants may be seeking a profit from their activities; that the defendants are in a better position to control the risks than the victim, or that liability for an essentially unavoidable injury

should be placed on the party who can bear it best (Epstein 1982).

3. Seriousness of Risk

Under this new theory of strict liability, the focus is on the magnitude of the risk without balancing locational and social utility factors. The court in New Jersey v. Ventron Corp., found several owner/operators strictly liable for mercury pollution which had been accumulating over the years at the plants operation. The court focused on the extremely dangerous nature of the hazardous substance being released. It seems the court assumed that given the dangers involved with processing mercury, the use of land for this purpose was self-evidently nonnatural.

Trespass Theory

Trespass, as an action for hazardous waste disposal claims, appears to have limited use. A trespass action requires the plaintiff to show ownership or possession of the land and an invasion by the defendant onto the land.

Private individuals have been very successful under the doctrine of common law. In terms of hazardous waste litigation the most widely used theories are negligence, nuisance, and strict liability.

Chapter 5 - Who Decides in Whose Backyard?

Federal policy regarding who controls the siting of hazardous waste facilities passes the responsibility to state government. As previously stated, the federal government prefers states handle the siting problem. The local planner has many concerns if his/her community is selected for a new or potential hazardous waste facility. There are several means states use in determining who controls the siting process.

Preemption

Each state has taken varied approaches in allocating control over the siting process. Preemption is a term used when states legislate specifically that control is to be at the state level, not at the local level. Some states have regulatory programs mandated by federal law where site selection is governed by local zoning and other land use regulatory programs unless a court concludes that state legislation preempts local authority (Tarlock pt. I 1982). Some states have created special siting legislation which either reserves control at the state level or passes it on to the local level.

The law of facility preemption is relatively new. A variety of strategies using preemption approaches have been adopted. Three basic approaches being used include: 1) strict state control, 2) state control with

local vetoes upon state review and majority vote of the state siting authority, 3) state control with increased local participation (Tarlock pt. I 1982).

1. Straight State Preemption

This approach is used as a means of ensuring control over the siting process at the state level. State legislation is designed to specifically state that there is a preemption of all local land use controls. States argue that local units of government are given sufficient protection through the state siting review process. Legislation with this effect has been enacted in Maryland [Md. Nat. Res. Code. Ann. 3-705(d)]; Ohio, [Ohio Rev. Code 3734.05(D)]; and Utah, (Utah Code Ann. 26-14a-8).

A modification to this approach is utilized by New Jersey and Minnesota. Both states have completely preempted local land use controls, but have allowed local government input in a multi-step siting process (Minn. Stat. Ann 115A.09) A waste management board prepares plans, reports, and "preferred" site inventories with the assistance of a broad-based hazardous waste advisory council. Localities cannot prohibit a facility from being built, but they can impose reasonable "construction, inspection, operating, and maintenance" conditions.

New Jersey's siting statute, (N.J. Stat. Ann. Tit.

13, 13:1E-49 et seq.), gives some weight to local concerns. Those municipalities selected for siting are given grants to conduct site availability and safety studies. Also, when an applicant applies for a state permit, the host community is allowed to review the application and receive funds from the applicant to finance review (Tarlock pt.I 1982).

2. Preemption After State Administrative Review

This approach allows local communities to make initial decisions, but reserves the final authority to the state. Connecticut and Florida permit local communities to make initial decisions, but provide for state review and preemption. In Connecticut, a two-thirds vote of the siting board is necessary to override a local veto (Conn. Gen. Stat. Ann. 228-124.).

In Florida, local governments have 90 days to veto a proposed site, subject to a lengthy three-stage appeal process [Fla. Stat. Ann 403.723(1)-(4)]. First, the denied operator must apply for a variance. If the local variance is denied he goes to the appropriate regional planning council which makes recommendations to approve or deny the variance to the governor and cabinet. To recommend a variance, the regional planning council must make five findings, including a determination that the facility will not have a significant adverse impact on the environment and natural resources of the region.

The discretion to issue a variance by the governor and cabinet is severely limited [Fla. Stat. Ann. 403.723 (7)(c)].

3. Increase in Local Power with State Preemption

This is a mixing of control by both local government and state authority. Two recent cases from Pennsylvania returned to local government the ability to influence the siting process previously denied by legislation. Susquehanna County v. Department of Environmental Resources, 458 A.2d 929 (Pa. 1983) and Franklin Township v. Commonwealth, 452 A.2d 718 (Pa. 1982) holds that units of local government have standing to challenge both the issuance and enforcement of hazardous waste facility permits. The state has a four-part test for standing. The most important being the plaintiff must possess a substantial interest in the subject matter. In Franklin Township the court observed:

"Aesthetic and environmental well-being are important aspects of the quality of life in our society, and a key role of local government is to promote and protect life's quality for all its inhabitants. Recent events are replete with ecological horrors that have damaged the environment and threatened plant, animal and human life. We need only be reminded of the 'Love Canal' tragedy and many like situations faced by communities and local governments across the country to recognize the substantial local concerns." (at 720)

In Susquehanna the court found:

"the aesthetic, environmental and quality of life considerations discussed in Franklin Township are equally applicable here. It is not only the establishment of a waste disposal site, but the day to day operation of such a continuously hazardous and potentially dangerous facility which presents the environmental threat. The interest of local government ... in promoting and protecting its environmental well-being and the well being of its citizens is not any less substantial, immediate and direct simply because a perceived threat is posed by an operational order rather than the issuance of a permit." (at 931)

The issue in Susquehanna was whether the local government lacked standing to contest amendments to an existing permit.

Illinois has implemented a system where state and local boards may veto proposed facilities with state administrative review. The statute, (Ill. Rev. Stat. Ch. 111 1/2, 1001), requires state and local approval of all waste management sites serving a regional area. Early indications of how well the system is functioning demonstrates that it is extremely difficult and costly to site new facilities (Tarlock pt.I 1982).

Balance of Power

The key to successful siting allows for a balancing of power between state and local government. It is apparent that states need to play a lead role without alienating local government. The alternative - to allow local government to decide has proved communities often reject siting attempts.

According to Morell and Magorian (1982) the overall siting objective must ensure that the decision-making process is perceived as legitimate by the public. Local residents object to state preemption because it ignores political sensitivity. Citizens see the state centralization of decisionmaking as insensitive and undemocratic.

Experience in siting controversies suggests several lessons to be learned:

- 1) The process must be seen by the public as legitimate;
- 2) This can be accomplished through a balanced sequential and timely process of decision-making in which all parties concerned (majority and minority) have a clear opportunity to express their concerns;
- 3) Compromise and balance are needed to avoid the abuse of power by any single level of government; and
- 4) Effective communication, timeliness, and procedures for an open dialogue are all essential to an effective siting process (Morrell and Magorian 1982).

Other Legal Concerns

As state, local, regional and federal conflicts continue so too the legal concerns by all parties. The

courts have offered a wide range of opinions on a variety of issues concerning hazardous waste facilities. A legal concern which stems from preemption of local authority, has been the "home rule" question.

Home Rule

Control of land is a power vested in the states by the constitution; except on federally owned land. In the 1920's the states began relinquishing nearly all of their power to local communities.

The most extreme delegation of local authority, occurring in New England states, define home rule as:

"... authority granted by either the state constitution or legislature by which municipalities are empowered to set up by local action their form of government and to determine their own substantive and procedural powers." (Morrell and Magorian 1982, p. 48)

Local control over land use has considerable appeal, even in areas with less strict home rule laws. As J. Douglas Peters has noted:

"Implicit in the concept of home rule is faith that local governments can respond sensitively and quickly to local problems, thus fulfilling the ideals of a grass-roots democracy."
(Morrell and Magorian 1982, p. 49)

Local land use is desired because residents have a strong commitment to preservation of their community.

Despite localities control over decisions on land use, the ultimate authority remains legally at the state level. After all it was the state who had the original grant of power of over land use control (Morrell and

Magorian 1982).

According to Tarlock (pt. I 1982) courts have rejected local communities claims to home rule which allows them vast land use authority. Hazardous waste management is a problem that affects entire states and regions and all states have the power to enact general laws on matters of statewide concern that preempt local laws, see Clermont Environmental Reclamation Co. v. Wiederhold, 2 Ohio St. 3d 44, 442 N.E.2d 1278 (1982).

Exclusionary Zoning

Exclusionary zoning is a device used by communities to restrict land uses in a community. Historically, low and moderate income groups have been targets of exclusionary zoning (Babcock 1979). Many communities today have attempted to keep out hazardous waste facilities through zoning. State courts have invalidated exclusionary ordinances either on state constitutional grounds or on the theory that exclusionary zoning is ultra vires because the essence of zoning is the division of territory among different land uses (Tarlock pt. I 1982). In Pennsylvania, the courts have shifted the burden of justification for excluding a use to the community, see Beaver Gasoline Co. v. Zoning Hearing Bd., 445 Pa. 571, 285 A.2d 501 (1971). In another Pennsylvania case, General Battery Corp. v. Zoning Hearing Bd. 29 Pa. Commw. 498, 371 A.2d 1030,

1032 (1977) the court reversed the local hearing board's decision to exclude a hazardous waste facility. The court found:

"under these circumstances, we conclude that waste disposal facilities do not have the obvious potential for polluting air or water or otherwise creating uncontrollable health or safety hazards. Nor do common knowledge and experience suggest other clear deleterious effects which would inevitably be visited upon the public in general." (Tarlock pt. I 1982, p. 3)

Commerce Clause

Judicial activism to force communities to admit new uses has been bolstered by the U.S. Supreme Courts decision in City of Philadelphia v. New Jersey, 437 U.S. 617 (1978). The court held that a state ban on the import of wastes generated out-of-state violates the Commerce Clause. This case suggests that states have an affirmative duty to accept their fair-share (Tarlock pt. I 1982).

In City of Philadelphia, the state regulated the private flow of goods in interstate commerce. Where the state acts as proprietor, the Commerce Clause has been held inapplicable, see Reeves v. State, 100 S.Ct. 2271(1980) and Hughes v. Alexandria Scrap Corp., 96 S.Ct. 2488 (1976). In Hughes, the court found nothing in the Commerce Clause which

"prohibits a State, in the absence of congressional action, from participating in the market and exercising the right to favor its own citizens over others." (96 S.Ct. at

2498)

In Reeves, the court recognized

"a basic distinction ... between states as market participants and states as market regulators," finding "no indication of a constitutional plan to limit the ability of the states themselves to operate freely in the free market." (100 S.Ct. at 2277)

Alexandria Scrap and Reeves indicate that the Commerce Clause may not prohibit a State, as owner and/or operator of a hazardous waste facility, from accepting only wastes generated by its residents. A state could argue as in Reeves that it has the right, like any private individual in the market, to decide with whom to deal and on what terms. The dissenting opinion in Reeves argues that a state is exempt from Commerce Clause restrictions only where it performs "integral government operations." Operation of a hazardous waste facility may qualify according to the dissents opinion.

An important point concerning the Commerce Clause is that states have not been allowed to hoard natural resources for their own benefit, see Philadelphia v. New Jersey. Since land is a natural resource and only sites meeting specific geohydrologic criteria will qualify as hazardous waste landfills, further complicates the Commerce Clause application to hazardous waste facility siting. If a site was an incinerator, involving no

natural resources then states may be exempt from the Commerce Clause (National Governor's Association 1981).

Liability

Local planners, officials and citizens should be familiar with insurance agreements covering accidents or the premature closure of a waste facility. Existing federal regulations require the carriers of both hazardous and radioactive materials to be insured against potential accidents. The states may also require that any existing or new disposal facility provide financial assurances (i.e. insurance, bonds, guarantees) in sufficient amounts to close and stabilize the site in accordance with all requirements. Local governments should take measures to shift their potential liability to waste generators, transporters, or disposal facility operators. (Smith 1982) This would involve using legally binding agreements to hold the developer responsible for liability.

Regional Agreements

An interstate compact is a legally binding agreement among states. Typically such compacts are enacted into law by the legislatures of the party states, and may also require approval by the U.S. Congress. These compacts are used to define certain rights and responsibilities that are binding upon party states.

The idea of regional compacts is to provide a disposal facility for the region versus a few selected sites in the United States. Under the Low-Level Radioactive Waste Policy Act, the federal policy recognizes the greater safety and efficiency of regional disposal facilities (Smith 1982).

Conflicts may arise as the process narrows to select a host state for a regional facility. The Central Interstate Low-Level Radioactive Waste Compact provides a current example. Of the five states in the compact - Kansas, Oklahoma, Nebraska, Arkansas, and Louisiana - it appears Kansas may have the most preferred sites based on geological considerations. Kansas recently passed a law banning the burial of low-level radioactive wastes. Current debate continues as to whether Kansas should stay in the compact if it is selected to host a regional facility (Kansas City Times April 28, 1987).

At the local level, a regional facility poses more concerns than a state facility in locating a site. There would be more transportation of hazardous materials, a larger disposal site needed, and greater public opposition to cite a few concerns.

Control over the siting process needs to balance state and local concerns as well as those of the public. Who controls the process dictates what the outcome of many siting attempts will be. Chapter 6 provides some

recommendations concerning control of the siting process.

Chapter 6 - Recommendations and Conclusions

How and where does the local planner fit into the siting of hazardous waste facilities and what should his/her role be? This chapter outlines recommendations a local planner may wish to consider if his/her community is selected to host a hazardous waste facility. For other communities not selected, these recommendations are intended to provoke forethought concerning the siting process.

Recommendations

1. Investigate the role of the state government in the siting process;
2. Recommend legislation emphasizing greater local control if needed;
3. Investigate the type of facility which is being proposed;
4. Identify all interested parties involved, particularly who the developer and operator of the facility will be;
5. Recommend siting legislation at the state level if needed;
6. Review local zoning ordinances;
7. Encourage shared responsibility of management and monitoring of the facility;
8. Engage in compensation and negotiation;

9. Enhance public participation.

Recommendations may be applicable in varying degrees according to each particular situation. The recommendations given are not listed in order of importance. What follows is a description of each recommendation.

1. Investigate the role of the state government in the siting process. As outlined in chapter 5 each state has taken a variety of approaches in dealing with the issue of siting. Some states favor local control while others use a centralized state decisionmaking process for siting.

The planner's task is to gather as much background information regarding the state's role in siting of facilities. Information on the type of procedure used by the state is helpful in assessing where the local community stands on the siting issue. The planner will need to know who controls the siting process. In states such as, Ohio and Maryland, the siting process is highly centralized at the state level, with little attention given to local concerns. In other states, such as Florida, local governments are given the opportunity to veto a proposed site with a lengthy appeal process. Through investigation of what role the state plays, the planner may find the current siting process incompatible with local concerns.

2. Recommend legislation emphasizing greater local control if needed. In those states which have little regard for local concerns, new legislation may be in order. What is needed is a siting process which allows for local representation. A state siting board with strong local representation offers an opportunity for local and state concerns to be viewed. The process which Florida follows ensures strong local representation. In Florida, local governments have 90 days to veto a proposed site, subject to a lengthy three-stage appeal process (Tarlock pt.I 1982). Many variations of this approach exist, which proposed legislation may be modelled after. What is important is that the local government have a voice in the siting process.

3. Investigate the type of facility being proposed. Each method of disposal provides different concerns for the planner. Therefore, the planner needs to find out the type of facility being proposed. Chapter 2 reviews the methods of disposal most widely used. The most common types of disposal include: injection wells, ponds, lagoons, landfills and incineration.

Injecting hazardous liquid wastes into deep underground wells or salt caverns was the most prevalent form of disposal, receiving 67 million metric tons of

waste in 1983 (Congressional Budget Office 1985). Deep well injection typically involves drilling a disposal passage into salt caverns or aquifers and pumping waste through wells into geologic formations.

Surface impoundments, or holding ponds, received 50 million metric tons of hazardous waste in 1983 (Congressional Budget Office 1985). This method of disposal poses risks because many impoundments have no liners to prevent waste seepage into surface water or groundwater, despite existing regulations.

Landfills must be lined to accept hazardous waste, but often unlined sanitary landfills have become the disposal for hazardous wastes. Hazardous waste landfills received an estimated 34 million metric tons in 1983, while sanitary landfills received 27 million metric tons (Congressional Budget Office 1985). Most experts agree that landfills eventually will leak their contents into surrounding groundwater, despite their linings (Congressional Budget Office 1985).

Recent waste management practices are discouraging use of landfills, and encouraging use of recycling. New Jersey and California have placed sharp restrictions on further landfilling of hazardous waste. New RCRA regulations constrain disposal of liquid wastes in landfills, a practice common in the past.

Thermal devices of various kinds can break down

certain organic (hydrocarbon-based) wastes. The rotary kiln incinerator is the most common of these thermal technologies for waste disposal. In contrast to landfills, incinerators can be accommodated on much smaller pieces of land (4 to 5 acres) (Morrell and Magorian 1982). Incineration accounted for 2.7 million metric tons of waste in 1983 (Congressional Budget Office 1985). Ash disposal is a difficult problem resulting from incineration methods. Disposal may be threatening to the environment and incinerators may pose air emission problems.

Each means of disposal poses special problems which the planner needs to be aware of. New technologies exist for mitigating some of the problems and should be considered in the negotiation phase.

4. Identify all interested parties involved, particularly who the developer and operator of the facility will be. New proposals in some states suggest that state ownership may be an effective way to successfully site facilities. The local planner should be aware of who all interested parties are in the siting process. Morrell and Magorian (1982) identify the following as participants in the siting of hazardous waste facilities: developer, facility contractors, labor, industrial hazardous waste generators, environmental and public interest groups, state

politicians and agencies, regional or statewide support (those benefitting from "safe" disposal or from industrial expansion), regional opposition, local politicians and planners, local support and local opposition. Once the planner has a feel for who the participants are in the process he/she may be able to gain support from groups concerned with local interests.

5. Recommend siting legislation at the state and/or local level. Some states have already enacted siting legislation to help determine safe sites. New Jersey's statute relies on technical siting standards to help screen out unsafe sites. The state's Department of Environmental Protection is directed to adopt standards to implement performance criteria. The statute calls for standards that "prevent any significant adverse environmental impact" and mandates specific siting prohibitions. Under the law hazardous waste facilities are prohibited:

"1) 2,000 feet of any structure which is routinely occupied by the same person or persons more than 12 hours per day, or by the same person or persons under the age of 18 for more than 2 hours per day, except that the commission may permit the location of a major hazardous waste facility less than 2,000 feet, but in no case less than 1,500 feet, from such structures upon showing that such a location would not present a substantial danger to health, welfare, and safety of the persons occupying or inhabiting such structures;

2) Any flood hazard area . . . ;

3) Any wetlands designated (pursuant to state law);

4) Any area where the seasonal high water table rises to within 1 foot of the surface, unless the seasonal high water table can be lowered to more than 1 foot below the surface by permanent drainage measures approved by the department; and

5) Any area within a 20-mile radius of a nuclear fission power plant at which spent nuclear fuel rods are stored on site." (Tarlock pt.II, p. 10)

Additional considerations may be given to: areas with low population density and growth, surface water, avoiding areas where tectonic processes may cause instability, and avoiding areas where geologic processes (mass wasting, erosion, slumping, or landsliding) occur frequently (Smith 1982). These siting standards may be modified and adopted at the state or local level.

6. Review local zoning ordinances. Zoning ordinances can be effective in many states in prohibiting the siting of facilities. According to siting regulations in New York:

"if the construction or operation of the facility would be contrary to local zoning or land use regulations in force on the date that the applicant submitted an application to the department for a permit ..." (Boyle 1982, p.35)

then the certificate will be denied. In this case stringent local zoning regulations in force well before a facility was proposed was the best means to denying a facility permit (Boyle 1982).

For those planners whose communities have been selected, updating of current zoning ordinances may be

in order. A major role for local planners involves the siting of residential, commercial, and industrial land uses next to proposed, existing, or closed hazardous waste sites. In general, the siting of the hazardous waste facilities is done by state or federal permit, but the siting of development adjacent to a facility is the responsibility of the local government. Local regulations for adjacent land uses must determine which uses are compatible with either operating or closed hazardous waste sites and must establish reasonable buffers between the facility and neighboring activities (Jaffe 1981). For example, in California, state law requires a 2,000 foot buffer between a hazardous waste site and adjacent land uses (Jaffe 1981).

Some communities regulate hazardous waste facilities as an industrial use. This may need updated to consider the risks of an on-site disposal, increasing buffer zones, and conducting environmental assessments (Jaffe 1981). These are areas where the local planner can become actively involved.

7. Encourage shared responsibility of management and monitoring of the facility. A new approach for local planners, offered by Susskind (1985), suggests a sharing of responsibility between local communities and the developer. In a study undertaken by the Oak Ridge National Laboratory, residents showed a greater

willingness to support a low-level radioactive facility if there was mitigation and compensation. Residents showed even more support when told the local government would share responsibility for monitoring and managing the facility. The study found if a community knows they can trust regular monitoring reports conducted by local government, then they are less likely to oppose a facility. Also, if they know they can close a plant the moment a leak is found then they are much more in favor of the facility. Shared monitoring and management is a new approach which should be encouraged by local planners.

8. Engage in compensation and negotiation. A new technique for gaining public approval in siting a hazardous waste facility is by the use of compensation and negotiation measures between the developer and the community. In a hazardous waste facility siting case, the parties that require compensation and incentives include the target community that is directly impacted by a facility siting, neighboring communities that may share common resources with the target area, and communities that are subject to the transportation of hazardous waste through their boundaries en route to the site as well as individuals of all of these communities (Boyle 1982).

The goal of compensation and incentives is to make

the host community, other impacted communities and individuals as well off after the siting as they were before. An agreement of what constitutes "as well off" must be negotiated between the impacted individuals and/or communities and the facility developer (whether private or public). No siting technique will work unless the impacted parties feel they are getting a fair deal.

Compensation measures are used to give citizens and communities what is fair for any damages that may result from facility siting and operation. Incentives are bonuses to encourage localities to accept unwanted facilities. Together, compensation and incentives may take two forms: direct payments (either cash or in kind services) relating to specific impacts, or indirect payments in the form of additional services.

Examples of direct payments for hazardous waste facility siting may include:

1. taxes or payments in lieu of taxes;
2. lifetime health and safety insurance for workers;
3. tipping fees collected as weigh in fees;
4. extra monitoring provisions;
5. relocation payment for citizens misplaced by a facility or property value guarantees;
6. replacement payments for damaged resources.

Examples of indirect payments for hazardous waste facility siting may include:

1. local employee training programs;
2. provision of community amenities;
3. free waste disposal for local generators;
4. provision of community emergency equipment, such as fire trucks, ambulances, emergency response training and equipment;
5. independent monitoring to assure non-biased results;
6. payment for abandoned site cleanup.

Specific compensations and incentives should be tailored to individual communities needs (Boyle 1982). Planners are often in the best position to express the communities needs in terms of compensation and incentives. In fact, the planner or a public official most likely will be the one responsible for negotiation of agreements.

9. Enhance public participation. The traditional approach to public participation involving siting of hazardous waste facilities needs reassessment. Typically, a public hearing prior to the final decision is all that is done. In order for citizens to become more involved in the process they must believe their concerns will have a possibility of influencing decisions. Before the siting process begins, the state

should be responsible for educating citizens as to the need for new facilities and why they are essential.

Public participation at the local level is often critical to successful siting. Public participation often enhances the decisionmaking and planning process. Discussion by a wide range of interests can improve decisionmaking by calling attention to possible errors in proposed plans and suggestion of revisions.

Use of public input to suggest improvements in decisionmaking often acts as an error detector. Public participation could contribute to error detection in two ways. First, is to act as a check on the technical accuracy of the planning and an opportunity to consider additional relevant factors. Second, public participation is a tool to see that the decision is rational and based on the best available information (Morrell and Magorian, 1982).

Conclusions

The hazardous waste problem ranks high among environmental concerns. These conclusions are very general concerning the hazardous waste problem. They focus on reducing the demand for hazardous waste facilities by reducing the amount of hazardous waste. In addition, the major factors which have lead to public opposition are briefly discussed. For the local planner, it is hoped that some of the above mentioned

recommendations will be utilized if his/her community is selected to host a site.

The most effective means of reducing the hazardous waste problem is to reduce the amount needing disposal. One of the most environmentally haunting problems regarding disposal in the United States has resulted from land disposal methods. Fifteen years before hazardous waste problems were publicly recognized in this country, several European nations encouraged alternatives to land disposal through government regulation. In 1973, Denmark established the Kommunekemi facility in Nyborg, which destroys 90 percent of the nation's hazardous wastes. The facility also utilizes an energy recovery system which supplies 35% of the heating needs for 18,000 residents. West Germany has coordinated the construction of 15 treatment centers that destroy the bulk of the nations worst waste. Other European governments, including those of Sweden, Austria, Finland, and the Netherlands, are following these examples by minimizing access to dumping and requiring use of recycling, incineration, and treatment technologies (Piasecki and Gravander 1985). The problem with utilizing new technologies in the United States is the cost. Industry is reluctant to abandon its cheap methods of disposal.

Public opposition has stymied the siting of new

hazardous waste facilities. Much of the current literature, including Epstein (1982) and Greenberg and Anderson (1984) suggests there are two major reasons which have caused public opposition: 1) past government policies, mainly EPA's lax enforcement policies, and 2) private mismanagement of hazardous waste.

EPA's lax enforcement policies, poor management and lack of funding has jeopardized enforcement of environmental legislation. EPA was granted broad powers by Congress to enforce legislation specifically designed to curtail the problem of hazardous waste. Under the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Congress intended EPA to begin stricter regulation of hazardous waste.

EPA has been plagued with management and financial problems which has lead to lax enforcement of regulations. All of which have undermined the agencies ability to work effectively.

Critics of EPA contend that less than 20% of the original \$1.6 billion Superfund allocation has actually been spent on cleanup of waste sites. The National Campaign Against Toxic Hazards claims that less than 10% of the 850 sites on EPA's current priority list have received any remedial attention at all in the program's first five years. Further, the estimated cost of

cleanup in 1985 was \$40 billion, with a fund of only \$1.6 billion (Pope 1985). Aside from actual cleanup of sites, EPA is also given the responsibility for monitoring sites suspected of endangering underground water supplies. A congressional research team concluded in April, 1985 that of the 1,246 hazardous waste dumps it surveyed, nearly half showed signs of polluting nearby groundwater. The EPA's monitoring of these sites, the study charges, was "inaccurate, incomplete and unreliable" (Gunther 1986).

The American public perception of EPA's activity is on the downside. A poll taken in September 1985 showed 70% of Americans said "not enough" has been done to clean up toxic waste sites. When asked "would you be willing to pay higher state and local taxes to fund cleanup programs in your area," 64% answered "yes" (Time October 14, 1985). Other problems at EPA have occurred from drastic budget cuts, resulting in a loss of 23% of it's budget, and 19% of it's employees (Time October 14, 1985).

The shockwaves of private mismanagement of hazardous waste are being felt all over the country. The impacts of improper waste management practices are now being linked to a variety of negative effects on human health and the environment. Research has found higher than normal cancer and miscarriage rates in those

communities located near waste sites (Epstein 1982).

What is needed at the national level is a change in hazardous waste policy. A shift in public policy aimed at restoring public confidence in the government's ability to regulate hazardous waste is desperately needed to change public opinion. To accomplish this policy change government would need to be more willing to enforce current hazardous waste legislation. Industry would need to do its part by cleaning up abandoned waste sites and utilizing other means of disposal besides land disposal.

It is hoped that by covering some of the legal concerns which planners and public officials face at the local level, more rational decisions will be made. The crisis of the siting dilemma is local in nature, but the impact of resisting new sites is national in scope.

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A PLANNER'S GUIDE TO LOCAL LEGAL ISSUES CONCERNING
THE SITING OF HAZARDOUS WASTE FACILITIES

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Abstract

Due to public opposition the siting of new hazardous waste facilities has come to a near standstill in the United States. Opposition has grown since revelations about private mismanagement of hazardous wastes surfaced in the late 1970's. Notably, this has resulted in public mistrust in the government's ability to regulate hazardous waste. Controversy over siting of facilities has generated legal concerns for local planners and public officials. Areas of legal interest discussed in this guide include: statutory and regulatory concerns, common law challenges, and control over the siting process. At the local level informed planners and public officials can make rational decisions concerning the siting of hazardous waste facilities. This document can be used as an aid for local planners and public officials in making those decisions.