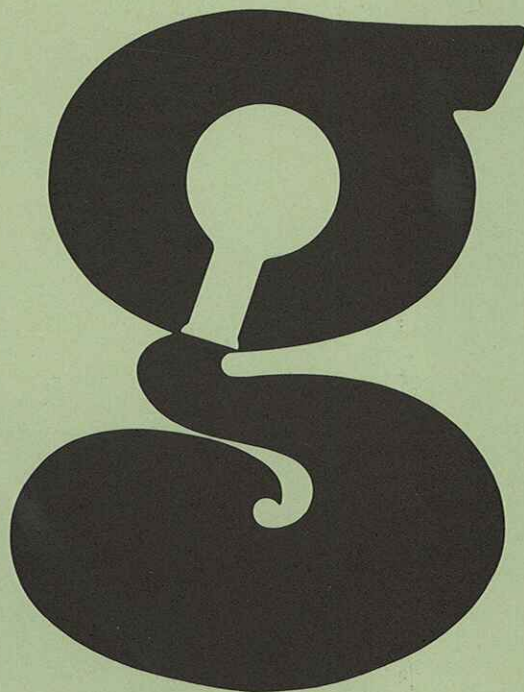


A TOXIC WASTE HANDBOOK

A guide for the citizen detective
in the Galveston County area



Galveston County Toxic Waste Task Force

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PB & RQ

INTRODUCTION

Galveston County, like many Texas coastal cities, is experiencing tremendous growth in its economy. This growth is largely due to the expansion of petrochemical and associated industries in the county. The signs of this expansion are visible throughout the county. In the Texas City/Galveston area it is estimated that employment by the petrochemical industry increased approximately 30% between 1970 and 1980. This expansion has brought tremendous benefits to the county; but with these benefits there are also many risks. In a county which has one of the highest cancer rates in the country, the signs of these risks are evident: towering cracking columns, chemical tank trucks on the highways, the smell of chemicals in the air, and waste disposal facilities dotting the countryside.

Society today is heavily dependent on a vast number of new synthetic products: plastics, fertilizers, pesticides, and so on. Most of these are products of the petrochemical industry. They are manufactured through various chemical processes which use oil as a basic source of hydrocarbons. Unfortunately, unavoidable by-products of these processes are toxic wastes as well as many useful intermediate toxic chemicals. Thus, as long as society wants these products, there will be toxic wastes.

The transportation and disposal of toxic wastes are difficult tasks and, if not done in a safe manner, can pose hazards to the public. Most

current disposal practices are reasonable, but many problems have arisen from past practices and abandoned dump sites. Most of us have heard about the old Motco site, located next to IH 45 at the Texas City Wye. This was listed by the Environmental Protection Agency as one of the 25 worst sites in the country. But probably more serious, little is known about the long-term or cumulative effects of toxic wastes or about exposure to low levels of toxic substances in the workplace. Thus, many questions have yet to be resolved.

In March 1980 a group of citizens formed the Galveston County Toxic Waste Task Force in an effort to address some of these questions. Realizing that exposure to toxic wastes is the price that may have to be paid to enjoy benefits of current technology and industry, the Task Force is attempting to find ways to minimize the risk. To date, the efforts of the Task Force have ranged from informing the public about potential toxic waste problems to working with government and industry representatives in formulating approaches to deal with toxic wastes.

This handbook is one result of the Task Force's efforts and is designed to provide to the residents of Galveston County the information they need to understand the basic issue surrounding toxic waste: How do they maintain the petrochemical economy of their community while minimizing their exposure to toxic waste? ■



1. TOXIC SUBSTANCES

What are they...
What do they do?



Toxic substances are potentially harmful to human health: They can be poisonous or cause cancer or birth defects. They also can contaminate, harm, or kill fish and wildlife. Thus, it is important that people and animals be protected from exposure to these substances. Only by being aware of them can you minimize the risk of exposure for yourself, your family, and your community. The following discusses what health effects can be caused by exposure to toxic substances, where and how you may be exposed, what are the typical symptoms of exposure, and the federal and state laws that are intended to protect you from exposure.

Effects

Basically, there are three ways toxic substances can be harmful; they can:

- 1) be poisonous
- 2) cause cancer
- 3) cause birth defects.

The extent of these effects will be dependent on such factors as dose of the chemical, your physical condition, type of exposure (inhalation, ingestion, contact), etc.

Poisonous effects on the systems and organs of the body from chemicals include both acute (immediate) and chronic (long-term) effects. While acute reactions may vary from watering eyes to unconsciousness to death, they are relatively easy to observe. Chronic toxicity, on the other hand, becomes evident only after years, sometimes even decades, and frequently only then through intensive examination. Little is currently known about the chronic toxicity of toxic substances, but there is some research being done on effects of long-term exposure (see "Cancer" below). Some chemicals are implicated in disturbances to more than one body system and can cause both acute and chronic skin, eye, intestinal, lung, muscle and bone, or neurological symptoms. Many chemicals cause chronic lung disease, or have been linked to reproductive problems. Damage to the nervous system from toxic chemicals can take many forms. Symptoms which manifest themselves physically include: tiredness, headaches, difficulties in balance, muscle weakness, numbness, and blurred vision. More subtle are the behavioral effects of chemical agents: anxiety, depression, or hyperactivity.

Cancer-causing substances have received tremendous publicity in the last few years, as more and more evidence has pointed to the relationship between health effects and chemicals. Contrary to popular belief, however, not everything will cause cancer even if administered in large doses. Indeed, of the more than 7,000 substances tested, only 7-10% (about 500) are believed to be carcinogenic in laboratory animals. In fact, at the present time, only 26 substances, ranging from petrochemical by-products to food molds (aflatoxins), from asbestos and benzene to vinyl chloride, have been identified by the World Health Organization's International Agency for Research on Cancer as being associated with human cancer. Some of these substances have been identified because they cause specific, unusual types of cancer. Other substances have only been identified as carcinogenic after decades of use when epidemiological studies (studies of the number of occurrences of a disease) have revealed that groups of persons exposed to particular substances show a significant increase in cancer rates.

Environmental factors—the substances to which we are exposed through the air, water, food, medicines, workplace, etc.—are believed to play an important role in a high proportion of human cancer (anywhere from 50 - 90%). It is also believed that long-term exposure to low levels or concentrations of some chemicals is an important factor. Research in these areas is limited, and there is much we have yet to learn about cancer.

Some toxic substances can cause *birth defects* or hereditary diseases. Substances that cause birth defects, called "teratogens", alter fetal development, and they usually affect only one generation. The drug thalidomide is a classic example of such a substance. It was prescribed as an antidote to morning sickness in pregnant women, but several years later was found to have caused severe birth defects in several hundred children in Europe and in a lesser number in the United States.

Substances that cause changes or mutations in the genetic material of the reproductive cells, thereby affecting all succeeding generations, are called "mutagens". Because so little is known about natural mutation in the human species, determining the mutagenic effect of a given chemical on man is difficult. Substances such as acrylonitrile, arsenic and benzene are

believed to cause human mutations because they produce mutagenic effects in selected test animals. It is already known that some diseases, such as hemophilia, Tay-Sachs' disease, and sickle-cell anemia, are hereditary, and evidence suggests that there may be others.

The paragraphs above describe what effects toxic wastes have on the human body. Further, toxic wastes can have similar or more severe effects on other organisms in our environment, and these effects can indirectly affect humans. Such effects can cause a decline in the population of native and domestic animals, overpopulation of pests due to a decline in their natural predators, extinction of species, and indirect poisoning of humans from food contamination. Many examples are dramatically portrayed in *Bitter Harvest* by Frederick and Sandra Halbert and in *Silent Spring* by Rachel Carson. Check the items listed under Publications for further information on the effects of toxic substances on human health and the environment.

Exposure

In today's society, you may come in contact with literally thousands of chemicals every day—at work, at school, at home, in restaurants, and in vehicles. The vast majority of these chemicals are relatively harmless, but some can be quite toxic. Unfortunately, most toxic substances don't come in boxes marked "Poison"; rather they may look more or less harmless. Thus, you could quite easily be exposed to a toxic substance without being immediately aware of it. *So how do you know?* Well, the best way is to be aware of your environment, the activities that go on around you, and the various substances you come in contact with. Many products containing toxic substances do not label their contents, or they use trade names which may disguise their contents. Toxic wastes are seldom, if ever, labeled and may contain any combination of chemicals. So to help you become more aware of possible exposure to such toxic substances two charts are provided here. The first, "Places of Exposure", can be used to track down places where you could be exposed to toxins. If one of the places in the chart is appropriate to you or if one of the chemicals listed is familiar, then additional investigation is warranted. Investigate more carefully what chemicals you are exposed to and, if possible, learn what the concentration and duration of exposure are. Find out more about the health effects of such exposure.

If you think you have been exposed to a toxic substance or if you have been having unusual health problems, then you can use the second chart, "Symptoms of Exposure", to identify what the source of exposure may be. If you do show signs of one of these poisonings and you may have been exposed to one of the associated chemicals, the first thing to do is: **SEE A DOCTOR!** Whether you see your family doctor or a specialist, be sure to tell him (her) what chemical you think you may have been exposed to. If you think you are experiencing acute symptoms, you can call the Poison Center at the University of Texas Medical Branch at Galveston (713/765-1420). It can advise you of what immediate action, if any, you need to take. In any case you still need to see a doctor. In both acute and chronic cases, the sooner you get medical attention, the better your chances are of full recovery.

Naturally, it's better to avoid exposure to toxic substances if at all possible. Become aware of your environment, both at home and at work, and try to avoid the toxic substances you become aware of. For more information check the Publications (p. 4).

Regulation of Exposure

Having learned what toxic substances can do to you and the places where you can be exposed, you may ask, "Why is the government not trying to protect me?" The answer is: There have been some efforts to do so. During the decade of the 1970's, the U.S. Congress passed many statutes designed to improve and enhance the quality of the environment, including the National Environmental Policy Act, the Clean Air Act, the Federal Water Pollution Control Act, and the Coastal Zone Management Act. In a period of two years, significantly many environmental issues were addressed through comprehensive and far-reaching legislation. During the implementation of these acts, there was identified a major area of concern which was not comprehensively addressed by the aforementioned statutes; namely, the control of toxic substances. This oversight soon became the subject of newspaper and television reports, scientific investigations, and Congressional hearings. Generally, this public scrutiny would focus upon a particular aspect of the issue: a train derailment that liberated a toxic gas, the contamination of the drinking water of a major city, or the disposal of hazardous wastes adjacent to a rural highway. In response, several laws governing hazardous materials and hazardous wastes were passed, each having a unique focus and approach to the problem of environmental contamination. This piecemeal approach to hazardous substances creates a complex and confusing regulatory framework that defies simple description.

continued on page 4



Most toxins don't come in boxes marked "Poison", which translates as "Gift" in German. Rather they look more or less harmless. Thus, one could easily be exposed to a toxin without knowing it!

PLACES OF TOXIC EXPOSURE

To use this table first look for the place you are interested in: your workplace or your home. Next, scan the "activity or product" column until you find one appropriate to you. The information in the next column will tell you the substances to look for and the basic effect of each substance: **P**-poison, **C**-carcinogen, **M**-mutagen, and **T**-teratogen.

SYMPTOMS OF TOXIC EXPOSURE

To use this table, look in the first column for the area of the body where you're having trouble; for example, the skin. Next, within the rows associated with that area (for skin, there are three), find your symptoms; say, redness and blisters. Finally ask yourself whether you have possibly been exposed to any toxic chemical listed in the third column. If so, your symptoms could have been caused by that toxic exposure, and you should so inform your doctor.

Activity or Product	Chemical/Effect
WORK	
Chemical Production or Process	Arsenic P/C Benzene P/C Carbon tetrachloride P/C Dioxin P/C/M Mercury P/T Toluene P Vinyl chloride P/C
Production or Use of Insecticides, Herbicides, or Fungicides	Arsenic P/C Dioxin P/C/M Formaldehyde P/C Lead P/T Chromates P/C Dibromochloropropane P/C Hexachlorobenzene P/T Lindane P
Use or Manufacture of Paints, Inks, or Solvents	Arsenic P/C Cadmium P/C Lead P Mercury P/T Chromates P/C Trichloroethylene P Toluene P Carbon tetrachloride P/C
Manufacture or Use of Electrical Equipment, Batteries, or Electrical Insulation Chemicals	Cadmium P/C Dioxin P/C/M Lead P/C Mercury P/T Polychlorinated biphenyl P/T (PCB) Vinyl chloride P/C
Grain Storage or Processing	Acrylonitrile P/T
Medical Laboratories and Hospitals	Benzidene (Dye) C/P/T Formaldehyde P/C Chloroform P Mercury P/T
Manufacture or Use of Building Materials	Asbestos C Dioxin P/C/M Vinyl chloride P/C Chromates P/C Polybrominated biphenyl P (PBB)
HOME	
Solvents, Thinners, and Cleaners	Carbon tetrachloride P/C Trichloroethylene P
Paints and Dyes	Benzidene P/C/T Lead P/T
Pesticides	Lead P Arsenic P Dioxin P Dibromochloropropane C (DBCP) Lindane P
Building Materials, Ceiling and Floor Tiles, and Insulation	Asbestos C Formaldehyde P/C Vinyl chloride P/C
Batteries	Cadmium P Lead P
Gasoline	Benzene P/C
Fluorescent Lights	Beryllium P
Ceramics	Lead P
Thermometers	Mercury P/T

Area	Symptoms	Possible Toxic Exposure To:
skin	redness dryness itching	solvents, plastics, epoxies, oil mist, fiberglass, caustic soda, metals (e.g., nickel), acrylonitrile, arsenic compounds, beryllium, chromates, hexachlorobenzene, formaldehyde, dibromochloropropane (DBCP)
	redness burns blisters	ultraviolet and infrared radiation, acids, acrylonitrile, ethylene dibromide, ethylene oxide, benzene, toluene, diamine
	yellow (jaundice)	carbon tetrachloride, vinyl chloride, arsenic
eyes	redness irritation watering	smoke, gases (e.g., ozone), fumes (e.g., ammonia), metal dusts, acids, acrylonitrile, methyl ethyl ketone, acrylamide, formaldehyde, PCBs
teeth and gums	corrosion of teeth	acid fumes, cellulose acetate production
	blue gums	lead poisoning
nose and throat	sneezing coughing sore throat runny nose	gases (e.g., ozone), ammonia, solvents, dusts, methyl ethyl ketone, alkyl phthalates, ethylene oxide, acrylonitrile, beryllium, cadmium, DBCP, formaldehyde
	nasal cancer (bleeding, pain)	wood dusts
	bleeding, pain	chromates, cadmium
chest and lungs	wheezing congestion dry cough	cotton dust, detergent enzymes, beryllium, solvents, ethylene oxide
	shortness of breath on mild exercise	long-term exposure to mineral dust (e.g., asbestos)
	flu-like symptoms	metal oxides from welding, beryllium
head	dizziness headache	solvents, degreasers, ozone, acrylamide, acrylonitrile, trichloroethylene
	sleepiness	carbon monoxide, solvents, ethylene dibromide, trichloroethylene
fingers	loss of circulation whiteness numbness swelling	vinyl chloride (from cleaning reactor tanks)
nervous system	stress nervousness irritability anxiety drowsiness tremors speech changes blurred vision mood changes muscle weakness numbness loss of appetite	lead, mercury, alkyl phthalates, trichloroethylene, acrylamide, arsenic compounds, benzene, carbon tetrachloride, chlorobenzene compounds, chloride, chloroform, dioxins, phosphates, PBBs
reproductive system	miscarriage	lead, pesticides, radiation, dioxins
	irregularities in menstruation	polystyrene production, PCBs
	damage to fetus or chromosomes	benzene, lead, radiation, dioxins
	sterilization	radiation, DBCP, tris
intestinal tract	nausea vomiting diarrhea	benzidene, arsenic compounds, acrylonitrile, cadmium, formaldehyde, phosphates

continued from page 2

These are the federal acts which regulate toxic substances:

- 1) Clean Water Act
- 2) Clean Air Act
- 3) Toxic Substances Control Act
- 4) Resource Conservation and Recovery Act
- 5) Safe Drinking Water Act
- 6) Occupational Safety and Health Act
- 7) Federal Insecticide, Fungicide, and Rodenticide Act
- 8) Acts Relating to Transport of Hazardous Materials
- 9) Comprehensive Environmental Response, Compensation, and Liability Act ("Superfund")

Several of these federal acts have prompted actions by the Texas Legislature. The resulting Texas laws addressing toxic substances are:

- 1) Solid Waste Disposal Act
- 2) Texas Clean Air Act
- 3) Texas Clean Water Act

These laws act to protect you to some extent from exposure to toxic substances in your home, your place of employment, and your environment in general. The list "Regulation of Exposure" summarizes each of the federal acts which provides regulations to protect you from exposure and identifies the agency responsible for enforcing the law.

If you feel that someone is violating these laws, you should contact the appropriate enforcing agency to get more information and to report the incident. For more information on regulation, see the part of this handbook entitled "Citizen Detectives: Levels of Involvement". ■

PUBLICATIONS

All of the following items can be found in the major public libraries in Galveston County: Rosenberg, 2310 Sealy, Galveston; Moore Memorial, 1701 Ninth Avenue North, Texas City; La Marque Public, 1011 Bayou; and League City Public, 100 West Walker. Items other than books are to be found in the vertical file.

- "A Toxic Substances Primer" (1979) and
- "Of Mice and Men: Health Risks and Safety Judgements" (1977), both available from the League of Women Voters, 1730 M St., N.W., Washington, D.C. 20036.
- *The Politics of Cancer* by Samuel Epstein, Sierra Club Books, San Francisco, 1978.
- *Hazardous Materials Emergency Response Guidebook 1980* (DOT—P 5800.2), U.S. Department of Transportation, Washington, D.C. 20590.
- "Toxic Information Series": Individual papers on dioxin, benzene, PBB, DBCP, cadmium, lead, mercury; Planning and Participation Systems, Oct. 1980.

- "Stayin' Alive: A Consideration of Toxics in the Workplace" (no date) and
- "Hazards of Toxic Substances on the Gulf Coast" (Nov. 1979), both available from Citizens' Environmental Coalition, 1 Main Plaza, Suite 1016, Houston, TX 77002.
- "A Brief Assessment of the Significance to Human Health of Occupational Exposure to Toxic Materials in the Upper Texas Gulf Coast Area", League of Women Voters of Houston, 1947 W. Gray, Suite 202, Houston, TX 77019.

REGULATION OF EXPOSURE

Federal and state laws act to protect you from exposure to toxic substances in four ways: 1) regulation of production, 2) regulation of distribution, 3) regulation of transportation, and 4) regulation of disposal. The following covers the federal laws concerning production and distribution and names the agency which should be contacted for further information. (Transportation and disposal are discussed in the next chapter.)

I. REGULATION OF PRODUCTION

Toxic Substances Control Act (TSCA)

TSCA regulates the production of materials defined as "toxic". The primary philosophy of this act is to prevent the production and dissemination of dangerous materials. If these materials are not produced, they cannot enter the environment. TSCA requires that analyses be conducted and submitted to the Environmental Protection Agency (EPA) prior to the production of new products, and requires detailed analyses of certain existing products. Depending upon the results of these analyses, the EPA determines whether the product may be produced.

Contact: EPA, Region VI
First International Building
1201 Elm Street
Dallas, TX 75270

Occupational Safety and Health Act (OSHA)

The second major statute applying to the production facility is OSHA, which is administered by the Occupational Safety and Health Administration of the Department of Labor and addresses the issue of worker safety. OSHA is extremely complex, but only a portion of the OSHA regulations concerns hazardous materials. The focal point of these regulations is the exposure of workers to hazardous or toxic materials. OSHA specifies worker exposure levels for various chemical substances and sets forth requirements for protective clothing and other precautionary measures to insure worker safety.

Contact: OSHA
1425 Pioneer
Suite 230
Irving, Texas 75061

II. REGULATION OF PRODUCT DISSEMINATION

Toxic Substances Control Act (TSCA)

In addition to the coverage previously discussed, TSCA has certain additional provisions related to the labeling of so-called "toxic" materials. The provisions of TSCA are similar to the FIFRA provisions discussed below except that TSCA covers substantially more materials than are subject to FIFRA. Under the terms and conditions of TSCA, pesticides are omitted from coverage, but otherwise TSCA provisions are comprehensive with respect to labeling of products for dissemination.

Contact: EPA (see above)

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

FIFRA requires that any substance intended for use as a pesticide be registered with the EPA. This preregistration authority is comprehensive for pesticides. Further, the EPA is empowered to regulate the packaging and storage of pesticides as well as their disposal. To date, the regulations that have been passed have been advisory rather than mandatory.

Contact: EPA (see above)

Hazardous Materials Transportation Act (HMTA)

HMTA vests the Department of Transportation (DOT) with the authority to protect the nation against the risk of transporting hazardous materials. Under this act, the DOT has the authority to pass regulations regarding the transport of hazardous materials, the establishment of criteria for handling hazardous materials, and the registration of hazardous materials. Included in this authority is the ability to specify packaging requirements. This act provides the major authority to regulate hazardous materials which are transported from one site to another.

Contact: U.S. Department of Transportation
Special Programs Administration
Washington, D.C. 20590



2. TOXIC WASTES

Where do they come from...
Where do they go?



Toxic wastes are unusable chemicals which are left over from various industrial, commercial, and household activities and which are harmful in at least one of the three ways discussed on page 1. Sources of toxic wastes vary from the by-products of chemical plants to leftover household cleaning fluid. Since most of these wastes cannot economically be used again, they must be disposed of in some way. Some products which contain toxic substances will give a warning on the label or list the chemicals in the contents. Thus, you can begin to be aware of such toxins in your environment. But this is seldom the case for toxic wastes. When they are packaged and transported for disposal, they often have no warning label or list of contents. Sometimes neither the producer nor the disposer knows the exact contents of the toxic waste. Thus, if the wastes are not transported and disposed of properly, you could be exposed to a toxic substance without being immediately aware of it. The following paragraphs examine where toxic wastes are generated, how they are transported, how they are disposed of, and the laws that regulate their transportation and disposal.

Generation

Galveston County, being a center for the petrochemical industry, has many locations where toxic wastes are generated. Some, such as the refineries, are very obvious. Others, like your local printshop, gas station, dry cleaners, or hospital, are not so obvious. Most of the toxic wastes in Galveston County are products of activities or businesses vital to the local economy, and sites of generation are located throughout the area. The map entitled "Hazardous Waste Sites" provides a list and shows the location of many of the generators of toxic wastes in the Galveston County area. You can use this map to find out what sites are close to your community. More information on each site can be found in the publication *Notification to EPA of Hazardous Waste Activities* (see Publications). The type of waste being produced at these sites is quite varied. The chart entitled "Typical Toxic Wastes" (p. 9) lists some of the toxic wastes generated in Galveston County. Seldom are these wastes found in a pure form. Rather they are mixed or found as traces in other wastes. This is one of the reasons that waste recycling is so difficult.

Transportation

In most cases, toxic wastes are not disposed of where they are generated; thus, they must be transported to the site of disposal. There are four basic methods for transporting toxic wastes: truck, train, barge, and pipeline. Transportation of wastes is usually uneventful, but occasionally an accidental spillage will occur. Generally barge canals and pipelines are located away from populated areas, so other than general environmental effects, little human exposure occurs. However, truck routes and railroad lines pass through heavily populated areas and an accident could become very serious. One important factor in the seriousness of such an accident will be your local community's ability to respond to such a situation. If you live or work near a route traveled by toxic waste transporters, you may want to find out how well your local government is prepared to handle such emergencies. If toxic wastes are transported through your community, then provisions should be made to handle accidental spills!

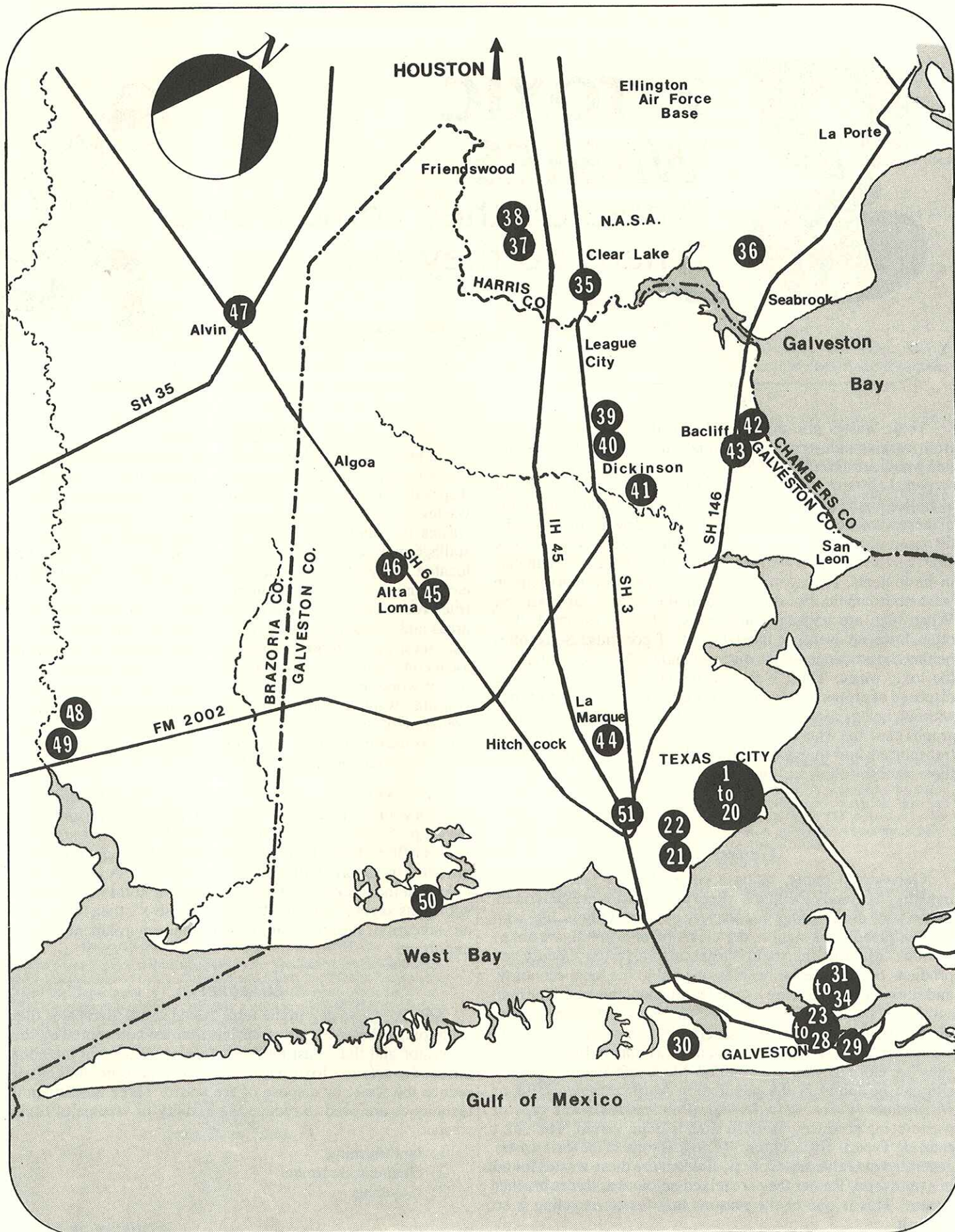
How can you tell if such substances are being transported through your community? You can get a good idea by looking at the map of generators and disposers and seeing if you live in between them. If so, there is a good chance that such substances are being transported through your community. Another way is to look at the trucks and trains in your area. If they are marked with signs saying "flammable" or "corrosive", then this is also an indication. Again, awareness of your environment is very important!

Disposal

The word "waste" in the term "toxic waste" indicates that such toxic substances are materials that are not wanted by the generator and thus must be "thrown away". Several methods are used to get rid of toxic wastes; basically these methods either reduce the waste or dispose of the waste. Three fundamental techniques are used to reduce the toxicity or volume of toxic wastes:

- 1) land farming
- 2) chemical treatment
- 3) recycling

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HAZARDOUS WASTE SITES IN THE GALVESTON COUNTY AREA

★=HAZARDOUS WASTE GENERATOR

■=HAZARDOUS WASTE DISPOSAL OR STORAGE



SITE CODE	COMPANY/TYPE	SITE CODE	COMPANY/TYPE
1.	AMOCO Chemicals ★ ■	27.	Sherwin Williams ★
2.	ARCO ★	28.	Western Marine ★
3.	Calgon ★ ■	29.	University of Texas Medical Branch ★■
4.	Coastal States Terminal ★	30.	Vi-Tex Packaging ★
5.	Dunn Heat Exchangers ★	31.	B.J. Hughes ★
6.	Enterprise Transportation ★	32.	Dowell Division Dow Chemical ★ ■
7.	GAF Corp. ★ ■	33.	Western Geophysical ★
8.	Groendyke Transport ★	34.	Todd Shipyards ★ ■
9.	Gulf Chemical and Metallurgical ★ ■	35.	Chem Spray, Inc. ★
10.	High Island Gathering System ★	36.	Dixie Chemical Co. ★ ■
11.	Liquid Carbonic ★	37.	Friendswood Refining ★ ■
12.	Lowry Tank and Terminals ★	38.	Dixie Oil Processors ■
13.	Marathon Oil ★ ■	39.	AMOCO Pipeline ★
14.	Monsanto ★ ■	40.	Mason & Dixon Tank Lines ★ ■
15.	Reagent Chemical and Research ★	41.	Marathon Oil ★
16.	Sea Lion Chemical ★ ■	42.	Houston Lighting & Power ★ ■
17.	Sherwin Williams ★	43.	Bacliff Truck Service ★
18.	StanTrans ★ ■	44.	Coastal Environmental Control ★ ■
19.	Texas City Refining ★ ■	45.	Mobil ■
20.	Union Carbide ★ ■	46.	Steeldip Galvanizing ★
21.	Malone Service ■	47.	Aztec Mercury ■
22.	Gulf Coast Waste Disposal ■	48.	Monsanto ★ ■
23.	Champion Building Products ★ ■	49.	AMOCO Chemicals ★ ■
24.	Duval Corp. ★	50.	McGinnis ■
25.	Galveston Main Waste Water Plant ■	51.	Motco/Texas City Wye ■
26.	Galveston Shipbuilding ★		(abandoned)

The foregoing is not meant to be a comprehensive listing of hazardous waste sites; rather, it is a listing of such sites selected from Notification to EPA of Hazardous Waste Activities (see Publications) and computer files of Texas Department of Water Resources (see Enforcement Agencies), and the Fire Marshall's Office, City of Galveston.

1 LOCATION AND CODE OF HAZARDOUS WASTE SITE

10
to
19

GENERAL LOCATION & CODES OF SEVERAL CONCENTRATED SITES



SCALE



10 miles

continued from page 5

Land farming or biological degradation uses biological processes to break the waste down into several less toxic forms. Only toxic wastes which are biologically degradable can be treated this way. This process is used as a pretreatment technique before ultimate disposal. Such an operation usually consists of spreading the toxic waste over the soil in a very thin layer. Bacteria then begin to break it down. Later the waste is scraped up and disposed of through some other technique.

Chemical treatment of toxic waste consists of chemically changing the toxic form to a nontoxic form. For example, sulfuric acid can be neutralized to water and a harmless salt. Not all toxic wastes can be treated this way. Generally this technique is used for liquid waste which is either discharged or disposed of in an injection well.

Recycling or reclamation is a technique which attempts to extract some economically useful chemical from the toxic waste, thus reducing the volume of the waste. Very few toxic wastes can be recycled. Toxic wastes from refineries are the most commonly recycled wastes. In some cases it is possible to refine benzene or diesel fuel from these wastes. However, in recent years research has begun to find ways to recycle many other toxic wastes, including residues that remain from ethylene-glycol and polyvinyl-alcohol production. Clearing houses or exchanges have been developed to help the toxic waste-producing industry make contacts with industry that could use the waste as a resource material. Many feel that this approach is the ultimate answer to the problems of toxic waste disposal.

Material that cannot be detoxified, reduced, or recycled must eventually be disposed of. There are four basic methods of disposal:

- 1) land filling
- 2) incineration
- 3) deep-well injection
- 4) discharging

Land filling can be compared to a cemetery for toxic waste. In a land-filling operation, toxic wastes are placed in a clay-lined pit. When the pit is full, it is covered with a layer of clay, thus effectively being buried. In theory, the waste stays in the pit until it is harmless, which may take hundreds of years. The clay is used to prevent leaching of the material into the ground water. In the past there has been much controversy about toxic wastes leaching out of such land fills.

Incineration of toxic waste consists of simply burning the waste at such a high temperature that the chemical is literally broken down into some harmless gases and solids. No incineration process eliminates the toxic waste completely. Some toxic waste is released to the air and some remains as ash. Some incineration processes, however, do reach the 99.9% destruction level. Many toxic wastes, such as heavy metals, cannot be disposed of this way.

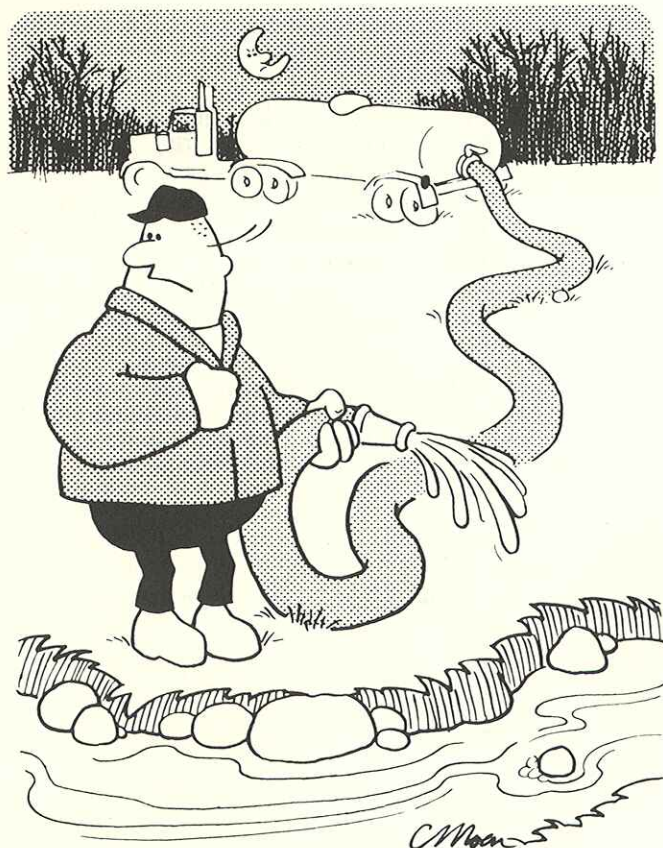
Disposal of toxic waste by **deep-well injection** consists of pumping the waste in a liquid form thousands of feet below the surface of the earth into a geologic formation where it will hopefully not escape. Proper measures must be taken during deep-well injection to keep from contaminating local ground water. Only toxic waste that can be put into a liquid form can be disposed of in this way.

Discharging is the releasing of toxic waste into a body of water, say, a river, a lake, or the sea. The biological systems of the natural environment are capable of assimilating small amounts of some toxic wastes. Federal and state regulatory agencies

permit the direct discharge of some wastes, but try to monitor the process. Recently there has been much controversy over the bioaccumulation and undocumented chronic effects of toxic wastes. Scientists are now beginning to discover that the concentration of toxic substances in many communities' drinking water is reaching alarming levels.

Unfortunately, not all toxic wastes are disposed of or reduced by one of the above methods. Occasionally they are dumped by the roadside in a now illegal process called "midnight dumping". For example, some individuals will contract to dispose of a load of toxic wastes and simply dispose of it in a nearby road ditch or leave it abandoned in a truck along a public road. Both public agencies and industrial representatives fear this is occurring more often. Prosecution is difficult in such situations because individuals almost have to be caught in the act. Keep your eyes open for midnight dumping!

Galveston County has examples of all these types of disposal techniques, including sites produced by midnight dumping and sites abandoned before laws were established to regulate disposal. Some of these sites may be near your community and you may not be aware of them. The map entitled "Hazardous Waste Sites" lists and shows the location of many of the major sites of toxic waste disposal or storage in the Galveston County area. More information on some of these sites can be found in the publication *Notification to EPA of Hazardous Waste Activities* (see Publications).



"Midnight dumping" is the now illegal process by which toxic wastes are simply dumped somewhere, say in a roadside stream. If you see it, report it to the authorities!

Regulation of Transportation and Disposal

Did you know that freshly laid pavement sealer on your road could actually be a spillage of toxic styrene tar? Or that what you think is simply ground water seeping through the floor of your house could be waste water laced with toxic PCBs? These examples may seem extreme and, to some extent, they are. But such incidents have been reported all across the country. You probably have even heard about a few in this area. In an effort to prevent such incidents, federal and state governments have adopted laws which regulate the transportation and disposal of toxic wastes. These laws are intended to insure that toxic wastes

are disposed of properly.

Hazardous waste disposal is addressed by four major federal acts and three major state statutes. Generally, most of the federal provisions are enforced through the state legislation. The list entitled "Regulation of Transportation and Disposal" (p. 10) summarizes these federal and state laws and gives the agency responsible for enforcement of them. If you want more information or feel someone is violating these laws, contact the appropriate agency. (For more information on enforcement, see the part of this handbook entitled "Citizen Detectives: Levels of Involvement.") ■

TYPICAL TOXIC WASTES

The following chemicals are produced or disposed of or both in Galveston County. Those marked with an asterisk (*) are fairly common. All these chemicals are hazardous, and most are toxic, but some are much more dangerous than others.

Acetaldehyde	* Cyclohexane	Hydrocyanic Acid	Phenol
* Acetone	Dichlorobenzene	* Hydrofluoric Acid	Phthalic Anhydride
* Acrylonitrile	Dichlorodifluoromethane	Hydrogen Sulfide	Polychlorinated Biphenyl (PCB)
Aminopyridine	Dichloroethane	* Isobutyl Alcohol	Potassium Cyanide
Aniline	Diethyl Phthalate	Lead Acetate	Propionitrile
Arsenic Acid	Dimethyl Sulfate	* Lead Anhydride	* Pyridine
* Asbestos	Dinitrophenol	Melphalan	Tetraethyl Lead
* Benzene	Dioxane	* Mercury	* Toluene
* N-Butyl Alcohol	* Ethyl Acetate	* Methanol/Methyl Alcohol	Toluidine Hydrochloride
Carbon Disulfide/Carbolic Acid	Ethyl Acrylate	Metha Ppyrene	Toluene Di-isocyanate
* Carbon Tetrachloride	Ethelene Oxide	* Methyl Ethyl Ketone	Trichlorofluoromethane
Carbonyl Fluoride	Ethyl Ether	* Methyl Isobutyl Ketone	Urethane
Chlorobenzene	Fluorotrichloromethane	Naphthalene	Vanadium Pentoxide
* Chloroform	* Formaldehyde	Nitric Oxide	* Vinyl Chloride
Chrysene	Formic Acid	Nitrobenzene	* Xylene
Cumene	* Hydrazine	* Pentachlorophenol (PCP)	

PUBLICATIONS

All of the following items except the first can be found in the vertical file of the public libraries in Galveston, Texas City, La Marque, and League City.

- **Notification to EPA of Hazardous Waste Activities: Region 6** (1981), U.S. Government Printing Office, Washington, D.C. 20402.
- "A Hazardous Waste Primer", League of Women Voters, 1980.
- "Hazardous Waste Control Efforts: A Frightful Mess", *Conservation Foundation Letter*, April 1980.
- "Transportation of Toxics",
- "Disposal of Hazardous Waste by Deep-well Injection", and
- "Resource Recovery from Toxic Wastes", all published by League of Women Voters of Houston.
- "Hazardous Waste Technology is Available",
- "Incineration, Deep Wells Gain New Importance", and
- "Burial is Last Resort for Hazardous Waste", all in *Science*, vol. 204, June 1, 15, and 22, 1979, respectively.
- "Hazardous Wastes: Your Community May Be in Trouble", *The American City and County*, Nov. 1978.
- "More Than a Hole in the Ground: A Primer on Injection Wells", Texas Environmental Coalition, Aug. 1978.

RESOURCES

Have questions? Need help? Want more information? Contact the following offices or companies:

Galveston County Health District
P.O. Box 939
1205 Oak Street
La Marque, TX 77568

Office of Toxic Substances
U.S. Environmental
Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Dept. of Environmental Health
University of Texas School of
Public Health
6905 Bertner, 6th Floor
P.O. Box 2018
Houston, TX 77025

State of Texas Poison Center
Room 125, Clinical Sciences Bldg.
University of Texas
Medical Branch
Galveston, TX 77550

Dept. of Preventive Medicine and
Community Health
University of Texas
Medical Branch
Galveston, TX 77550

Malone Disposal Services
21 21st Street
P.O. Box 709
Texas City, TX 77590

Gulf Coast Waste Disposal
Authority
910 Bay Area Blvd.
Houston, TX 77058

Browning Ferris Industries
P.O. Box 3151
Houston, TX 77058

Assistant Attorney General
1220 Dallas, Suite 202
Houston, TX 77002

REGULATION OF TRANSPORTATION AND DISPOSAL

The regulation of toxic wastes is established through four federal statutes. Generally, these federal laws are enforced through state laws, as indicated below. The following summarizes the laws and identifies the agencies responsible for enforcement.

Clean Water Act

The discharge of hazardous materials into the waters of the United States is subject to discharge standards set by the Environmental Protection Agency (EPA). The 1977 amendments to the Federal Water Pollution Control Act Amendments of 1972 (hereafter called the Clean Water Act) identified so-called "priority pollutants" for which EPA was to establish discharge standards. These discharge standards are implemented through the National Pollutant Discharge Elimination System (NPDES) created by Section 402 of the Act and represent binding limitations upon waste-water dischargers. Violations of these standards can lead to substantial civil and criminal penalties. Additionally, certain stream segments may have many sources of potentially hazardous materials, and dischargers along these segments may face standards which are more stringent than those applicable nationwide.

Contact: EPA, Region VI
First International Building
1201 Elm Street
Dallas, TX 75270

Safe Drinking Water Act

A major aspect of the Safe Drinking Water Act was the regulation of the use of underground injection wells for the disposal of hazardous materials. The major thrust of this regulatory program was to insure that wastes disposed through such wells do not contaminate underground sources of drinking water. The Safe Drinking Water Act created a permit requirement to regulate the use of such wells.

Contact: EPA (see above)

Texas Clean Water Act

Pursuant to the national Clean Water Act, the Texas Clean Water Act provides for the establishment by the Texas Department of Water Resources of discharge standards for toxic substances into natural waters. Enforcement of these standards is carried out by the Department of Water Resources, the Texas Department of Health, and the various county health districts.

Contacts: Department of Water Resources
District 7
4301 Center Street
Deer Park, TX 77536

Texas Department of Health
1100 West 49th Street
Austin, TX 78756

Galveston County Health District
P.O. Box 989
La Marque, TX 77568

Clean Air Act

The discharge of certain hazardous air pollutants is regulated by the provisions of the Clean Air Act. Dischargers of pollutants such as vinyl chloride and beryllium must demonstrate that emissions of these substances will not lead to ambient levels in excess of those set forth by the EPA. Emission limitations place additional limits on the discharge of these materials.

Contact: EPA (see above)

Texas Clean Air Act

The Texas Clean Air Act provides for the establishment of emission standards for toxic substances by the Texas Air Control Board.

Contacts: Texas Air Control Board
Region 7
5555 West Loop, Suite 300
Bellaire, TX 77401

Galveston County Health District (see above)

Resource Conservation and Recovery Act (RCRA)

RCRA is the most comprehensive of those statutes regulating hazardous waste disposal. RCRA was passed to eliminate a major loophole in the regulation of hazardous materials, whereby generators of hazardous wastes could dispose of these by-products by on-site disposal in open pits or dumps or by contracting with an outside firm to remove the wastes from the premises. RCRA created a permit program regulating disposal facilities for hazardous wastes and also created a manifest system to follow the path of wastes that are removed from the production facility. Additionally, various intermediate waste storage facilities are subject to RCRA regulations. RCRA was designed to provide "cradle-to-grave" regulation of hazardous wastes to eliminate injurious disposal practices.

Contact: EPA (see above)

Texas Solid Waste Disposal Act

This act is Texas' counterpart of RCRA, and regulates the storage, transportation, and disposal of hazardous waste. Municipal wastes are regulated by the Texas Department of Health. Industrial wastes are regulated by the Texas Department of Water Resources. The act establishes a manifest system for the transportation of waste in Texas and establishes a permitting system for storage and disposal.

Contacts: Texas Department of Health (see above)
Texas Department of Water Resources (see above)

The Regulation of Accidental Spills

Under Section 311 of the Clean Water Act, the discharge of oil and hazardous substances into the water of the United States is prohibited and the Administrator of the EPA is to promulgate regulations designating those substances which, when discharged into the waters, present an imminent and substantial danger to the public health or welfare. Additionally, a facility is to prepare Spill Prevention Contingency and Countermeasures (SPCC) plans identifying preventive measures undertaken by the facility to prevent and to address spills of both oil and hazardous substances. A facility must also report any spills of oil and hazardous substances to the Administrator of the EPA unless the spill is related to the transportation of hazardous substances. The U.S. Coast Guard has jurisdiction over transportation-related spills, including spills from vessels, railroads, tank trucks and pipelines. The philosophy of this section of the Clean Water Act is to prevent the accidental discharge of these materials into the waterways of the U.S.

Contacts (24-hour emergency response numbers):

National Pollution Response Center 1-800/424-8802

Environmental Protection Agency 214/767-2666

CHEMTREC 1-800/424-9300

Number provided by Chemical Manufacturers Association to put people at accident site in touch with the shipper for information regarding the chemical(s) involved.



3. CITIZEN DETECTIVES

Levels of Involvement



Many people are getting concerned about toxic substances for a variety of reasons and in a variety of ways. Some who are concerned about toxic substances in their workplace have formed groups to work with industry to reduce the risks of exposure; others who are concerned about abandoned waste sites have organized to have them cleaned up; and, finally, some have become involved in supporting legislation to insure safe and economical disposal of toxic wastes. If you are also concerned about some aspect of toxic substances, there are basically three ways you can become involved:

- 1) gain awareness of the issues
- 2) participate in the permitting and enforcement processes
- 3) participate in the law- and rule-making process.

Awareness

You don't need to become an expert! Just begin to understand the basic concepts and the jargon. As you become more aware, you will learn how toxic waste may affect you and your community. There is a great deal of information available concerning toxic substances. (See Publications for suggested reading.)

Another, perhaps less tedious way to become more aware of the issues is to become involved in one or more of the local groups which is interested in toxic waste. Sometimes these groups sponsor study sessions or forums to discuss the issues. You can either join or get on the mailing list so you can keep informed of these events. Then go, listen, and ask questions. Discussing the issues with other residents of your community will help you to see how toxic wastes affect your community. (See the list of "Local Interest Groups" and the accompanying directory.)

Another way to become informed is to get in contact with the state and national groups concerned with toxic substances. Some of these groups have regular newsletters or publications which discuss national issues and the experience of other communities. These publications may not only help you to become more aware, but also give you some insight into your local problems. (See the list of "State and National Interest Groups" along with the accompanying directory.)

Permitting and Enforcement Processes

If you want to become more actively concerned about possible exposure, disposal, or transportation of toxic wastes, then you may want to become involved in the regulatory process. It has only been during the last ten years that issues of toxic waste have received much attention. Recent phenomena such as Love Canal, the Texas City Wye, and those described in *Bitter Harvest* have prompted federal, state, and local legislative bodies to pass laws concerning the use, transportation, and disposal of toxic wastes in order to prevent such incidents from recurring. These laws have established a regulatory process which consists fundamentally of two parts, a

LOCAL INTEREST GROUPS

Galveston Sierra Club
c/o Peter Bowman
3716 Avenue O½
Galveston, TX 77550

League of Women Voters
of Galveston
35 Lebrun Dr.
Galveston, TX 77551

League of Women Voters
of Houston
1947 West Gray, Suite 202
Houston, TX 77019

Galveston Bay Conservation
and Preservation Assoc.
P.O. Box 323
Seabrook, TX 77586

Houston Toxic Substances
Task Force
c/o Citizen's Environmental
Coalition (p. 13)

Environmental Committee
Texas City/La Marque
Chamber of Commerce
625 Eighth Avenue North
Texas City, TX 77590

LOCAL OFFICIALS

For suggested contact persons currently on local elected bodies, check the directory inserted in this handbook. For general information, use the following addresses:

Galveston City Council
P.O. Box 779
Galveston, TX 77553

La Marque City Council
322 Laurel
La Marque, TX 77568

Texas City Commission
P.O. Box 3058
Texas City, TX 77590

Galveston County
Commissioners Court
722 Moody
Galveston, TX 77550

permitting process and an enforcement process.

Existing state and federal laws have established a process whereby industries must obtain a permit to store or dispose of toxic wastes. In Texas, a permit must be obtained from the Texas Department of Water Resources. Part of the law also states that if an individual requests a public hearing, then one must be held to solicit public testimony about the issuance of such a permit. It is at these public hearings that you can become most involved in the permitting process. You are not required to address the hearing examiner or to make a speech. You can submit written comments either at the hearing or by mail to the hearing examiner before the end of the comment period. There are several techniques which can be used to make your testimony more productive:

- 1) Be constructive. If you see problems with issuing the permit, suggest solutions or alternatives.
- 2) Be brief and to the point.
- 3) Don't read. However, you should turn in a prepared written statement.
- 4) Don't quote facts and figures you really don't understand.
- 5) Use actual examples or experience if you can.
- 6) Be sympathetic to economic and technical constraints as well as to environmental and social constraints.
- 7) Be realistic.
- 8) Encourage cooperation.
- 9) Speak loudly and clearly if you make a verbal statement.
- 10) Don't become overly emotional.
- 11) Don't be afraid to ask questions, but do not tie up the proceedings with a lot of questions.

To keep informed of permit applications in your community, you need to do three things: First, get on the Department of Water Resources mailing list. Second, let your local special interest groups or industries know that you are interested. Finally, watch the legal notices in your newspaper. Many of the federal, state, and local laws do establish rules regarding how toxic substances may be handled in the workplace, transported from one place to another, sold to the public, utilized by the public, and disposed of as waste. The basic intent of these rules is to prevent any toxic exposure to the public, either directly or through the environment. Such regulations are enforced locally by the County Health District, the Texas State Health Department, and the Texas Department of Water Resources. (A list of "Enforcement Agencies" is included.) It is these agencies' responsibility to see that regulations are obeyed.

However, as a rule, these agencies are not well funded, and just like the police, they rely on the public to make complaints about suspicious activities. So *you* also play an important role in enforcement of the law. What can you do? One thing you can do is become a citizen detective. First, you will need to become familiar with the rules or regulations. You don't need to be a lawyer or learn them word for word. Simply learn what the general rule is. For example, the rule may be that no one shall discharge more than 0.8 ppb hydrocarbons into a body of water, but all you need to know is that the dumping of raw waste oil into the bay probably doesn't conform to this rule. There are basically three ways you can become informed of the rules:

- 1) Ask the agencies responsible what the rules are.
- 2) Ask other community residents involved with toxic waste what the general rules are.
- 3) Read the law or the agencies' rules for yourself. (This is really the last resort!) Then ask questions.

Once you have some idea what the rules are, then you can

begin to watch for those breaking the rules. Become more aware of your environment. In the workplace watch what toxic substances you come in contact with and how they are handled. At home watch what chemicals you use. In your community watch for suspicious activity which would suggest "midnight dumpers" or other violations of the rules. Then call and report it to the proper agency. Tell where you saw the apparent violation, when you saw it, what you saw, and if possible who did it. Don't approach the violators yourself; let the agencies do the enforcing.

The Law- and Rule-Making Process

If your concern goes beyond just simple awareness or enforcement of existing laws, and you feel that perhaps not enough is being done to protect workers or the environment from exposure to toxic wastes, then you may want to get involved in the law- and rule-making process. The enactment of laws concerning toxic waste can occur at all levels of government: federal, state, and even local. However, this process can be divided into two tasks: enactment of laws, which is done by a legislative body, and creation of standards and procedures (rules), which can be done by either a legislative body or designated agencies.

Creation of laws at the federal and state levels involves the passage of a bill by both houses of the legislature and its signing by the chief executive. Creation of laws at the local level in Galveston is not as difficult. Laws are created by passage of an



Joe Citizen Toxic Waste Detective

ordinance by the County Commissioners or City Council. Officially, the law-making process begins with the introduction of a bill or an ordinance, but actually it begins long before. Most elected officials depend on their constituents to help them identify community problems and solutions. Thus you can play an important role in the legislative process by helping to identify the problem and a solution. By keeping your legislative representative informed of your concern and of the issues, he or she will be better able to introduce legislation that meets your concern. (A list of "Federal and State Legislators" is included in the directory.) Once legislation is introduced, your continued support is necessary. To keep informed of current legislative events, you may want to be on the mailing list of some of the special interest groups which monitor the federal and state legislatures (see the two lists of "interest groups").

Local governments (city and county) are often overlooked when issues of toxic waste are discussed because of their limited ability for sophisticated monitoring or regulation. However, city and county governments do have some authority to regulate the use, transportation, or disposal of toxic substances, and can act more quickly than higher levels of government. Thus they can

often move quickly to address specific community concerns, which may otherwise go unresolved. So do not hesitate to discuss your concerns with local officials. (A list of some local officials is included; use it with the accompanying directory.)

The key to being involved in the legislative process is to keep in touch with the legislators. Write them! It only costs 20¢. Send a mailgram at 10¢ a word. Send a telegram or telephone. You may also want to testify before a committee to support or oppose specific bills. Regardless of what you do, make your concerns known.

The creation of standards and procedures is an essential part of the rule-making process. Often they are established during the legislative process. Sometimes, however, a government agency is charged with establishing them. In this case the agency is usually required to publish the standards for comment and sometimes hold a public hearing. It is important, even after a law has been enacted, to make your concerns known to the various agencies involved and review the standards proposed. Again, it is helpful to be on the mailing lists of interest groups and agencies. ■

PUBLICATIONS

All of the following items can be found in the vertical file of the public libraries in Galveston, Texas City, La Marque, and League City.

- "The Toxic Substances Dilemma: A Plan for Citizen Action", National Wildlife Federation, Dept. TC, 1412 16th St., N.W., Washington, D.C. 20036.
- "The Case of the Workplace Killers: A Manual for Cancer Detectives on the Job"; International Union, United Automobile, Aerospace and Agricultural Implement Workers of America, UAW; 8000 E. Jefferson, Detroit, Michigan 48214, Nov. 1980
- "Hunt the Dump", Environmental Action Inc. and Sierra Club.
- "Protecting the Environment: What We're Doing About It", Chemical Manufacturers Association, 1825 Connecticut Ave., N.W., Washington, D.C. 20009.
- "Everybody's Problem: Hazardous Waste" (SW-826),
- "What is Waste Alert?" (SW-814), and
- "Waste Alert" (SW-810),
all published by U.S. Environmental Protection Agency, Washington, D.C. 20460, 1980.

STATE AND NATIONAL INTEREST GROUPS

Citizens' Environmental Coalition
1 Main Plaza, Suite 1016
Houston, TX 77002

Texas Committee on
Natural Resources
4144 Cochran Chapel Rd.
Dallas, TX 75209

Lone Star Chapter
Sierra Club
P.O. Box 1931
Austin, TX 78767

League of Women Voters
1730 M Street, N.W.
Washington, D.C. 20036

Environmental Action Inc.
1346 Connecticut Ave., N.W.
Washington, D.C. 20036

Concern, Inc.
1794 Columbia Rd., N.W.
Washington, D.C. 20009

Urban Environment Conference
1302 18th Street, N.W.
Washington, D.C. 20036

Environmental Defense Fund
1525 18th Street, N.W.
Washington, D.C. 20036

Health Research Group
2000 P Street, N.W.
Washington, D.C. 20036

Environmental Cancer
Prevention Center
1315 Walnut St., Suite 1600
Philadelphia, PA 19107

LEGISLATORS' ADDRESSES

For the names and telephone numbers of your current state and federal legislators, check the directory inserted in this handbook.

Texas Representatives

Rep. . . . (Full Name)
Texas House of Representatives
P.O. Box 2910
Austin, TX 78769

Texas Senators

Texas Senate
P.O. Box 12068
Austin, TX 78711

United States Representatives

Rep. . . . (Full Name)
U.S. House of Representatives
Washington, D.C. 20515

United States Senators

Senator . . . (Full Name)
U.S. Senate
Washington, D.C. 20510

ENFORCEMENT AGENCIES

LOCAL

Galveston County
Health District
1205 Oak Street
P.O. Box 939
La Marque, TX 77568

Harris County
Pollution Control Dept.
107 North Munger
P.O. Box 6031
Pasadena, TX 77506

STATE

Texas Air Control Board
Region 7
5555 West Loop, Suite 300
Bellaire, TX 77401

Texas Dept. of Water
Resources, District 7
4301 Center Street
Deer Park, TX 77536

Texas Dept. of Health
1100 West 49th Street
Austin, TX 78756

Assistant Attorney General
Attorney General's Office
1220 Dallas, Suite 202
Houston, TX 77002

FEDERAL

Environmental Protection
Agency
Region VI Office
First International Bldg.
1201 Elm Street
Dallas, TX 75270

Occupational Safety and
Health Administration
1425 Pioneer, Suite 230
Irving, TX 75061

U.S. Coast Guard
601 Rosenberg Avenue
Galveston, TX 77550

U.S. Environmental
Protection Agency
Office of Toxic Substances
401 M Street, S.W.
Washington, D.C. 20460

Occupational Safety and
Health Administration
3rd St. and
Constitution Ave., N.W.
Washington, D.C. 20210

U.S. Dept.
of Transportation
Materials Transportation
Washington, D.C. 20590

GLOSSARY OF COMMON TERMS

- Acute Toxicity:** Any poisonous effect that is produced by a single short-term exposure and that results in severe biological harm or death.
- Asbestos:** A mineral fiber that can pollute air or water and cause cancer if inhaled or ingested.
- Beryllium:** A metal that can be hazardous to human health when inhaled. It is discharged by machine shops, ceramic and propellant plants, and foundries.
- Bioaccumulation:** Absorption and storage of toxic chemicals from the environment in an organism. Often due to the solubility of chemicals in body fats.
- Bioconcentration:** The process by which toxic pollutants from food sources are stored and concentrated within living organisms. Contaminated foods are digested, but the toxins remain and are stored. The concentration depends on rates of intake and excretion, reaching levels over time of 2 to 1000 times the level of the food source.
- Biodegradable:** The capacity to be broken down into component substances by natural action over a relatively short time.
- Biological Stain:** Chemical used in biological tissue analysis; known for particular color it produces.
- Bromine:** Nonmetallic element, a liquid volatilizing rapidly at room temperature to an irritating vapor; used in chemical synthesis.
- Bromochloromethane:** Volatile, non-flammable liquid used in fire extinguishers and as a solvent in organic synthesis. Has narcotic action of moderate intensity, but for prolonged duration. Causes kidney and liver damage, gastrointestinal upset.
- Cadmium:** A heavy metal element that accumulates in the environment.
- Carcinogenic:** Cancer-producing.
- Chlorinated Hydrocarbons:** A class of persistent, broad-spectrum insecticides, notably DDT, that linger in the environment and accumulate in the food chain. Other examples are aldrin, dieldrin, heptachlor, chlordane, lindane, endrin, mirex, benzene hexachloride, and toxaphene.
- Chronic Toxicity:** A poisonous effect resulting from long-term exposure to low dosages of toxic substances. Changes are usually subtle. See also "acute" and "subacute toxicity".
- Contact Pesticide:** A chemical that kills pests when it touches them, rather than by being eaten (stomach poison).
- DDT:** The first chlorinated hydrocarbon insecticide (chemical name: *dichlorodiphenyl-trichloro-ethane*). It has a half-life of 15 years and can collect in fatty tissues of certain animals. In 1972 EPA banned registration and interstate sale of DDT for virtually all uses in the U.S. because of its persistence in the environment and accumulation in the food chain.
- Dermal Toxicity:** The ability of a pesticide or toxic chemical to poison people or animals by touching the skin.
- DES (Diethylstilbesterol):** A synthetic estrogen used as a growth stimulant in food animals. Residues in meat are thought to be carcinogenic.
- Detoxification:** The process of making a substance nonpoisonous.
- EPA:** Environmental Protection Agency
- Experimental Carcinogen, Mutagen, Teratogen:** Producing the specified toxic effect in experimental animals, but not in man, so far as is known.
- Fluorides:** Gaseous, solid or dissolved compounds that contain fluorine and that result from industrial processes.
- Fluorocarbons:** A gas used as a propellant in aerosols, thought to be modifying the ozone layer in the stratosphere, thereby allowing more harmful solar radiation to reach the Earth's surface.
- Fumigant:** Any volatile or volatilizable chemical compound used as a disinfectant or pesticide.
- Generic Testing:** Applying the results of testing one particular chemical to others of the same general family, in order to preliminarily screen for further testing.
- Germicide:** Any compound that kills disease-carrying microorganisms. These must be registered as pesticides with EPA.
- Hazardous Air Pollutant:** Air-borne substances causing or contributing to illness or death; asbestos, beryllium, mercury, and vinyl chloride.
- Hazardous Waste:** Waste materials which by their nature are inherently dangerous to handle or dispose of, such as old explosives, radioactive materials, some chemicals, and some biological wastes; usually produced in industrial operations.
- Heavy Metals:** Metallic elements—like mercury, chromium, cadmium, arsenic, and lead—with high molecular weights. They can damage living things at low concentrations and tend to accumulate in the food chain.
- Herbicide:** A chemical that controls or destroys undesirable plants.
- Hydrocarbons:** Compounds that are found in fossil fuels, that contain carbon and hydrogen, and that may be carcinogenic.
- Hydrazine:** Inorganic chemical used as a reducing agent and in rocket fuel; skin and mucous membrane irritant, can cause liver and blood damage.
- Inorganic Chemical:** A chemical which does not contain carbon.
- Irritant:** A chemical which stimulates an inflammatory response, such as in skin, eyes, intestines, lungs, mucous membranes, etc.
- Lagoon:** A shallow pond where sunlight, bacterial action, and oxygen work to purify waste water.
- Latency:** The time lag between exposure to a toxic substance and the onset of symptoms, especially important in the case of cancer.
- Leachate:** The liquid that has percolated through soil or other medium.
- Leaching:** The process by which nutrient chemicals or contaminants are dissolved and carried away by water, or are moved into a lower layer of soil.
- Lead:** A heavy metal, highly toxic if breathed or swallowed. It can accumulate in the environment.
- Midnight Dumping:** Illegal dumping of toxic wastes.
- Mutagen:** Any substance causing changes in the genetic structure. The effects of such changes are seen in subsequent generations.
- Neoplasm:** A new and abnormal formation of tissue, as a tumor or growth; may be benign or cancerous.
- Neurotoxin:** Poison which affects the brain or nervous system.
- Nitrosamines:** Any of a series of compounds with the type formula R_2NNO . (Radical + Nitros + Amine).
- Non-Ferrous Metals:** Metals other than iron.
- Organic:** Referring to or derived from living organisms. In chemistry, any compound containing carbon.
- OSHA:** Occupational Safety and Health Act or Administration.
- Ozone (O_3):** A pungent, colorless, toxic gas contributing to photochemical smog.
- Particulates:** Fine liquid or solid particles—such as dust, smoke, mist fumes, or smog—found in the air or emissions.
- PBBs:** Polybrominated biphenyls: synthetic organic chemicals containing bromine, which are foreign to most biological systems and therefore toxic.
- PCBs:** Polychlorinated biphenyls: a group of toxic, persistent chemicals used in transformers and capacitors. Further sale or new use was banned in 1979.
- Persistence:** Long-lasting existence of a substance in the environment before chemical breakdown or biodegradation occurs. Some pollutants remain dangerous indefinitely.
- Pesticide:** Any substance used to control pests ranging from rats, weeds, and insects to algae and fungi. Pesticides can accumulate in the food chain and can contaminate the environment if misused.
- Pesticide Tolerance:** The amount of pesticide residue allowed by law to remain in or on a harvested crop. By using various safety factors, EPA sets these well below the point where the chemicals might be harmful to consumers.
- Phenols:** Organic compounds that are by-products of petroleum refining; textile, dye and resin manufacture. Low concentrations can cause taste and odor problems in water; higher concentrations can kill aquatic life.
- Polyvinyl Chloride:** A plastic that releases hydrochloric acid when burned.
- ppb:** parts per billion.
- ppm:** parts per million: used in reference to the amount of one substance in another, as the amount of a pollutant in water.
- Residue:** That which remains after a part is taken, disposed of or gone; a quantity of matter remaining after evaporation, combustion or some other process.
- Resource Recovery:** The process of obtaining matter or energy from materials formerly discarded; for example: solid waste, wood chips.
- Risk Assessment:** Detailed analysis of the health, social, economic and environmental risks entailed in the use of a given substance, and the impacts of various control options, including no control.
- Selective Pesticide:** A chemical designed to affect only certain types of pests, leaving other plants and animals unharmed.
- Solid Waste:** Useless, unwanted, or discarded material with insufficient liquid to be free-flowing.
- Subacute Toxicity:** Any poisonous effect produced by a low-dosage exposure over a short period of time. See also "acute" and "chronic toxicity".
- Sulfur Dioxide (SO_2):** A heavy, colorless gas formed primarily by the combustion of fossil fuels. This major air pollutant is unhealthy for plants, animals, and people.
- Synergism:** A cooperative action of two substances that results in a greater effect than both of the substances could have acting independently.
- Systemic Effects:** Effects on the systems and organs of the body, i.e., heart, circulation, lungs, liver, skin, kidneys, etc.
- Teratogenic:** Causing non-inheritable malformations or serious deviations from the normal type in or on animal embryos or fetuses.
- Toxic:** Poisonous; a substance that causes adverse health and/or environmental effects.
- Toxic Substances:** A chemical or mixture that may present an unreasonable risk of injury to health or the environment.
- Toxicant:** A chemical that controls pests by killing rather than repelling them.
- Toxicity:** The degree of danger posed by a substance to animal or plant life.
- Trihalomethane:** This chemical is formed as a result of any organic matter (including that which naturally occurs in any water supply) combining with chlorine, which is a disinfectant in water treatment. This produces a group of recognized carcinogens, including chloroform.
- Vinyl Chloride:** A chemical compound used in producing some plastics. Excessive exposure to this substance may cause cancer.
- Volatilization:** The process by which a substance is released into the air as a vapor.