United States
Evironmental Protection
Agency

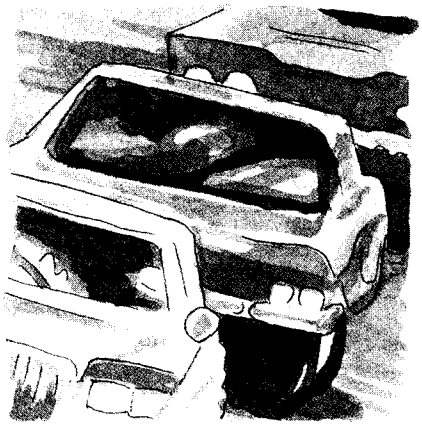
Solid Waste and
Emergency Response
(OS-305)

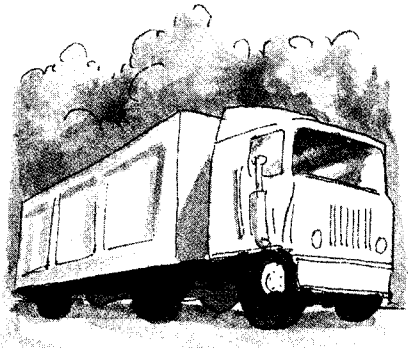
EPA530-R-92-026
August 1993

EPA

Household Hazardous Waste Management

A Manual for One-Day Community Collection Programs





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ABOUT THIS HANDBOOK

This handbook is designed to help communities plan and operate a successful household hazardous waste (HHW) collection program. The handbook focuses on one-day drop-off programs. Other types of HHW collection programs—permanent, mobile, and special-are not discussed in detail.

The handbook is intended for community leaders and HHW collection program organizers. It provides guidance for all aspects of planning, organizing, and publicizing a HHW collection program. It does not provide technical information about the treatment, disposal, or transport of HHW. These jobs are performed by professional contractors or others with specialized training. The manual includes information about selecting a qualified hazardous waste contractor

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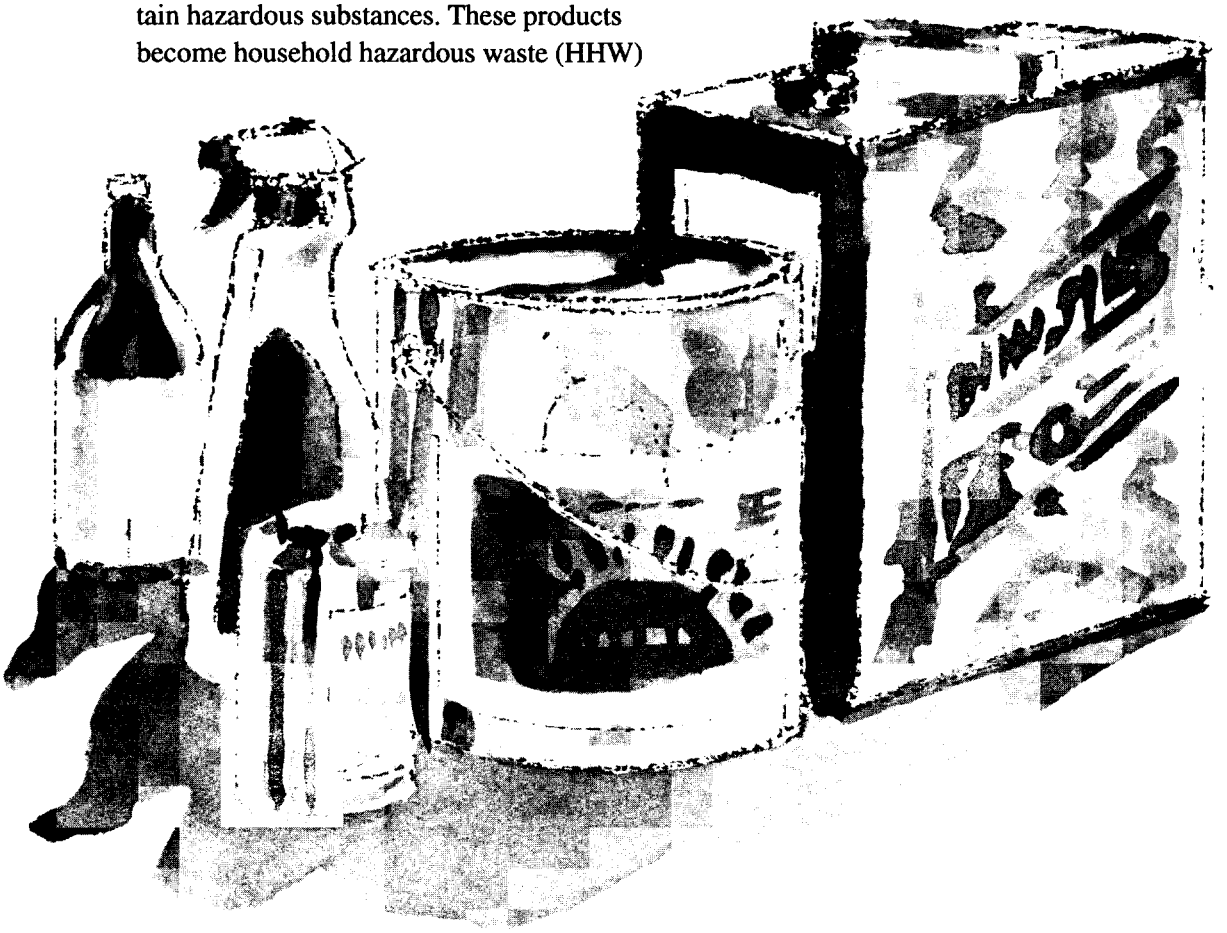
INTRODUCTION

What Is Household Hazardous Waste?

Many common household products contain hazardous substances. These products become household hazardous waste (HHW) once the consumer no longer has any use for them. The average U.S. household generates more than 20 pounds of HHW per year. As much as 100 pounds can accumulate in the



home, often remaining there until the residents move or do an extensive cleanout.

Hazardous waste is waste that can catch fire, react, or explode under certain circumstances, or that is corrosive or toxic. The U.S. Environmental Protection Agency (EPA) has set stringent requirements for the management of hazardous waste generated by industries. Some HHW can pose risks to people and the environment if it is not used, stored carfully, and disposed of properly. However, Congress chose not to regulate it because regulating every household is simply too impractical.

Government and industry are working to develop consumer products with fewer or no hazardous constituents. However, for some products, such as car batteries and photographic chemicals, no "safe" substitutes exist. So, communities will need effective HHW management programs for some time to come.

Communities Find Solutions

HHW programs can benefit communities in several important ways. They can reduce the risks to health and the environment resulting from improper storage and disposal of HHW. They can reduce communities' liability for the cleanup of contamination resulting from improper HHW disposal. Finally, HHW programs can increase community residents' awareness of the potential risks associated with HHW and promote a

Common Household Hazardous Wastes

(These items, and others not included on this list, might contain materials that are ignitable, corrosive, reactive, or toxic.)

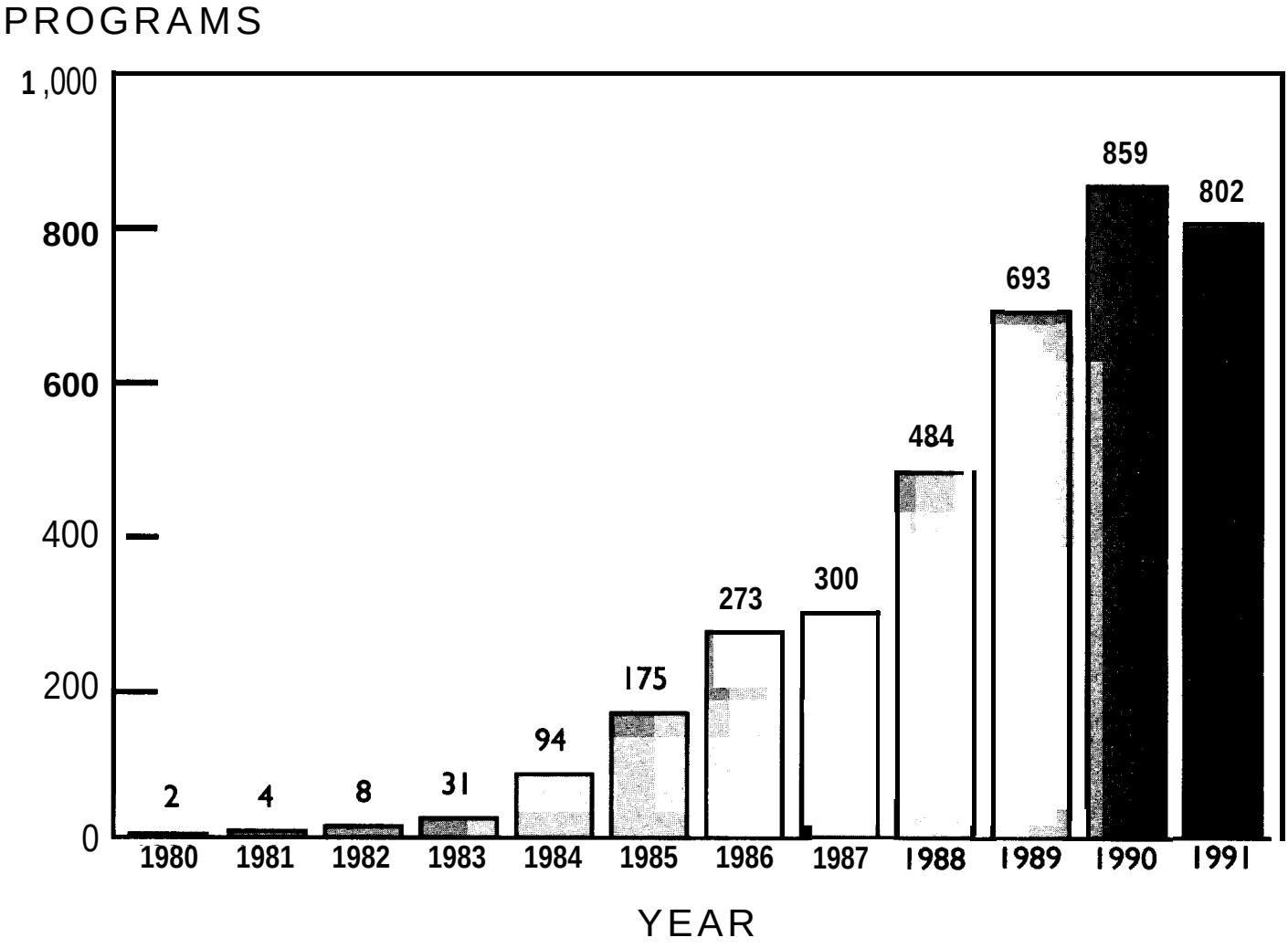
- **Drain openers**
- **Oven cleaners**
- **W and metal cleaners and polishers**
- **Automotive oil and fuel additives**
- **Grease and rust solvents**
- **Carburetor and fuel injection cleaners**
- **Air conditioning refrigerants**
- **Starter fluids**
- **Paint thinners**
- **Paint strippers and removers**
- **Adhesives**
- **Herbicides**
- **Insecticides**
- **Fungicides/wood preservatives**

Source: A Survey of Household Hazardous Wastes and Related Collection Programs, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency. EPA/530-86-038.

better understanding of waste issues in general.

Many communities have established programs to manage HHW. The impetus for starting a HHW program can come from the grassroots level, from local or state government agencies, from community groups, or from industry. The number of HHW collections in the United States has grown dramatically over the last decade. Since 1980, when the first HHW collection was held, more than 3,000 collection programs have been documented in all 50 states.

Although programs vary across the country, most include both educational and collection components. Communities usually



Number of HHW Collection Programs in the United States, 1980-1991.
SourceWaste Watch Center, Andover, Massachusetts, 1991.

begin a HHW program by holding a single-day drop-off HHW collection. Organizing a collection event is an important first step in reducing and managing risks associated with HHW.

Some communities hold annual or semiannual collections, while others have established permanent HHW collection programs with a dedicated facility (open at least once each month) to provide households with year-round access to information and repositories for HHW. By 1991,96 permanent HHW collection programs were operating in 16 states. In addition, communities have initiated pilot programs for curbside pick-up by appointment, neighborhood curbside collection programs, and drop-off programs for specific types of HHW.

The efforts of communities across the country provide a wealth of experience for other communities beginning HHW management programs. As the number of these programs continues to grow, public awareness about HHW will also grow, and the environmental problems associated with improper storage and disposal of HHW are likely to decrease.

SECTION ONE

Getting Started

Planning for your first HHW collection must begin very early-as long as 6 to 18 months before a projected HHW collection date. See box for a sample timeline for planning the HHW collection. In addition, the case studies presented in Section 11 describe how two communities successfully planned HHW collection days.

Define Roles and Responsibilities

Although one person can be the catalyst for beginning a community program, the success of the program depends on the involvement of a variety of individuals and organizations. A key initial step in planning the program is identifying who should be involved and defining their roles and responsibilities.

The Planning Committee

The most important step in beginning a program is enlisting a core group of people who can assemble the needed resources and manage the program. The planning committee can perform or oversee many different functions, such as:

- Providing background information.
- Setting policy and goals.
- Obtaining finding and other resources.
- Championing the program in the community.
- Supervising a sponsor.

The process of forming a planning committee can begin at a meeting of community officials and interested members of the public where they can discuss instituting a HHW management program. Telephoning influential community members and placing announcements in the local media can help boost attendance at the meeting.

If sufficient support for a program exists, the people gathered can choose a program coordinator, form a planning committee and subcommittees, and begin planning the program. The planning committee usually includes solid waste, health, public safety, and planning officials; legislators; members of citizen groups; and representatives from local business and industry.

The HHW Program Sponsor

Every community HHW management program needs a sponsor or co-sponsors. Usually the sponsor is a government agency, but some programs are sponsored by a civic organization or a business. The sponsor's role includes:

- Managing and funding all aspects of the program.
- Developing Requests for Proposals (RFPs) and contracts with a licensed hazardous waste contractor.
- Recruiting, managing, and delegating responsibilities to supporting agencies and staff.
- Involving community leaders and residents in planning and implementing the program.

The Hazardous Waste Firm

Most communities contract with a qualified hazardous waste firm that handles the HHW at the collection site and brings it to a hazardous waste treatment storage, and disposal facility (TSDF). If you hire a hazardous waste contractor to handle the HHW collection, be sure to choose a firm or firms licensed to store, transport and dispose of HHW according to federal and state requirements. Hazardous waste contractors might not need to be fully licensed (see Appendix A) to perform the duties your contract requires. Licensing, however, helps to ensure that the contractor is experienced. The roles of the

contractor are spelled out in the contract and can include:

- Providing necessary materials and equipment.
- Properly training its collection staff.
- Obtaining necessary insurance.
- Consulting with the program planners about waste management methods to be used.
- Identifying appropriate hazardous waste TSDFs.
- Providing necessary services on collection day, such as unloading wastes from vehicles; screening, packaging, testing, and labeling wastes; supervising volunteer personnel; and hauling and disposing of the waste.
- Complying with all applicable federal, state, and local requirements.
- Submitting post-collection reports.

Information on selecting a contractor is provided in Section 6.

HHW Collection Program Timeline

6 to 18 Months before Collection

- Establish planning committee
- Identify program goals
- Select program sponsor and cosponsors
- Contact environmental regulatory agencies
- Begin designing education program
- Initiate community outreach
- Research laws, regulations, and guidelines
- Determine collection methods
- Set tentative collection date(s)
- Select potential sites
- Initiate public education program
- Determine targeted wastes/excluded wastes/generators
- Estimate costs
- Secure funding
- Issue Requests for Proposals (RFPs)

• to S Months before Collection

- Evaluate RFP submissions
- Interview contractors
- Select contractor
- Identify markets for reusable and recyclable HHW
- Involve emergency services (fire, police, etc.)
- Begin publicizing collection program
- Obtain permits

6 to 12 Weeks before Collection

- Design site layout and draw site plan
- Develop collection day procedures/written plan
- Identify/order equipment
- Arrange disposal and recycling of nonhazardous material brought in
- Continue education and intensify publicity efforts
- Solicit volunteers
- Acquire insurance
- Develop collection day surveys

0 to 6 Weeks before Collection

- Receive equipment and supplies
- Conduct worker training/safety training
- Complete publicity campaign
- Confirm police/emergency service involvement

Collection Day

- Set up site
- Orient community staff and volunteers
- Complete participant questionnaires
- Receive, package, and ship HHW
- Clean up site

Post-Collection Day

- Tabulate survey responses
- Evaluate collection/public education results
- Publicize results
- Thank participants and volunteers through the media
- Write summary report
- Prepare for future events

Involve the Community

Community involvement is critical to the success of a HHW management program. Government agencies, community groups, local legislators, businesses, industries, and concerned citizens should be involved from the start. They can promote the HHW program in a number of ways:

Building acceptance for the program

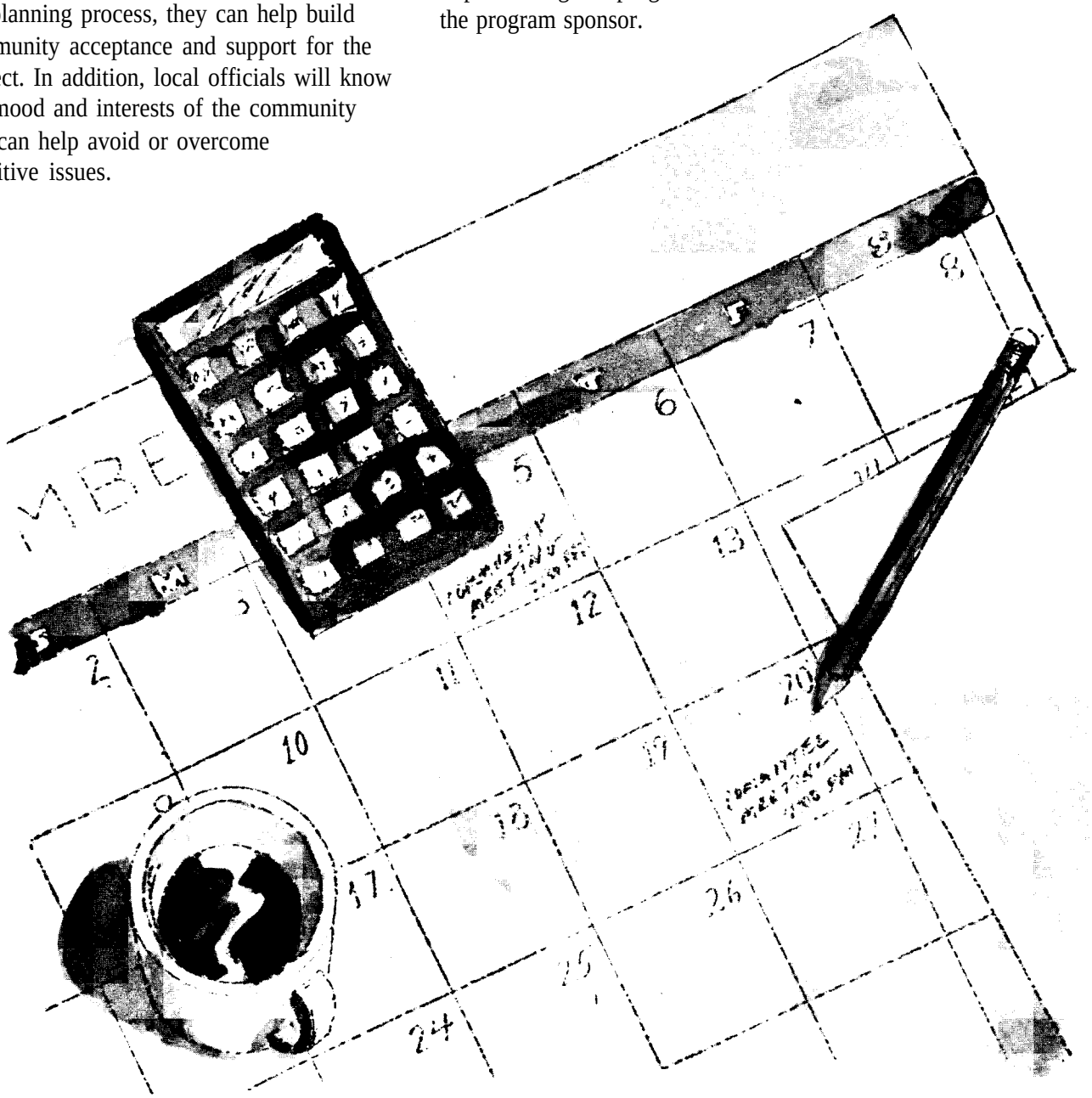
If key community leaders participate in the planning process, they can help build community acceptance and support for the project. In addition, local officials will know the mood and interests of the community and can help avoid or overcome sensitive issues.

Developing a sense of community 'ownership"

People involved in planning and implementing a project will feel that the program belongs to them. Community ownership helps to ensure greater participation on collection day as well as community pride about the outcome of the event.

Providing community assistance

Volunteer groups and residents often can contribute expertise or resources and can share the responsibilities of planning and implementing the program with the program sponsor.



Providing leadership on HHW issues

The more community leaders learn about managing and reducing HHW, the more likely they will be to support an ongoing or permanent program. Many community leaders also will alter their buying and disposal practices, becoming examples for the community.

Assemble the Facts

Members of the planning committee should conduct background research during the program's early planning stages. At least a month or two is needed to acquire the information necessary to plan the program and inform the community. This research can be conducted by planning committee members, who can provide important information in their own areas of expertise:

- **Health department officials** can provide technical data (such as material safety data sheets) about specific hazardous materials.
- **Police and safety officials can** provide procedures for handling materials and for preventing and managing accidents (such as site selection procedures and traffic management).
- **Legislators and public officials can** provide relevant regulations and guidelines.
- **Public interest groups can** provide site selection considerations, media contacts, informational materials, and procedures for volunteer recruitment.
- **Businesses can** provide information about sources of funding and material and equipment donations.
- **Educators can** provide curricula and audiovisual materials.

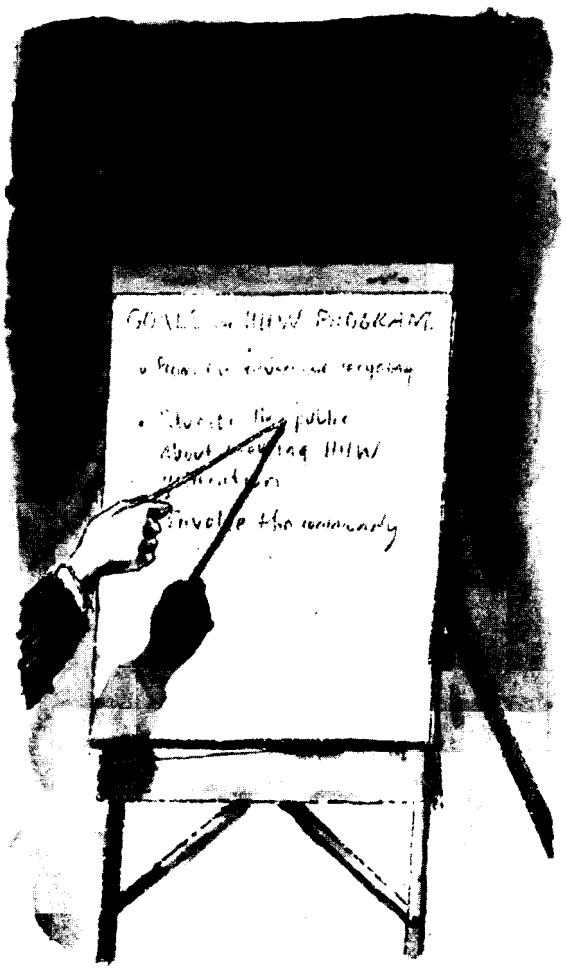
It is essential that the sponsor and the planning committee learn about the federal, state, and local regulations that apply to their HHW management program as well as the steps they can take to minimize liability. It is important to note that state regulations might be more stringent than federal hazardous waste management regulations. For example, states might require HHW collection programs to obtain operating permits. Local governments also might have applicable requirements, such as zoning laws or building codes. These issues are discussed in Section 4 and Appendix A. The sponsor or planning committee should review current literature, attend conferences or workshops about managing HHW, if possible, and contact the state hazardous waste management agency, the EPA regional office, and local agencies (see Appendix B).

It is also important to anticipate the types of wastes to be collected, since different types of HHW present different transport and handling requirements. The type of accumulated HHW is strongly influenced by whether the community is in an urban, suburban, rural, or agricultural area. For example, an agricultural area might generate large quantities of pesticides. Pesticides are among the most expensive wastes to dispose of. HHW programs in rural or agricultural areas, therefore, might be more expensive than programs in urban or suburban areas. Collection programs in environmentally proactive communities usually will have higher participation and collection rates than programs in less environmentally active communities.

Establish Goals

Every HHW management program needs clear, realistic goals and feasible ways of achieving them. Typical program goals include:

- **Maximizing public participation.** By maximizing participation in the HHW program, the quantity of hazardous materials will be reduced in both the solid waste stream and the wastewater stream. Greater participation will mean higher costs for the community in the short run but will help avoid or reduce



costs associated with potential environmental cleanups. It will also help to prevent or minimize health and safety problems associated with improper HHW storage and handIing in homes.

- **maximizing the reuse and recycling of HHW.** By maximizing reuse and recycling, program sponsors will minimize their hazardous waste disposal costs and will conserve natural and financial resources. Collecting products such as paint for reuse and recycling, however, might result in higher labor costs (e.g., for paint consolidation). In addition, communities will have to locate and secure markets for the materials.
- Removing **from homes those wastes considered most hazardous.** Instead of collecting all wastes, some communities might want to collect specific wastes that they consider to present an unacceptable risk or to be a likely source of environmental contamination, such as oil-based paint and used motor oil. It might be difficult, however, to educate people to bring only those wastes to the collection. In addition, environmental, health, and safety problems could result from uncollected wastes in the community.
- **Educating the public about reducing generation of HHW.** Some program sponsors might want to establish a HHW program to provide information to consumers about proper HHW management and alternative ways to reduce generation of HHW. No matter how effective education is, however, collection programs will still be needed for wastes for which there are no alternatives (such as car batteries) and for existing HHW stored in homes.

Identifying goals will help collection program organizers determine the basic type of collection program (e.g., periodic drop-off, curbside, or permanent), the amount of funding needed to collect and manage the wastes and to educate the community about the program, and the waste management practices that the program will use.

SECTION TWO

Selecting Wastes and Collection Methods

When initiating a collection program, the planning committee must decide who may bring wastes to the collection, what types and quantities of waste will be accepted, and how the waste will be collected.

Decide Who May Bring Wastes to the Collection Program

Most collections are limited to wastes generated by individuals at home and exclude hazardous waste from commercial and institutional generators. This is primarily because programs are expensive, averaging $100 per participant. In addition, by limiting the number of participants it is possible to limit the amount of wastes (although it also reduces effectiveness).

Some HHW collections, however, are open to small businesses that are "conditionally exempt small quantity generators" (CESQGs) of hazardous waste (see Appendix A). Examples of businesses and institutions that might be considered CESQGs under certain circumstances include florists, home repair businesses, gas stations, and schools. CESQGs often are unaware that they produce hazardous waste, and so sometimes store and dispose of wastes improperly. A HHW program that includes these generators can educate them about environmentally sound ways to manage their hazardous waste. Requirements that must be followed if a HHW collection program accepts wastes from these small businesses are explained in Appendix A. These generators usually are charged based on the cost of managing their wastes. The charge for CESQG waste is less than what generators would pay if they managed the waste themselves.

Decide What Types Of HHW to Accept

The two types of waste received most often at HHW collections are used motor oil and paint. Pesticides usually are the third largest category. Programs also receive significant numbers of car batteries. Over the next few years, the types of wastes collected might begin to change, and the volume of certain types of HHW will probably decrease. For example, the proportion of latex paint compared to oil-based paint will probably increase since sales of oil-based paint have been decreasing. It will take a long time, however, to remove stored materials from all the homes in a community. (In San Bernardino County, California, for example, the paint brought to HHW collections is an average of 10 years old.)

To minimize costs, some programs target only specific recyclable HHW, such as used oil, car batteries, antifreeze, and latex paint. In addition, HHW collections often exclude certain wastes that the contractor is not licensed to receive or does not have the necessary equipment to identify or handle. Certain wastes also might be excluded if the TSDF will not accept them. Frequently excluded wastes include garbage, asbestos, dioxin-bearing wastes, explosives, radioactive such as smoke detectors, and unlabeled or unknown wastes. Most programs also exclude medical wastes. In New Jersey, however, some programs have begun to collect medical waste using a hauler licensed to handle such wastes.

Decide Whether to Limit the Amount Of HHW

A few programs limit the amount of HHW that each participant may bring to the collection. For example, some collections impose a five-gallon or 50-pound limit per participant, while others limit the size of the containers. This practice holds down collection-day costs. Limits can also prevent CESQGs or small quantity generators (SQGs) (see Appendix A) from bringing wastes to the collection, if that is a goal of the program. In some states, limits on the amount of HHW are set by law. In addition, state permits for one-day collections or program contracts may forbid overnight storage of the hazardous waste. Amounts, therefore, might need to be limited so that all wastes can be properly packaged before the end of the day.

Programs accepting waste from small businesses (CESQGs only) might limit amounts accepted or charge a participation fee so that the program will not be overwhelmed by disposal costs. Allowing drop-off "by appointment only" will prevent the collection site from being overwhelmed by too many CESQGs.

Select a Collection Method

To maximize participation, many communities are experimenting with a variety of collection methods. Some use a combination of collection methods. Common collection methods include one-day, permanent facility, mobile facility, door-to-door pickup, curbside, and point-of-purchase. Although this manual focuses on one-day drop-off programs, the next section briefly introduces each of the major types of HHW collection programs.

One-Day Drop-Off

Most communities begin HHW programs with one-day, one-site events at which residents drop off their HHW. The events usually are scheduled in the spring or fall; participation during other seasons is limited by summer vacations and winter weather in much of the country. One-day drop-off collections typically are held on Saturday, without appointments, starting in the morning and ending in the afternoon.

A potential limitation of drop-off programs is finding a date for the collection on which the hazardous waste contractor will

be available. It is important to confirm the date with the contractor as early as possible (six months in advance is recommended), especially if HHW collections are scheduled on the weekend. Weekend HHW collections in the spring and fall are very popular, and these dates fill up quickly.

Another potential limitation of one-day programs is that the chosen day might not be convenient for some residents. To address this concern, some communities hold drop-off collections on more than one day—for example, a Saturday and Sunday-or on two successive weekends. The selected HHW collection date(s) should not conflict with other major events in the community. Holding collections in more than one location within the community also can increase participation.

Still another potential limitation is that participants sometimes must wait an hour or more to drop off their wastes. Organizers of drop-off collection events need to plan ways to avoid long waits. Strategies for reducing waiting time include using express lanes for certain wastes (see Section 7), holding the collection in several different locations, holding the collection over several days, and implementing a two-phase program (for example, accepting paint and oil one day and other wastes the next).

Permanent Drop-Off

If the limitations of one-day collections prove too great, a community might want to consider instituting a permanent drop-off program. The community must anticipate a number of needs that accompany permanent drop-off programs, including:

- Managing the increased annual quantity of HHW and increased participation rates.
- Ongoing public education and publicity.
- A facility for onsite storage of HHW.
- Training local staff to perform many of the responsibilities usually assumed by the hazardous waste contractor atone-day collections.
- An institutionalized, predictable funding source.
- Compliance with additional state and local regulatory requirements that might apply to permanent programs.

Permanent programs require a larger up-front investment than one-day collections, but they probably will reduce costs per participant for the community in the long run. For example, communities generally use their own employees instead of contractors, often resulting in lower costs.

Drop-Off at a Mobile Facility

Most surveys show that the average collection day participant travels five miles or less to the site. Sponsors can purchase a mobile facility and equipment to provide periodic collections on a regular schedule at different sites within a county or large community. This is an effective method for providing service to geographically large and diverse regions. Like permanent programs, these mobile collection programs might cost more than one-day programs in the beginning, but they probably will reduce costs per participant over the long term.

Door-to-Door Pickup

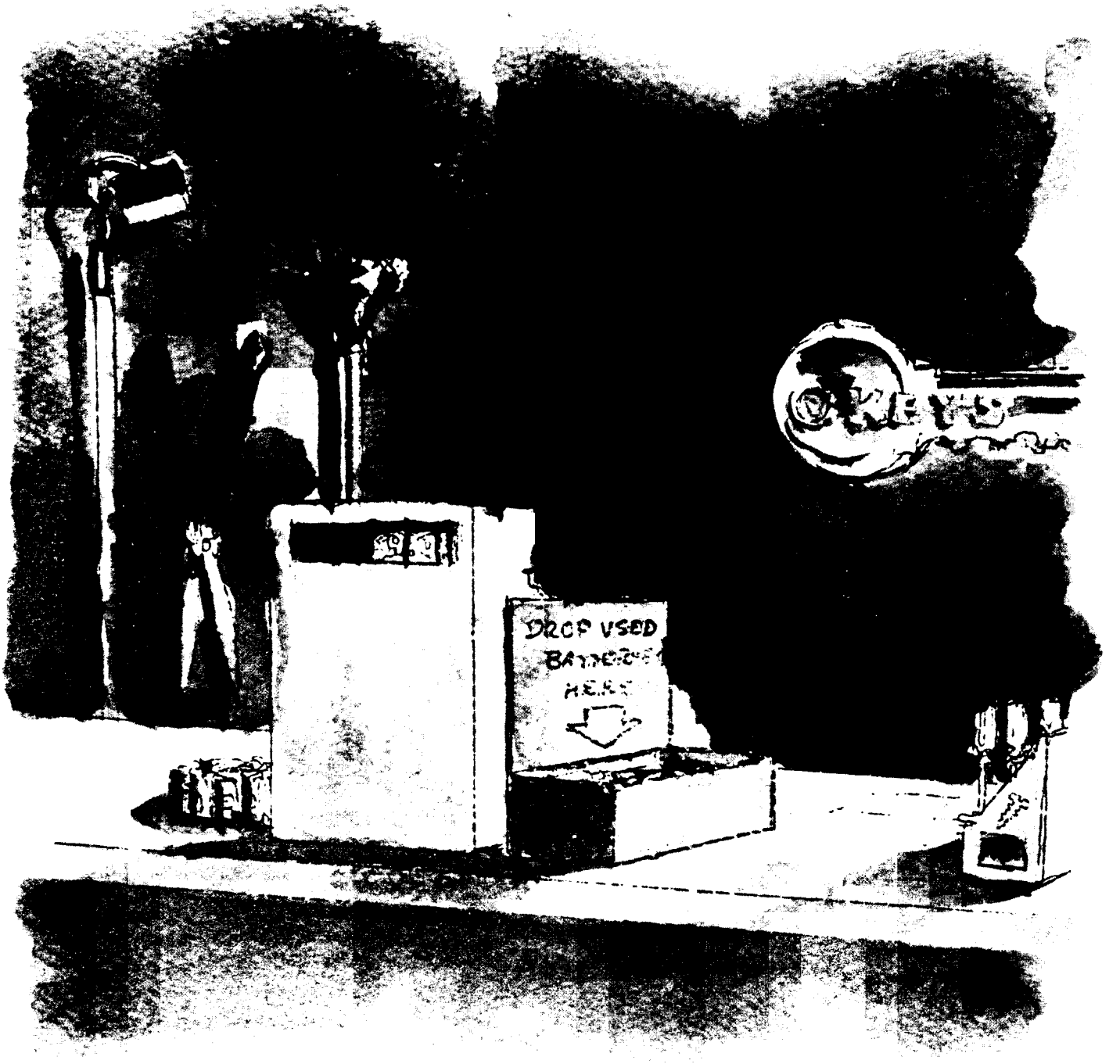
Door-to-door pickup by appointment is expensive, but it is more convenient for participants than drop-off. The personnel who collect materials must be trained in handling hazardous waste, including how to pack and separate the waste in the collection vehicle. It also allows participation by housebound individuals and others who cannot travel to a collection site. Sometimes the programs

are offered to certain individuals in addition to the one-day event.

Curbside Collection

Curbside programs usually are limited to a few selected wastes collected from households on a regularly scheduled basis. Restrictions on the types of waste are necessary because leaving highly toxic or incompatible wastes at the curb can be dangerous, and because collecting and transporting a variety of hazardous materials in residential neighborhoods presents logistical difficulties.

The most common type of waste collected at curbside is used oil. More than 115 communities have set up programs to



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collect recyclable used oil at curbside. Other communities collect household batteries and paint at curbside.

Point of Purchase

In some communities, a few types of HHW can be returned to retail stores. community HHW program planners can publicize these point-of-purchase programs as part of an overall HHW management strategy.

Retailers have implemented some point-of-purchase programs voluntarily. in New Hampshire andVermont for example, some hardware and jewelry stores collect customers' spent household batteries in buckets or specially designed cardboard boxes.

In addition, several states require that certain retailers take back some types of HHW. In Massachusetts and New York, for example, retailers must take back automobile batteries and used motor oil. Regulations in Connecticut, Minnesota, and Oregon ban car batteries and used oil from landfills and/or require deposits and retailer redemption.

Regulations regarding proofs of purchase, deposits, and surcharges for returns are different in each state. Massachusetts used oil law, for example, requires proof of purchase. Auto battery regulations usually require retailers to post a notice informing customers that they may return their batteries and stating how many may be returned at one time.

SECTION THREE

Selecting Waste Management Methods

In designing a collection program, it is important to determine what will happen to the wastes that are collected. When selecting among various waste management options, HHW program planners should try to recycle or offer for use as much of the collected wastes as possible. The HHW that cannot be recycled or used should be managed as a hazardous waste. If the communities use contractor services to manage some or all of this HHW, waste management priorities and procedures should be communicated clearly to the hazardous waste contractor.

In addition, it is essential that the program planners investigate the soundness of any facility where the waste will end up-particularly if CESQG waste is accepted (see Appendix A). The planners should ask potential contractors about the methods they will use to manage the wastes, and they should also ask for copies of the permits for the hazardous waste facilities that are to be used. Planners can also contact the state hazardous waste agency (see Appendix B) to find out if a facility is properly permitted.

Reduce through Use

Reusing materials brought to HHW collections can reduce the amount of HHW that the contractor must manage, often significantly lowering program costs. Some communities have set up waste exchanges to make materials available for other participants' use. These exchanges can take place at a HHW drop-off site or through telephone/hotline referrals. For example, reusable paint can be placed on "drop-and-swap" tables for collection program participants to pick up, or it can be bulked and blended for use by people or institutions who request the paint. This "second-hand" paint is readily accepted by the public, community groups, religious and recreational centers, graffiti removal programs, and schools. Experience shows that paint exchanges can reduce the amount of paint being disposed of at HHW collections by as much as 90 percent.[1]

Managing Latex Paint

EPA recently prohibited mercury in indoor latex paint. Latex paint exchange programs and disposal, however, still must be carefully managed.

Interior latex paint manufactured before August 20,1990, might contain mercury. For this reason, all latex paint in a paint exchange or "drop-and-swap" program should be assumed to contain mercury and labeled "FOR EXTERIOR USE ONLY." Using interior paint outside will substantially reduce the risk from exposure to mercury. Interior paint used outside, however, might not hold up as well as paint originally manufactured for exterior use. Alternatively, interior latex paint may be swapped for interior use if mercury levels of less than 200 parts per million (ppm) can be confirmed. This can be done in several ways

- **A commercial laboratory can test the paint for mercury.**
- **The National Pesticides Telecommunications Network (800-858-7378) provides names of paint brands that contain less than 200 ppm of mercury.**
- **The date of manufacture might appear on the label; no interior latex paint manufactured after August 20, 1990, contains mercury. No paint manufactured after September 30, 1991, may contain mercury.**

Usable latex paint can be consolidated and then might or might not be reprocessed. The consolidated paint should be tested for mercury. If it contains more than 200 ppm, it must be labeled "FOR EXTERIOR USE ONLY."

Unusable latex paint (such as paint that is frozen or solidfied) that contains more than 200 ppm of mercury should be managed as hazardous waste.

[1] Duxbury, Dana and Philip Morley. 1990. Overview of collection&management methods. Proc. of the Fifth **National Conference on Household Hazardous waste Managements, November 5-7, 1990, San Francisco, California, pp. 251-274.**

Other materials suitable for reuse can include unwanted pesticides, cleaning products, and automotive products. These materials often can be used by the sponsoring municipality for its buildings and vehicles. Communities should offer products only if they are in the original container and the label is intact and legible. They should not offer products if the container is banned, leaking, rusting, or otherwise damaged. Products should not be repackaged for reuse.

Recycling

A significant percentage of HHW can be recycled. For example, used oil can be rerefined for use as a lubricant. It also can be reprocessed for burning as a supplemental fuel (as can oil-based paint and ignitable liquids). EPA has issued several publications to help communities safely collect and recycle used oil (see Appendix C, Project ROSE).

Other recyclable HHW includes:

- Antifreeze.
- Latex paint. (Up to 50 percent of latex paint can be recycled by filtering, bulking, and blending it for reuse.)
- Lead acid batteries. Lead used in dental x-rays.
- Mercury-oxide, mercury-silver, silver-oxide, and nickel-cadmium household batteries. Several firms in the United States take these batteries for a fee; the contractor can be required in the contract to investigate the option of shipping used batteries to one of these firms for recycling.
- Fluorescent light bulbs.

Some communities sponsor "recyclables-only" days to divert the large-volume materials (motor oil, car batteries, and latex paint) from HHW collections and to reduce the amount of waste that the contractor has to receive, package, and process. Recycling days save money because they often are staffed by the sponsor. Communities that send HHW off site for recycling should contact their state environmental regulatory agencies to identify recyclers and to verify that the recycler is reputable (see Appendix B for a list of state regulatory agencies).

The results of the State of Florida's "Amnesty Days" show the great potential for recycling HHW received at one-day

Recycling Used Oil
Project ROSE

For over 14 years, a trailblazing program in Alabama has worked to stimulate the collection of used automobile oil for recycling. Project ROSE (Recycled Oil Saves Energy) has taken the lead in helping communities across the state develop used oil recycling programs tailored to local circumstances.

Project ROSE has built an extensive infrastructure for recycling used automobile oil generated by people who change their own oil (do-it-yourselfers) throughout Alabama. Because much of Alabama is rural, collection centers, in the form of service stations, are the most widely used system. In addition, several larger cities provide curbside collection of used oil.

The program uses publicity and education to develop the momentum to start local used oil recycling programs and then coordinates the effort of established networks by matching buyers of used oil with collectors. This strategy relies heavily on recruiting leaders from local organizations, who then work with Project ROSE to help introduce and support recycling programs in their area.

collections. Thirty-six percent of the HHW collected at 107 Amnesty Days (984,655 pounds out of a total of 2.7 million pounds) was recycled over a two-year period. The recycled material consisted of used oil, car batteries, and latex paint.

Treatment

Treatment technologies reduce the volume and/or toxicity of HHW after it is generated. These technologies include chemical, physical, biological, and thermal treatment. Common treatment procedures are neutralization of acids and bases, distillation of solvents, and incineration. The methods are dictated by the types of waste, proximity to treatment facilities, cost, and the contractor's access to treatment facilities. However, the contract can specify the waste management methods to be used. If the waste is sent off site for treatment, the contractor should provide the sponsor with documentation verifying the waste's final destination.

Landfill

As a result of current and pending bans on land disposal of certain hazardous wastes and the efforts of communities to reduce the amount of HHW sent to municipal solid waste landfills, more HHW is being reused, recycled or treated. As with waste destined for offsite treatment the hazardous waste hauler should provide the sponsor with manifests, state-approved shipping documents, or similar documentation verifying the waste's final destination and showing that the hazardous waste landfill is properly permitted.

Procedures for Excluded Wastes

HHW program planners and contractors often exclude certain wastes from collection programs. Frequently excluded wastes inclue radioactive materials, explosives, banned pesticides, and compressed gas cylinders. Program organizers must let participants know which wastes will not be accepted and must give them other options and instructions for managing the excluded wastes. For example, the police usually will arrange for pickup of explosives. Smoke detectors, which often contain a minute quantity of radioactive material, are accepted by some manufacturers (see product labeling for instructions). If participants are not provided with alternative management options, they often discard these wastes in the nearest trash can.

Where to Get More Information

Information is available through EPA-sponsored environmental outreach programs

- Informational materials on recycling reuse, disposal, and collection program design are available through: RCRA Hotline 800424-9346; the Waste Watch Center 508470-3044 and the Solid Waste Information Clearinghouse 800-67SWICH.
- With EPA support the International City Managers Association (202-962-3672) and the Solid Waste Association of North America (301-585-2898) provide technical assistance to communities and other nonprofit groups through a peer matching program. This program provides direct, hands advice and assistance on a peer-to-peer basis (e.g., mayor-to-mayor).

SECTION FOUR

Minimizing Liability

Communities can be liable for an injury to a collection day worker, an accidental release of HHW to the environment at the site, or an accident during the transportation of HHW from the collection site to the disposal site. The following recommendations can help communities minimize potential liability.

Become Familiar With National, State, and Local Hazardous Waste Regulations

Planners of community HHW programs must know the laws that govern their collection activities. Planners also should be aware that their state might have requirements that are more stringent than those set by the federal government.

In addition, program planners should be familiar with regulations governing management of specific wastes. For example, consolidated oil-based paint must be tested for polychlorinated biphenyls (PCBs) before it is sent to a supplemental fuel-burning facility. Paint that contains more than 50 parts per million of PCBs must be sent to an incinerator permitted to burn PCBs under the

Toxic Substance Control Act. Latex paint usual] y is not considered a hazardous waste. Several states recommend treating it as a hazardous waste, however, because of the levels of heavy metals found in some brands and formulations.

While hazardous waste regulations might seem complex at first, program planners should remember that there is potential liability associated with taking no action at all to manage HHW. By complying with the requirements set out in federal, state, and local laws, communities can reduce their overall liability. Appendix A summarizes the federal requirements that apply to HHW programs.

Develop a Safety Plan

Well in advance of collection day, the sponsor (or contractor) should develop a safety, accident prevention, and contingency plan. Hazardous waste management firms experienced in servicing HHW collections can provide a sample plan. The plan should include steps for preventing spills, a contingency plan in the event of a spill or accident and a list of the health and safety equipment available on site. The plan also should specify when an evacuation would be necessary, the evacuation routes and methods, and who would be in charge of an evacuation. For example, primary emergency authority should be designated to a specific police and fire department if more than one department has jurisdiction. Police and fire departments should be involved in the planning and provided with the layout of the collection site, information about the wastes that will be handled, and possible evacuation routes.

A copy of the safety plan should be available at the collection program. One person should be designated to control any emergency operation.

Make Training and Public Education a High Priority

Proper training of the sponsor's in-house staff and volunteers is essential for minimizing potential problems on collection day. Section 8 discusses training requirements in greater detail. Public education and publicity also can help ensure a safe operation. Publicity should inform participants about how to safely package their HHW and transport it to the collection site. For example, participants should be instructed not to transport HHW within the passenger compartments of their vehicles.

Obtain the Necessary Insurance

The sponsor should ensure that the program has adequate insurance to cover general, employee, transportation, and environmental liability, Some communities will choose to self-insure for any HHW collection liability, especially when a contractor has most of the responsibility. The minimum insurance required includes:

- **General Liability Insurance.** Contractors managing all collection site operations and activities usually provide $1 million to $2 million of general liability insurance for damage to property or for bodily harm at the collection site caused by actions of the contractor's staff. This coverage does not apply to property damage or bodily harm caused by the sponsor's staff or volunteers.
- **Motor Vehicle Insurance The contrac**tor needs insurance to coverall drivers and vehicles transporting the collected waste.
- **In-Transit Insurance.** In-transit insurance is required by the Department of Transportation for interstate movement

of hazardous materials or waste. The contractor's coverage, up to $5 million, will vary according to the types of materials transported. This insurance covers environmental restoration of property or compensation for bodly harm.

- **Indemnification Clause.** The contract with the hazardous waste firm should include an indemnification clause stating that the sponsor is blameless in the event of contractor negligence, acts of omission or wrongdoing. Similarly, the contractor can request indemnification by the sponsor for any costs incurred by the sponsor's negligence.
- **Workers' Compensation Insurance** The sponsor should obtain coverage for any staff or volunteers working at the collection day who are not provided by the contractor.

The sponsor also can require additional protection from the contractor to help minimize liability, including:

- A "bid bond" to cover the sponsor for time and expenses for the bid period in the event that a contractor turns down the contract after it is awarded.
- A "performance bond" to ensure satisfactory performance and, if necessary, cover the costs of completing the project according to the contract.
- A "certificate of insurance" from the contractor's insurance company, and a clause in the contract requiring that the sponsor be given notice in the event of cancellation of the contractor's policy.

In addition, the sponsor should ask to see a copy of the TSDF's environmental impairment liability insurance. These facilities need this insurance to cover lialility under the Resource Conservation and Recovery Act (RCRA), the federal law covering hazardous waste management. The insurance is not available to HHW collection programs.

Anticipating and reducing costs of a HHW program, as well as locating funding sources, are major concerns for program planners. However, many communities have found creative ways to finance their programs and effective ways to cut costs.

HHW program costs generally increase as the amount of waste collected increases. It is important to keep in mind, however, that the potential consequences of mismanaged HHW-soil and ground-water contamination, hazardous emissions at landfills, worker injury and equipment damage, interrupted water treatment, and contaminated effluent at water treatment plants-can result in much greater costs.

Factors that Affect costs

A review of the data on approximately 3,000 collection programs held since 1980 indicates that costs for a one-day HHW collection range from as little as $10,000 to more than $100,000. The final cost of a HHW collection is difficult to predict because many variables cannot be estimated or controlled easily. These variables include the number of households that participate, the types and amount of waste collected, and the waste management methods used. Major urban multi-site collection events, targeted farm pesticide collections, and collections in communities located a long distance from hazardous waste disposal facilities will experience higher costs. See box for developing a rough cost estimate for a one-day HHW collection. This formula is based on 1991 estimates of disposal costs. These estimates might need to be adjusted if waste management costs change. This formula is based on much of the work being done by a contractor. Programs that use less contractor help and that rely more on recycling and reuse for waste management will greatly reduce the cost.

Participation

On average, each participant brings 50 to 100 pounds of HHW to a collection, at a cost to the sponsor ranging from $50 to slightly more than $100 per participant. Participation rates usually range from one to three percent of eligible households and can be as high as 10 percent. Suburban communities, especially those with a hazardous waste problem or a solid or hazardous waste facility, experience high rates of participation. Extensive education or publicity programs also can increase participation rates.

Waste Management Methods

Waste management costs are the largest item in the HHW program budget. The overall waste management costs will depend on the types of waste collected and the waste management methods that are used. For example, programs that accept only recyclable materials or provide a “drop-and-swap” area will experience much lower waste management costs and lower personnel costs as well. Reusing or recycling HHW or burning it as a supplemental fuel is less expensive than incinerating the waste at a hazardous waste facility. Pesticides, especially those containing dioxin, and solvent paints and other materials containing PCBs can be very expensive to manage ($850 per 55-gallon drum in 1991). Burning used oil and solvent-based paint as supplemental fuel typically costs the sponsor $175 to $250 in management fees. In 1991, the cost of sending most

SECTION FIVE

Funding the Program and Controlling Costs

other wastes to a hazardous waste incinerator or land disposal facility ranged from $350 to $500 per drum. These costs can vary and might increase over time; the hazardous waste contractor or appropriate state agency can provide current rate schedules.

Other factors will affect waste management costs as well. For example, contractors who own and operate their own TSDFs or have access to facilities close to the collection site might be able to charge less for a collection than other contractors. Communities that are located closer to hazardous waste management facilities also might benefit from lower costs.

Collection Methods

The program's collection method also affects the overall cost. For example, collecting HHW door-to-door is more expensive than holding a drop-off collection day. Permanent programs might be more cost effective than one-day collections. The number of participants might increase with a permanent program; however, in a permanent program, there are often more opportunities to arrange for recycling or reuse of collected materials, resulting in less waste per participant to be disposed of as hazardous waste.

Estimating Costs

There are no proven formulas for estimating cost fora one -day HHW collection. Below is a formula for a very rough cost estimate range:

$$\frac{.01\,H}{8} \text{ (low participation) (consolidation)} \times \$350 + \$5{,}000 = \$_____ \text{ (low estimate)}$$

$$\frac{.03H}{4} \text{ (high participation) (no consolidation)} \times \$350 + \$5{,}000 = \$_____ \text{ (high estimate)}$$

- H is the number of households in the target area.
- The formula produces a range, reflecting a participation rate from one to three percent of the targeted households.
- If oil and paint are to be consolidated, divide the number of expected participants by eight, as shown in the equation, to calculate the number of 55-gallon drums. (It generally takes seven or eight households to fill a 55-gallon drum of waste.) If no wastes are consolidated, divide by four, as shown in the equation.
- $350 is the average cost of treatment/disposal per 55-gallon drum.
- Add $5,000 for set-up and personnel costs.

Local staff time, publicity, and education are additional but are usually not a major cost item for one-day collection programs.

Note: Dollar figures above are 19% estimates.

Ways To Minimize Costs

program sponsors continue to find ways to reduce both overall costs and the average cost per participant. For example:

- Consolidating instead of lab-packing HHW reduces costs by allowing for much more waste per drum. (A lab-pack consists of a large container that holds several smaller containers.) Paint used oil, and antifreeze are frequently consolidated.
- Some programs reduce costs by using volunteers (only for low hazard items) or city or county personnel to receive, consolidate, and package the waste, rather than using contractor staff for these functions.
- The sale of some recyclable items, such as silver-oxide button and lead-acid batteries, can help defray a program's costs.

Of course, one of the best cost-cutting measures is to educate the public about how to reduce HHW generation and how to manage existing HHW without bringing it to a collection center. For example, consumers can bring used Oil and antifreeze to some service stations. In addition, wastewater treatment plants in some communities take used oil to discourage improper disposal of this waste and prevent damage to the treatment plant. Generally, car batteries can be returned to the point of purchase.

Obtaining Funding

HHW management program sponsors have obtained funding from a wide variety of sources. They have used state, county, and local general funds; taxes, fees, and penalties; "in-kind" contributions from industry, cities, and districts; and the help of volunteers.

State and Local Governments

The majority of funding for local government programs comes form municipal solid waste budgets. In addition, county and local agencies that benefit from HHW collection days often contribute a portion of their budgets to HHW management programs. Among the agencies that benefit from HHW collections are water and sewer departments, since less HHW is poured down drains; fire and health departments, since less HHW is stored in homes; and public works &partments, since less HHW is discarded with municipal trash. Some state environmental agencies, such as departments of natural resources or the environment also provide funds for HHW management programs. Sources of state funding have included state Superfund budgets, oil overcharge funds, surcharges on environmental services or hazardous products, and special environmental bond issues and trust funds.

Fees and Taxes

Many communities increase landfill tipping fees, property taxes, or water/sewer fees to create a fund for managing HHW. Some communities also have imposed user fees, but these might be a deterrent to participation in the collection program, since household residents in most states legally can throw HHW in their trash.

Some states have instituted specific taxes for HHW programs. For example, the State of Washington has imposed a tax on the first use of certain chemicals by manufacturers or wholesalers. The tax will be used in part, to fired county HHW collections. Retailers in Iowa selling prducts covered under the shelf labeling law pay a $25 registration fee. In New Hampshire, a tax on hazardous

waste generators funds matching grants to communities for HHW collection programs. In Florida, local governments receive three percent of the gross receipts from permitted waste management facilities.

Contributions, In-Kind Donations, And Volunteers

Donations of money, materials, and labor are the lifeblood of many community HHW programs. These donations can come from many different sources:

- **Cities counties, civic groups, environmental organizations, and corporations** often provide seed money or matching grants for collections.
- **Hazardous waste contractors** sometimes donate collection and transportation services.
- **Local industries or businesses** that produce or distribute household products that can become HHW sometimes contribute money or services to HHW management programs because they recognize the importance of product stewardship. In some communities, local printers have donated services for advertising or education materials.

Metrocenter YMCA: Community-Wide Funding for HHW Collection

In late 1986, the Seattle Metrocenter Young Men's Christian Association (YMCA) (see Appendix C for address), the community development branch of the Greater Seattle YMCA launched an impressive campaign to sponsor and fund a HHW collection day in King County, Washington.

Metrocenter decided to seek the help of outside catalysts to develop a HHW collection program. Ultimately 15 cities, King County, and several other public authorities and agencies joined together to sponsor a series of major HHW "roundups" between 1987 and 1989.

Fourteen different local and regional government agencies provided funding for the roundups. Additional financial support was provided by:

. A cigarette tax.

. Revenue from a Department of Ecology tax on hazardous materials sold within the state.

. A water quality fund, a county solid waste fund, and the general funds of cities.

. In-kind contributions from cities, districts, and corporations.

Metacenter also made extensive use of volunteers to stretch its resources for the "roundups." For example, chemistry graduate students performed some of the actual site work.

- **Civic and environmental organizations** can provide volunteers to help plan, publicize, or staff the HHW collection. Volunteers can be used to direct traffic, hand out literature, fill out questionnaires, and handle nonhazardous waste.
- **State and municipal agency staff and** local fire and police departments often provide supervision and traffic control.

Programs can attract direct financial contributions, in-kind donations, and volunteer services by giving donors positive recognition, such as a mention in flyers, an award, or a recognition ceremony. A publicly acknowledged donation from one group or company often encourages others to contribute or participate in some other way.

SECTION SIX

Publishing the Request for Proposals and Signing the Contract

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If a contractor is to be used to do some or all of the collection work, the HHW collection program probably will issue a Request for Proposal (RFP). An RFP will solicit information on which contractors are available and qualified to manage a HHW collection program, and the amount they will charge. Most local governments have specific procedures for issuing RFPs. A contractor should be selected based on the proposals received in response to the RFP, and a formal contract between the sponsor and contractor must be signed. This process ensures that the community is provided with all the necessary services at a reasonable cost, and that the roles of everyone involved in the collection event are clearly defined. This is the only way to ensure proper management of the waste.

Issue the RFP

A good RFP provides a comprehensive description of the services to be provided so that prospective contractors can bid on the cost of delivering those services. The more specific and clear the RFP, the better the chances of obtaining complete proposals and realistic bids.

An RFP can include the following information:

- A detailed narrative description of the sponsor's goals for the program.
- The proposed collection site(s) and date(s).
- The size of the targeted population and types of generators (e.g., households, farmers, and/or schools).
- The size and relevant characteristics, such as community demographics, of the targeted geographic area.
- The percentage of the targeted population within five miles of the selected site.
- Copies of the completed manifests.
- The extent and focus of planned education and publicity (to help estimate participation rates).
- The targeted waste categories.
- The type of collection (drop-off, curbside, etc.)
- Any specific waste handling requirements.
- Use of volunteers and in-house staff and the tasks they will perform.
- Training required for HHW handlers.
- All services required of the contractor, potentially including:
  - unloading HHW from participants' vehicles (for a drop-off collection).
  - pre-screening waste.
  - sorting, segregating, and packaging waste.
  - testing unknown wastes.
  - labeling wastes.
  - combining materials for reuse (e.g., paint consolidation).
  - filling out hazardous waste forms (manifests).
  - obtaining a temporary EPA identification number, if necessary (see Appendix A).
  - controlling traffic.
  - hauling and disposing of the waste.
- Post-collection reports to be submitted.
- The materials and equipment to be provided by the contractor (see box).
- The waste management preferences of the sponsor, including the wastes that the sponsor wants recycled.
- The ultimate destination for each waste (when the sponsor has preferences).
- Proof of insurance.
- An "escape clause" to ensure that the sponsor reserves the right to reject all bids or to modify the plan.
- costs.

The RFP can be advertised in the local press (this might be required by local ordinance) and in waste management trade journals. It also can be sent to the contractors on "bid lists" (lists of qualified

contractors are available from state, local, and EPA regional offices).

Select the Contractor

The program sponsor should base the selection of the contractor on the following information requested in the RFP and supplied in the proposal:

- **Contractor's license.** The contractor must be licensed to handle hazardous waste in the state where the HHW collection will be held.
- **Contractor's HHW experience and references.** The proposal should include a narrative section describing the contractor's qualifications and experience. It also should include a list of references from any previous HHW collection programs handled by the contractor. (The sponsor should carefully check these references.)

Equipment

The equipment needed at the collection day is supplied by either the contractor or the collection program sponsor. It usually includes:

- Waste **management/disposal** equipment: Awning or tent (if needed for shelter), drums, absorbent for spills, shipping manifests, labels, testing equipment, and a dumpster.
- **Safety equipment:** Plastic ground covering, safety coveralls/Tyvek suits, aprons, goggles, splash shields, gloves, respirators, traffic safety/refIector vests, eye wash hoses, fire extinguishers, first-aid kits, towels, blankets, washtubs for scrubbing contaminated clothing, and air monitoring instruments (recommended for monitoring explosive vapor and organic vapor levels).
- **Traffic control equipment:** Traffic cones, barriers, and signs.
- **Furniture:** Tables, benches, stools, and chairs.
- **Other equipment:** Portable bathroom (if needed), portable water (if needed), food, dollies, dumpster for garbage, stapler, tape, markers, scissors, hammers, clipboards, coolers with ice, coffee maker, shovels, brooms, and garbage bags.

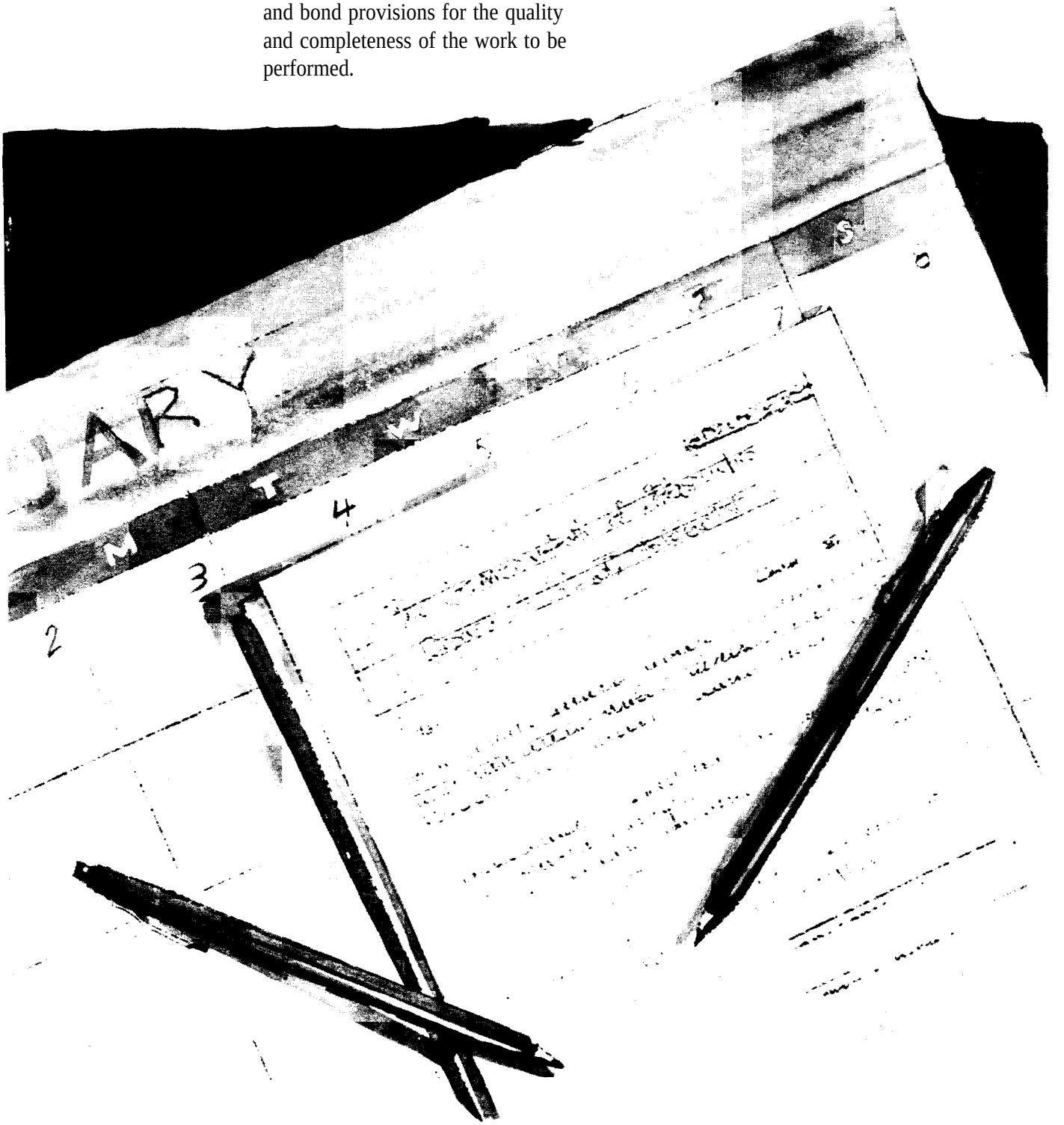
- **Compliance record.** (State and environmental regulatory agencies also can provide the regulatory compliance/violation records of contractors.)
- Insurance/indemnification provided by the contractor. A list of insurance carriers and policy numbers should be included.
- **Waste management services offered and the immediate and ultimate destination of the collected waste.** A contractor might own waste management facilities or might contract independently with incinerators, landfills, treatment facilities, and recycling firms. The sponsor should confirm the relationship of the contractor with any treatment and/or disposal facilities to be used. The sponsor also should receive copies of manifests or other shipping documents confirming the receipt of the wastes at the facilities identified by the contractor.
- **Contractor costs.** The proposal should include itemized costs for site set-up, labor, equipment materials, hazardous waste training, transportation, and disposal.
- **Available collection dates.** Fall and spring weekends are especially busy. The contractor should have enough equipment and personnel to operate at the times the sponsor selects.
- **A list of wastes not accepted by the contractor.** If a community expects large quantities of unusual wastes, this might be a consideration in choosing the contractor.
- **A list of wastes that will be consolidated and those that will be lab-packed in original containers.** Consolidation of high-volume wastes can result in significantly reduced costs to the sponsor.
- **A sample Contract The** contractor usually provides a sample contract with the proposal. (If the RFP contains a model contract, the contractor can accept it or modify it as necessary.)
- How **recyclable materials, such as used oil, batteries, paint and anti-freeze, will be managed. This** should specify any offsite recycling facilities that will process these materials.
- The number and level of training of personnel proposed for the collection. Highly trained personnel are more expensive and are not always needed. (For example, they might not be necessary at a recyclables-only event or a paint drop-and-swap.)
- **A health and safety plan. The** proposal should include a safety, accident prevention, and contingency plan. (The sponsor also might need to be involved in ensuring the availability and coordination of emergency services.)
- **Cost per drum, per product, or per unit of waste.** It also must be clear how much waste will be placed in each drum or container.

Write the Contract

Once a contractor is selected, the sponsor and contractor sign a formal contract agreeing to the services the contractor will provide and the compensation the contractor will receive. The contract usually is based on the contract in the original RFP or the one supplied in the proposal. It usually is a lengthy document, containing addenda with copies of insurance policies and rate and personnel schedules. It should include the following clauses:

- The names and addresses of *all* the parties to the contract.
- The specific role and status of each party, and the terms and conditions under which each operates.
- A full description of the services to be performed.

- The time, place, and duration of the work.
- The fee schedules for all thework to be done.
- Submission of proof (manifests) of delivery of all wastes prior to payment to the contractor.
- The default guarantees and assurance and bond provisions for the quality and completeness of the work to be performed.
- Any insurance and liability guarantees and requirements.
- The procedure for amending provisions of the contract.
- The contractor's guarantee of compliance with any applicable laws.



- The data the contractor will provide to assist in evaluating the program.
- A "savings" clause that protects the remainder of the contract should any part of it be deemed illegal or inappropriate.

As with the RFP, the more specific, complete, and clear a contract is, the less the contractor will have to assume and the more satisfactory the results will be. State hazardous waste contacts (see Appendix B) usually have current model contracts that cover all federal and state requirements. The indemnification and insurance clauses usually cause the most difficulty. The contract should indicate clearly which liabilities and hazards are covered and to whom the indemnification and insurance clauses apply (e.g., contractors, haulers, municipality and individual departments, or volunteers). The sponsor's legal advisors should review the contract before it is signed.

SECTION SEVEN

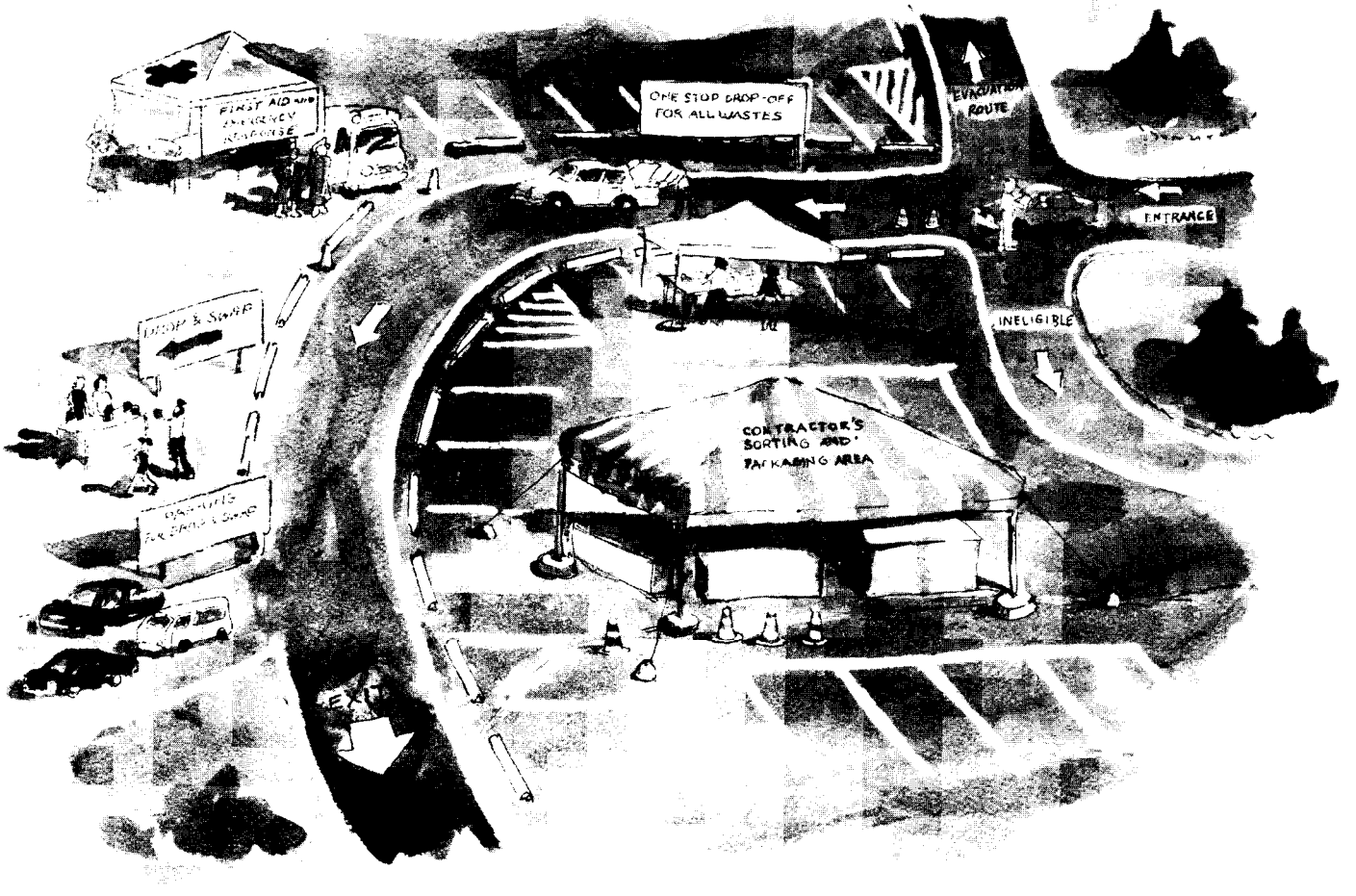
Selecting, Designing, and Operating the Collection Site

Proper site selection, design, and operation are crucial in promoting maximum participation in the HHW collection and subsequent collections. An easily accessible, efficiently run site will help ensure positive experiences on collection day, which can result in favorable publicity for the next event.

Site Selection

The site chosen for the collection should be well known, centrally located, and easily accessible. It also should be well removed from residences, parks where children play, and environmentally sensitive areas, such as open bodies of water, wells, faults, and wetlands. Local zoning regulations might specify required setbacks and buffer zones and might identify acceptable or restricted areas. Using sites with an impermeable surface (e.g., pavement or concrete) helps to minimize environmental risks. Onsite utilities should include running water, fire hydrants, and electric hookups (or generators) in case lights are needed to pack and label the HHW after dark.

Collection sites typically are located on publicly owned land, such as stadium parking lots, solid waste landfills or transfer stations, schools, fire stations, and public works yards. A wastewater treatment plant is a good collection site because it also offers the opportunity to educate the public about water pollution problems caused by improperly managed HHW.



Simple site plan for a one-day drop-off HHW collection program.

Site Design and Operation

A well-designed and well-operated HHW collection site allows participants to move through the collection area quickly and efficiently. It includes areas for people who require special attention, and adequate space for waiting lines. It also has staff on hand to direct traffic, offer informational materials, and answer questions.

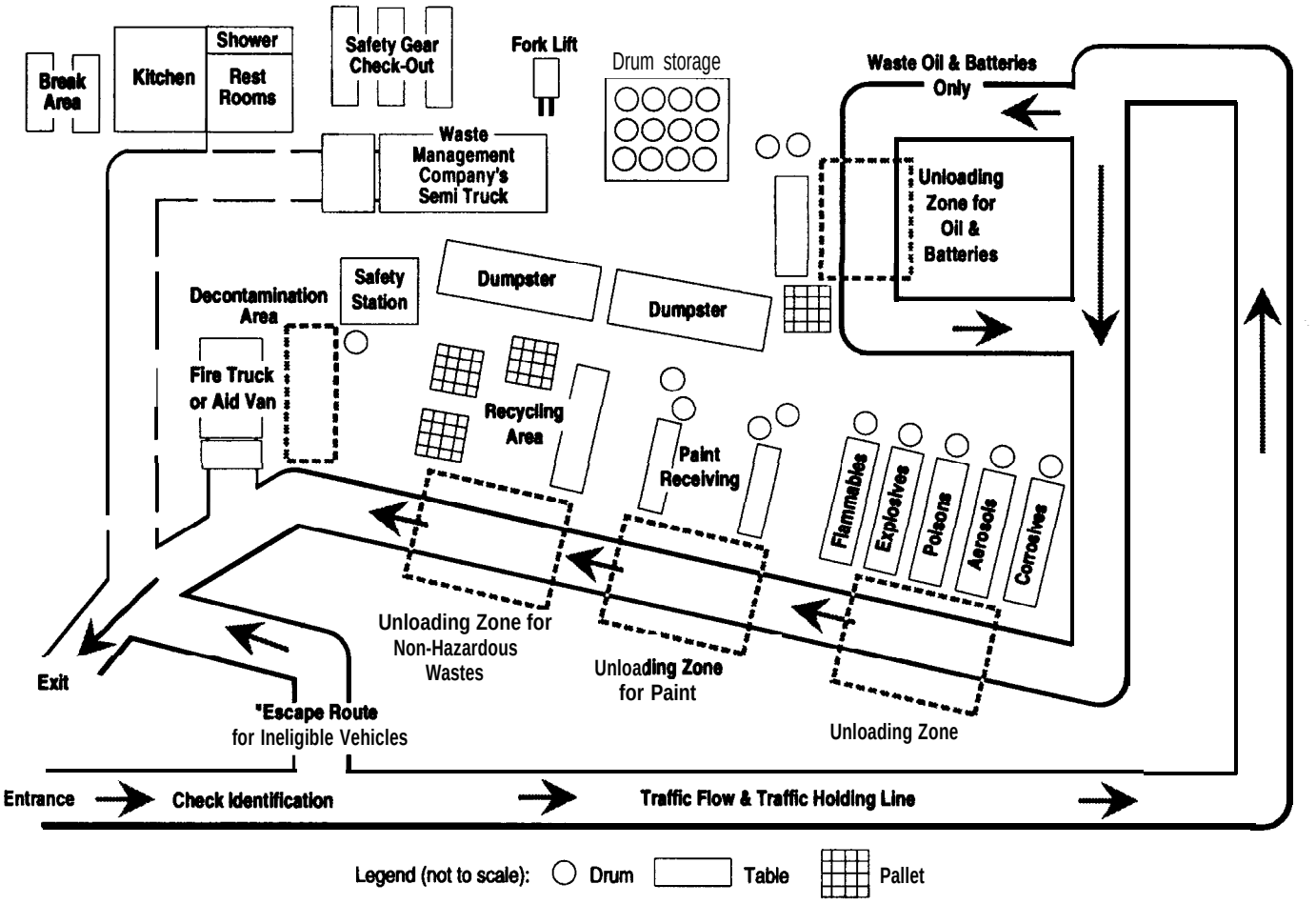
The size of the site is critical to the efficiency of the program; sponsors should plan for traffic overflow. The site should beat least 10,000 square feet.

Figure 1 shows one example of a site plan for a one-day drop-off collection program.

The simple plan shown in Figure 1 might not be adequate for all programs, however. Depending on the design and goals of the program, a more complex layout might be required, such as the layout shown in Figure 2. Described below is a commonly used system for designing the site layout. There are many other ways an effficient collection can be achieved.

Entrance

Collection staff or volunteers should stand at the entrance or check-in station to greet the participants and direct them to the receiving area. Police officers or volunteer personnel should be stationed just outside



More complex site plan for a one-day drop-off HHW collection program.

the entrance to manage traffic flow that cannot be contained on the site.

Several unloading lanes with signs and traffic cones can help control the flow of traffic on and off the site. Separate express lanes for the wastes received in the highest volume (usually paint and used oil) can help speed up service to participants.

Before participants drop off their HHW, they can be asked to document their eligibility to participate in the collection (residency), complete questionnaires, and list the wastes they have brought to the site. (A sample questionnaire is provided in Appendix D.) The staff can offer informational materials, answer questions, and provide information about what to do with excluded wastes. To minimize traffic delays, these tasks can be completed while participants wait to enter the receiving area.

Receiving Area

At the receiving areas, trained personnel (usually the contractor's staff) screen each vehicle for unknown, unacceptable, recyclable, or nonhazardous waste. Participants should not be permitted to remove any wastes from their own cars and should be encouraged to remain in their cars. The staff members unload recyclable materials and take them to the recycling area. The recyclable should be handled and packaged according to any instructions from the recycling firm. They then take the rest of the acceptable wastes to a sorting table. After removing the HHW from the vehicle, the staff members direct the participant to the exit.

Sorting Area

In the sorting area, staff members or contractor personnel sort the wastes into hazard categories and deliver them to the packing area. They place empty containers and nonhazardous waste in dumpsters located in the sorting area. Arrangements can be made for removing and replacing the dumpsters during the day if necessary. A volunteer can flatten boxes for recycling or to reduce the amount of room the boxes take up in the dumpster. Any unknown material needs to be sorted as a hazardous material.

Packing Area

In the packing area, trained personnel (usually contractor staff.) lab-pack the wastes or bulk them into drums. They then label all containers by hazard class and load them onto the appropriate truck(s). Consolidation of wastes (e.g., paint, motor oil, or antifreeze) can be performed in this area.

Temporary Storage Area

Empty drums are kept in the temporary storage area. Fully packed and sealed drums can be placed in the storage area until they are loaded onto a truck. To ensure that this area stays dry and uncontaminated, it should be covered, at least by an awning, and the floor should be covered with chemically resistant plastic.

Break Area

Staff and volunteers should have a break area, separate from the waste-receiving area, where they can eat, drink, rest, and use a bathroom.

Parking Area

A special parking area is recommended to accommodate people who need extra attention, such as those who bring in unidentified wastes or have spilled a container in their vehicle. Parking spaces also can be designated for volunteer and staff vehicles.

SECTION EIGHT

Training the Collection Day Staff

Proper training of all personnel is essential to a safe and efficient collection. Training required for the contractor's staff, volunteers, and the sponsor's in-house staff is described below.

The Contractor's Staff

The contractor is responsible for ensuring that all of its technical and professional staff are properly trained and certified. The contract should specify the qualifications of the professional personnel who will be present at the collection.

If your state requires an operating permit for HHW collection, staff training might need to meet the requirements of the Occupational Safety and Health Act, Section 1910.120. Check with your state agency to determine training requirements. These regulations specify the content and length of training required for personnel at hazardous waste operations. The level of training required for each employee depends on his or her job functions and responsibilities. Topics that must be covered include the names of personnel responsible for site safety and health, the hazards present at the site, the use of personal protective equipment, work practices that can minimize risks, the safe use of engineering controls and equipment on the site, and medical surveillance requirements. In any case, this training is recommended for all personnel who will be handling the waste, even if it is not required.

The contractor's staff can include technicians, chemists, and a manager. The manager should receive training appropriate for his or her involvement in the physical operation of the program. Chemists should have 40 hours of field chemist/technician training to the Occupational Safety and Health Administration's (OSHA'S) "Site Emergency Responder" level. Technicians should have eight hours of training to the "First Responder Operations" level, since they would have to evacuate everyone from the site in the event of an emergency. The contractor's staff also must be briefed on any limitations of the permit or the facility, including excluded materials and procedures to be followed.

Reviews and drills of the emergency plan should be conducted for all collection day personnel by qualified instructors. For regularly scheduled collections, the training program should provide for update sessions to reinforce safety procedures and provide updated packing information.

Volunteers and In-House Staff

The volunteers and in-house staff who will work at the collection site must also receive proper training. Because of accident and liability concerns, the responsibilities of the volunteers at a one-day collection are usually limited to controlling traffic, conducting participant surveys, and providing general assistance, such as running errands, emptying trash, and providing refreshments.

The sponsor's in-house staff can perform other collection day tasks, such as unloading cars, pouring used oil into consolidation drums, or opening and scraping out paint cans, depending on the volunteers' training and qualifications. All these tasks must

be performed under the contractor's supervision.

In some cases, the state or municipality will provide professional staff to carry out some of the more technical work. The state hazardous waste contact (Appendix B) can provide information about appropriate training for these personnel (such as OSHA's 40-hour, 20-hour, and 8-hour courses).

The sponsor's project coordinator and the contractor should explain to volunteers and in-house staff what they may and may not do on collection day; the procedures for receiving participants, controlling traffic, and handling waste; and what their roles would be in the event of an accident or spill.

Before the collection date, the sponsor should hold an orientation session with the contractor for all volunteers and in-house staff who will be working at the collection site. This session should inform the volunteers about the operating procedures and emergency plan. Police and other emergency personnel who will be on site or on call should participate in the planning and orientation.

SECTION NINE

Education and Publicity

A HHW collection program cannot succeed without a strong public education effort that provides general information about HHW and specific instructions about how to participate on collection day. This education also might benefit the community by reducing the quantity of HHW collected in subsequent programs. It is still too early to know, however, just how effective educational efforts will be in reducing the generation of HHW. At current collection program participation rates, it will be some time before the stored waste is cleaned out of a community. It is likely, though, that the amount of waste per participant will decrease in communities with regular or permanent collection programs. Many examples of well-planned education programs are available. Sources for these materials are listed in Appendix C.

Target the Audience

Residents are the most important target of a HHW education program. Information about HHW also should reach public officials, civic groups, solid waste personnel, and the business community to encourage financial support, donations of in-kind services, or other assistance. The media is an especially important vehicle; media understanding of HHW issues helps ensure accurate and responsible reporting. Educators need resources to develop and communicate a strong understanding of the issue to the people they teach. Manufacturers, retail stores, school chemistry departments, hospitals, agricultural extension services, and farmers also can benefit from education about HHW.

Determine the Message and Select Educational Methods

Public education about HHW is a good idea even if a HHW collection event is not yet planned. The scope of this effort will depend on the finds and personnel available. Early education can focus on:

- What products contain hazardous constituents.
- How household generation of hazardous waste can contribute to pollution.
- Why source reduction is a major goal of a HHW management program. (Source reduction is defined as the design, manufacture, purchase, or use of materials or products to reduce their amount or toxicity before they enter the solid waste stream.)
- What products contain fewer or no hazardous constituents.
- How to shop "smart" (e.g., buying only what is needed).
- How to reduce the amount of HHW generated (e.g., using up household products or giving away what cannot be used).
- How to use products in a way that minimizes harm to the environment.
- How to properly store and handle products containing hazardous constituents in the home.

Public education before a planned collection day should not only focus on identifying HHW and helping people understand the hazards associated with HHW, but also should present the sponsor's plans for addressing HHW management. Public education efforts also should communicate the individual's role in the HHW management program, including what to bring to a collection and how to transport it safely. This phase of the education program should begin at least six months before the collection day. Intensified education in the final two weeks before a collection day can have a major impact on participation rates.

Publicity, a component of public education, focuses on a single goal-bringing the

Public Education Methods and Techniques

Education through the media. Well-prepared media handouts-feature articles, public service announcements, and other materials for the press—m inexpensive options and require less staff time than many other educational methods. Information about HHW can be presented in a variety of ways. For example, a radio broadcast might feature a hazardous waste expert who can answer phone-in questions on HHW. A local television station can cover a tour through a home with an environmental expert, who can discuss the products that can become HHW and how to manage them safely.

Information and referral services. A publicly advertised local telephone hotline can encourage people to call for information about managing HHW, and also can facilitate a waste exchange/referral service. These services can be effective but require telephones, office space, training, and personnel.

Mailings and mailing inserts. Utilities, banks, billers, and advertisers may be willing to include HHW announcements and informational literature in their regular mailings. Inserts mailed with water bills, garbage bills, or tax bills not only provide information about HHW, but also can educate the public about the links between HHW generation, waste management ground-water protection, and water/garbage rates. Community groups can include educational information about HHW management in their mailings or newsletters. HHW program sponsors can send direct mailings to people who participated in previous HHW collections.

Posters, handouts, and brochures. Flyers and posters often are displayed or handed out at schools, libraries, community centers, and senior citizen centers. Businesses can post signs and notices for shoppers and customers on how to safely manage household products that might become HHW. Real estate agents can offer their clients information about HHW with their other community resource materials. Solid waste facility personnel at drop-off landfills, transfer stations, and recycling centers can discuss HHW and provide written information when residents drop off waste or recyclable. Handouts can include HHW "wheels" that highlight the potential hazards of household products and suggest less hazardous substitutes (see Appendix c).

Garbage can labeling. Some communities distribute plastic adhesive labels that residents can put on their trash cans. The labels alert people to the potential hazards of mixing HHW with their trash, list products containing hazadous constituents, and advertise whereto dispose of HHW properly.

Street banners. Banners announcing the place and time of collection have worked well for some communities.

Displays/exhibits/audiovisual presentations. Public education staff can use slide shows, video presentations, and hands-on exhibits at community group meetings, county fairs or other special events, public information sessions/ workshops, shopping malls, and other public forums. For example, the League of Women Voters of Martha's Vineyard, Massachusetts, bought a video on managing HHW and offered it free to any group on the island who would show it at a meeting. (Slide shows available for rental or purchase are listed in Appendix C.) The local public library also might be willing to set up a HHW resource center.

Speaker bureau. Municipal departments usually have access to knowledgeable speakers who can make presentations to local groups at a nominal fee or free of charge. Sources for community education experts include cooperative extension services, soil and water conservation districts, and health and solid/hazardous waste administrators.

Formal education. Presentations in schools and special curricula can educate students (and their parents) about managing HHW. A number of organizations have developed school curricula on HHW (see Appendix C).

Point-of-purchase information. Information about the potential hazards of household products can be distributed where the products are sold. For example, hardware stores can distribute handout on what to do with used motor oil, paints or varnishes. An Iowa law requires stores that sell products covered under the shelf labeling law to provide HHW content and hazard information through shelf labeling and informational materials. A hardware store chain in San Diego, California voluntarily initiated a similar program.

Workshops and conferences. Workshops, presentations, and conferences on managing HHW can bean excellent way to bring information to citizens, HHW program volunteers, local business groups, and community officials.

desired number of participants (and HHW) safely to a collection program. Good publicity explains:

- Why people should participate in HHW collection programs.
- When and where the collection will be held.
- Which materials will be accepted and which will be excluded.
- What to do with excluded HHW.
- How to transport HHW to the collection center.

To maximize participation in the collection program, publicity should begin as soon as a date for the collection is chosen. The publicity should appear on a regular basis, highlighting progress in the planning, presenting additional facts about HHW, and providing contacts for more information.

Advertising in local newspapers and newsletters is a highly effective form of publicity. The local press usually will publish articles, photographs, and letters to the editor. The planning committee should prepare a press kit to facilitate newspaper publicity. It should contain:

- A list of local contacts and experts who can answer questions about HHW.
- Press releases about the HHW management program and the upcoming HHW collection(s).
- Two or three short feature articles.
- Black and white photographs (with captions) of hazardous materials (in the home, on store shelves, at collection programs) that can either stand alone or be used with news or feature articles.

- Press-ready ads publicizing the collection day. Newspapers and radio and TV stations might run these ads free of charge on a space-available basis, or local firms might sponsor them.

Local groups, such as civic groups, public agencies, schools, local media, and businesses, often are willing to help with publicity and outreach. A local advertising agency or public relations firm might agree to plan or produce the publicity campaign. Invite the firm to participate on the planning committee.

SECTION TEN

Evaluating the Program

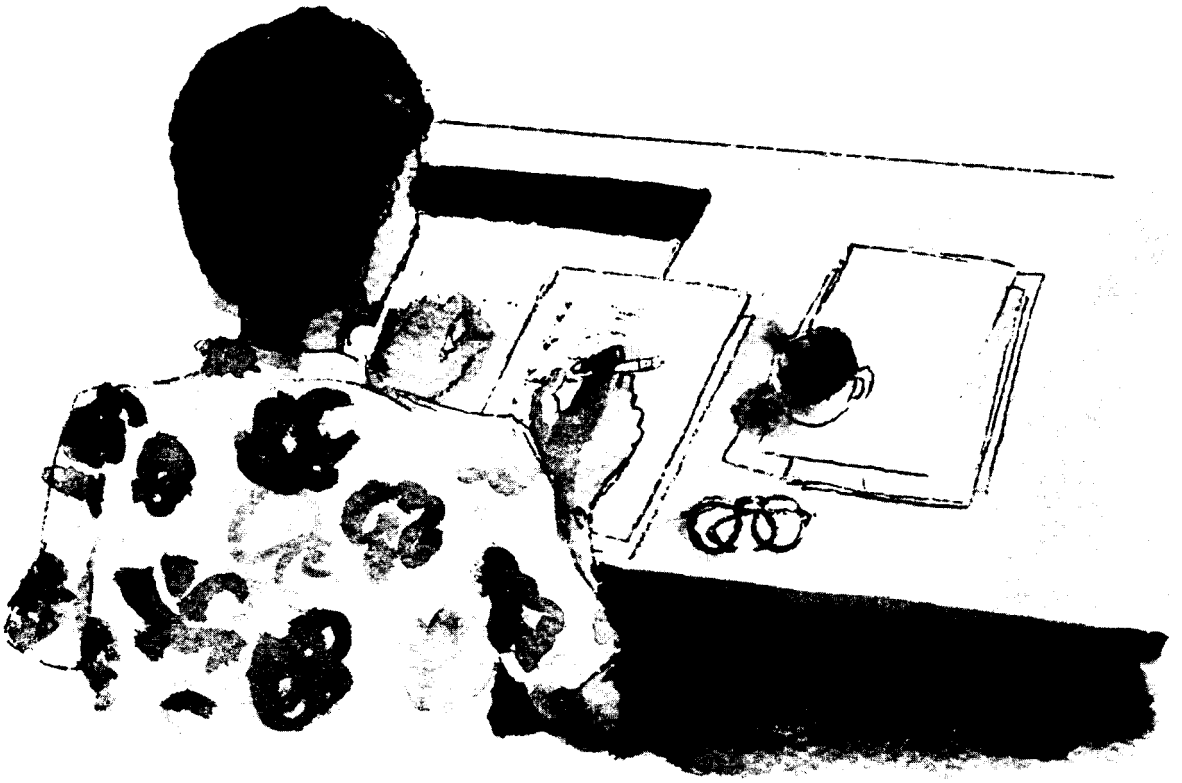
EVALUATING THE PROGRAM

Evaluation is important to the continued success of any HHW collection program, whether it is a one-time event or an on-going, regularly scheduled program. The sponsor should compile data from the program, including the number of participants, the percentage of the target population served, the quantities of the different wastes collected, the quantities and percentages of recycled waste, the itemized total costs, the cost per participant, and the waste management cost per pound. This information can help the sponsor determine whether program goals have been met. The sponsor's contract with the hazardous waste company should specify what data the sponsor needs from the contractor for post-collection evaluation.

In addition, sponsors can ask contractors and participants for input on flaws in the Program, such as inconvenient operating hours and locations or inefficient collection methods. This information allows programs to adapt to meet the needs of the public.

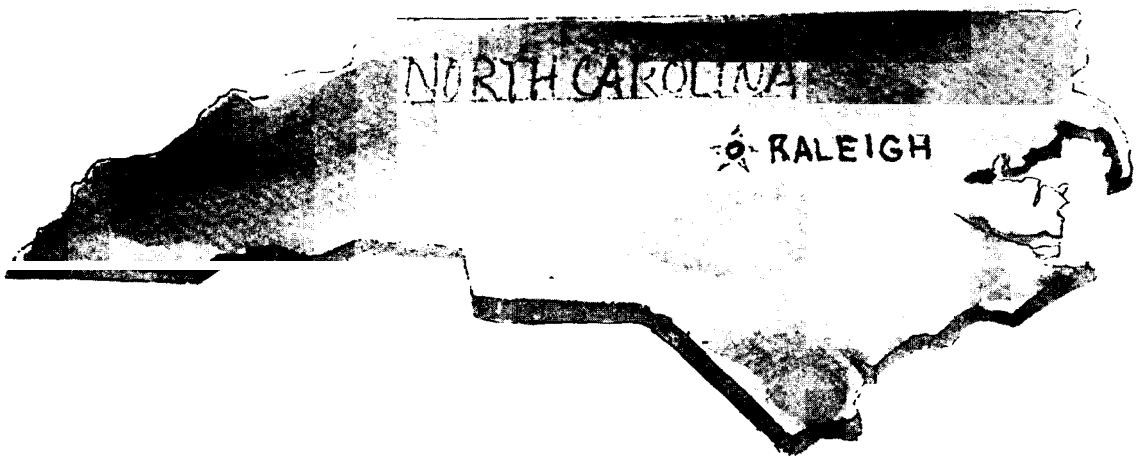
Public satisfaction with the HHW management program can be measured through questionaires published in newspapers or filled out when participants arrive at the collection site (see Appendix D for a sample on-site questionnaire), and by requests for feedback when people call a HHW hotline. In addition, garbage sorts and wastewater studies can detect whether less HHW is present in the municipal solid waste and wastewater streams after HHW collections, if pre-collection data also are available. This might indicate changes in disposal practices.

Finally, followup is important after a HHW collection event, especially for sponsors who hope to maintain and institutionalize the program. Local media should be provided with followup stones of the event, such as a report about the amount of HHW collected. A summary report should be prepared to document the results of the program.



SECTION ELEVEN

Case Studies



Raleigh, North Carolina

In October 1989, the Raleigh, North Carolina Public Utilities Department (the city's water and sewer utility) sponsored a pilot HHW program at the Department's Operations Center. The program had two objectives: to educate the citizens of Raleigh about HHW and proper HHW management methods; and to collect HHW from Raleigh residents and recycle *some* of the collected wastes.

The program met both of these goals, demonstrating that a water utility can effectively *design* and implement a HHW collection. The first collection day in 1989 drew an extraordinary number of participants for a first-time drop-off HH W collection-a total of 1,149, or 1.4 percent of the targeted 80,000 households.

Planning the Collection

The collection was planned by a HHW steering committee that included representatives from the public utilities department the Governor's Waste Management Board; the North Carolina Hazardous Waste Branch; the Institute for Environmental Studies at Chapel Hill; the City of Raleigh's Environmental Quality Advisory Board; the city's public works, fire, transportation, police, and safety departments; and others. The committee began planning for the collection day a full year before the event was held.

Publicity

Advertising for the October collection started at the beginning of January. A variety of publicity and public education methods were used:

- More than 40 press releases were prepared for newspapers, TV, and radio.
- Five hundred letters were mailed to civic organizations.
- Presentations with videotapes were delivered at civic group meetings.
- Bright yellow inserts were placed in every Raleigh water bill approximately six weeks before the collection.
- A member of the Environmental Quality Advisory Board sponsored an entire afternoon on a classical music radio station that included repeated announcements about the HHW collection.
- Raleigh's cable television station aired an informational program on HHW several times.

Graduate students from a local university surveyed the collection participants to find out how they heard about the collection. The results are shown below. (Note: The total percentage exceeds 100 because some people heard about the collection program from more than one source.)

Newspaper	48%
Water bill inserts	34%
Radio	16%
Television	14%
Other forms of advertising	8%
Civic groups	3%

Among the factors credited for the remarkable turnout at the collection was the steering committee's ability to personalize the issue when presenting it to the community. The program manager focused her advertising efforts to ensure that people understood that HHW management is an environmental issue that literally "hits home."

The highlight of this personalized effort was a press conference held in a homeowner's basement. This enabled the press to actually see what HHW is, to recognize that it is something most people have in their own homes, and to take advantage of a photo opportunity. Several major newspapers ran feature articles about HHW following this press conference. Television stations also included the press conference in their news reports.

Types of HHW Collected and Waste Management Methods Used

The hazardous waste contractor for the collection sent 355 drums of collected HHW for hazardous waste treatment and/or disposal. Three types of materials brought to the HHW collection were identified for recycling: good-quality latex paint, used oil, and automobile batteries. More than 100 gallons of latex paint were donated to the Raleigh Housing Authority for use in its projects. An oil service company in Raleigh accepted 2,800 gallons of motor oil for processing as industrial-grade fuel oil. A battery firm in Wilson, North Carolina, took 105 automotive batteries for recycling. Wastes not accepted at the collection included radioactive, biological wastes, explosives, ammunition, and nonhazardous waste.

Funding and Costs

Except for a one-time $10,000 matching grant from the state, Raleigh's program was funded entirely from the city's Department of Public Utilities budget. HHW collection (waste management and public education/publicity) was performed under contract; these direct costs totaled $141,147. Indirect costs-the cost of providing city staff on site (police and fire) and the hours spent by the HHW steering committee to plan the program-totaled an additional $26,017. City employees bulked used motor oil, directed traffic, and were available for emergency response.

Expanding the Program

On April 7,1990, Raleigh and Wake County held a collection open to the entire county. This collection drew 1,778 participants. The cost of the event was $175,210. It was funded by a separate line item on the city water and sewer bill (40¢/month), and the county share was funded through the landfill tipping fee.

An ad hoc group of Raleigh public works, utility, and transportation employees managed the program. The group was responsible for expanding the program to

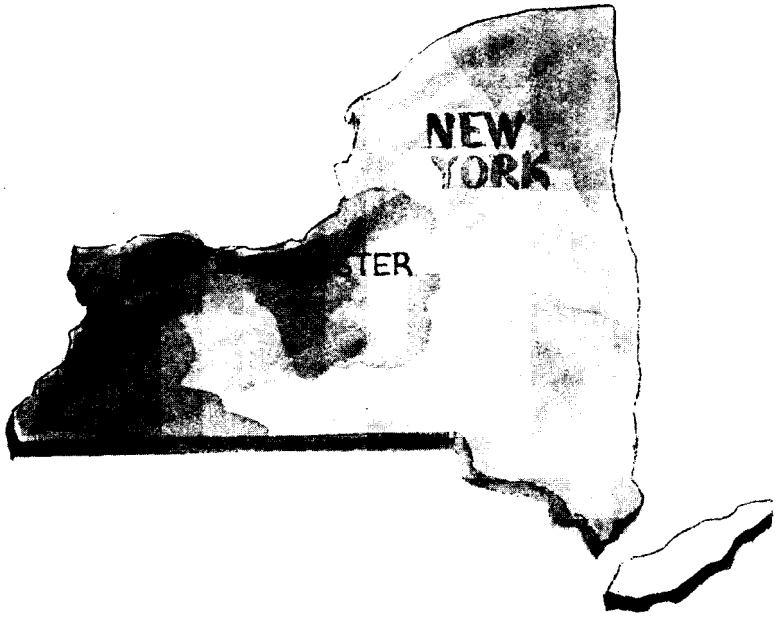
the full county and for developing a HHW curriculum for local schools. The group also is planning future collections.

The most effective publicity techniques for the April 1990 collection were flyers sent with water bills one month before the event and a series of press releases in the final week before the collection. The basement press conference was not repeated.

Organizers of the April 1990 event set a goal of increased recycling. A local paint company consolidated and blended 2,500 gallons of latex paint, charging only for the five-gallon plastic buckets used ($2 apiece). The City Housing Authority will save an estimated $9,500 by using this paint. In addition, the Parks and Recreation Department received 12 drums of pesticides from the collection.

The collection organizers made several other improvements over the 1989 event. The two most frequent suggestions from participants at the first collection were to reduce waiting time and to ban smoking. In response to these suggestions, organizers staffed two sites with 100 contractor and local personnel, reducing the waiting time at the second event to a maximum of 15 minutes. In addition, the sites now have permanent signs that ban smoking. In 1990, Habitat for Humanity bulked the good-quality latex paint at the collection site and then used it to paint low-income housing. The hazardous waste contractor analyzed the bulked latex paint for heavy metals. None of the bulk paint was rejected.

Source: *Cindy Kling, City of Raleigh, Public Utilities Department.*



Monroe County, New York

Monroe County in upstate New York held its first HHW collection on October 21, 1989, in the City of Rochester. The collection was attended by 1,400 of the 250,000 households in the county (0.56 percent participation rate) even though the day was overcast and cold. The site was open from 9 a.m. to 2 p.m. Lines formed as early as 8:20 a.m. Program organizers believe that hundreds of additional households did not participate because of the long wait or because many were turned away at 2 p.m.

Planning the Collection

Initial planning meetings began 18 months before the collection. A 12-person volunteer subcommittee of the county's Environmental Management Council (EMC) conducted background research, and the County unanimously accepted the EMC's recommendations in January 1990.

Monroe County established a committee of county professionals from the departments of solid waste, planning, health, and firm, as well as legislative and legal representatives, to plan and implement the collection event. The EMC coordinator was the project manager for the event. The County Division of Solid Waste carried out the details of site planning and provided the site coordinator. Chemists from the County Health Department sampled and handled the used oil and automotive batteries. The hazardous materials team was on site all day and the bomb squad was on call. County and municipal police and hospitals were notified about the day's event.

Publicity

The Monroe County EMC Household Hazardous Waste Committee was responsible for education for the event. The planning committee arranged for publicity before the collection day through newspapers, TV, radio, flyers, and slide shows. Eastman Kodak, a local employer, also publicized the event in its in-house newsletter and encouraged all employees to participate. Kodak also purchased fill-page newspaper ads about the company's recycling efforts and included a quarter of a page in the ads about the HHW collection.

Types of HHW Collected and Waste Management Methods Used

The program collected 3,000 gallons of used oil, 13,375 pounds of automotive batteries, and 80,000 pounds of other types of HHW. Used oil was reprocessed into fuel oil by a local firm, and automobile batteries were sold to a local broker for recycling. Wastes excluded from the collection included unlabeled waste, latex paint, radioactive and biohazardous waste, explosives, shock-sensitive wastes, and propane tanks.

Funding and Costs

To pay for the collection program, Monroe County spent $62,000, the City of Rochester contributed $5,000, and local businesses donated $57,000 (as well as in-kind contributions such as free publicity). Eastman Kodak saved the county an additional $32,410 in waste management costs by accepting 384 thirty-gallon drums and 135 five-gallon pails of paints and solvents. These wastes were burned at Kodak's hazardous waste incinerator at no cost to the county. Thus, the total cost of the program, including all monetary and in-kind contributions, exceeded $150,000.

Program Evaluation

The county considered its frost-time HHW collection a tremendous success. Recommendations for future one-day collections include designating an individual to assist the media on site (no one was available for this on the collection day) and using volunteers in shifts so that they can take breaks.

The only significant problem at the event was that many potential participants had to be turned away. Collection organizers do not believe that increased staffing would have solved this problem—the contractor provided 24 staff people and worked efficiently, processing four households per minute. Instead, the county has decided to establish a permanent HHW collection program. The county hired an engineering firm to design a permanent facility and selected a site for the program. The facility opened in the spring of 1992.

Source: *Alice Young, League of Women Voters, Rochester Metro, Chair Monroe County Environmental Management Council, Household Hazardous Waste Committee.*

APPENDICES

A. Hazardous Waste Laws and Regulations

B. State and Regional Hazardous Waste Contacts

C. Information Resources

D. Sample Participant Questionnaire

APPENDIX A

Hazardous Waste Laws and Regulations

Federal Requirements For HHW Management Programs

EPA has issued regulations governing hazardous waste under the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund). This Appendix generally summarizes the regulations that may be ap plicable to HHW collection programs managing various types of hazardous wastes. It is important for organizers to consult appropriate EPA regional and state personnel to get abetter understanding of how these regulations apply to HHW collection programs.

In addition, state laws maybe more stringent than the federal regulations described below. Therefore, it also is important that HHW collection organizers familiarize themselves with and follow state hazardous waste requirements. Consult your state solid and hazardous waste agency (see Appendix B) for further information.

The Resource Conservation and Recovery Act *(RCRA)*

RCRA is the federal law requiring safeguards and encouraging environmentally sound methods for disposal of household, municipal, commercial, and industrial waste. Hazardous waste is regulated under RCRA's Subtitle C program. Subtitle C establishes a system for controlling hazardous waste from "cradle to grave''-from the moment it is generated until its ultimate disposal. These controls include:

- **A tracking system** that requires a manifest document to accompany transported hazardous waste from the point of generation to the point of final disposal.
- **An identification and permitting system** that enables EPA and the states to ensure the safe operation of all facilities involved in the treatment, storage, and disposal of hazardous waste. Certain generators, transporters, and treatment, storage, and disposal facilities (TSDFs) must obtain an EPA identification number. TSDFs also must obtain a permit to operate, which ensures that they meet the standards established under the RCRA program for proper waste management.
- **A system of restrictions and controls** on the placement of hazardous waste on or into the land.

RCRA requirements for hazardous waste management vary depending on whether the waste is HHW, conditionally exempt small quantity generator (CESQG) waste, or small quantity generator (SQG) waste. These requirements are described below.

Household hazardous waste

Household waste, including HHW, is exempt from federal hazardous waste regulations and liability under RCRA Subtitle C. Therefore, HHW is not regulated under RCRA as a hazardous waste (see 40 CFR 261 .4(b)(l)). Programs that collect HHW do not need a Subtitle C

permit or EPA identification number, and HHW can be transported without following hazardous waste transportation regulations (e.g., people can bring HHW to a collection facility in their cars). No quantity of HHW or length of time of accumulation triggers the Subtitle C requirements.

To be defined as "household" waste and thus be exempt from federal hazardous waste regulations, the waste must be:

- Generated by individuals on the premises of a residence for individuals (a household).

and

- Composed primarily of materials found in the wastes generated by consumers in their homes.

Even if waste generated by a commercial or industrial establishment *looks* like household waste, it is not exempt from federal hazardous waste regulations.

The household waste exemption applies to HHW through its entire management cycle. The waste collected through a HHW collection program does not lose its exemption by being consolidated with other household waste. In summary, if a program accepts only waste from households, there are no applicable federal hazardous waste regulations.

Conditionally exempt small quantity generator (CESQG) waste

Some communities decide to run programs that collect CESQG waste as well as HHW. Communities generally make this decision to help small businesses keep hazardous waste out of the municipal waste stream. Hazardous waste generators are conditionally exempt from the federal hazardous waste regulations if they generate less than 100 kilograms (approximately 220 pounds or about half of a 55-gallon drum) of hazardous waste per month. Like HHW, CESQG waste is exempt from most of the federal hazardous waste requirements. No Subtitle C permit or EPA identification number is needed, and CESQG waste can be transported without following the federal hazardous waste transportation requirements.

In general, CESQGs must comply with two requirements. They do not store more than 1,000 kilograms (about 2,200 pounds) of hazardous waste at their facility at one time, and they send their hazardous waste to a recycling facility, a hazardous waste facility, or a facility permitted, licensed, or registered by the state to manage municipal or industrial solid waste (usually, a municipal landfill). These CESQGs may send their hazardous waste to HHW collection programs that are state-permitted, licensed, or registered to manage municipal or industrial solid waste. Because CESQG waste is conditionally exempt throughout its management cycle, collection programs managing CESQG waste are not covered by the federal hazardous waste regulations, but are subject to requirements imposed by states through their municipal or industrial waste permit, license, or registration programs.

EPA encourages the collection and proper management of CESQG waste. Community collection programs can help meet this goal by accepting CESQG waste from schools, small businesses, farms, government agencies, and other commercial and institutional hazardous waste generators.

CESQGs are responsible for ensuring that their waste is managed in compliance with federal requirements. They may ask the collection program for documentation of registration or licensing if required by the state. CESQGs can refer to EPA's Understanding *the Small Quantity Generator Hazardous Waste Rules: A Handbook for Small Business* for more information about the requirements that apply to them. Contact your

regional EPA office for this publication or for more information.

EPA recommendations for programs that collect HHW and CESQG waste

Although HHW and CESQG waste are exempt from most federal hazardous waste regulations, EPA recommends that sponsors of HHW collection programs manage the collected waste as a Subtitle C hazardous waste-that is, it should be managed at a recycling or licensed hazardous waste facility. Given the effort and expense a community has already put into its HHW collection program, it makes sense to ensure the greater level of environmental protection that will result from the Subtitle C controls.

EPA also recommends that HHW collection programs use licensed hazardous waste transporters who will properly identify, label, manifest, and transport the collected wastes for recycling, treatment, or disposal. State hazardous waste agencies (see Appendix B) can provide a list of licensed facilities and transporters.

Small quantity generator (SQG) waste

SQGs are those that generate more than 100 kilograms (220 pounds) and less than 1,000 kilograms (2,200) pounds) of hazardous waste per month. SQGs must use specified packaging for their waste; use a fully completed manifest form when shipping the waste off site; use only hazardous waste transporters; and send their waste to authorized hazardous waste management facilities with EPA identification numbers to transport, treat, store, or dispose of their hazardous waste.

HHW collection programs may not accept SQG wastes unless the program has a RCRA Subtitle C permit (or is a transporter who stores manifested shipments of hazardous waste at a transfer facility for a period of 10 days or less). Therefore, sponsors should be careful to limit participation in their programs to households and CESQGs to avoid the need to obtain a RCRA permit. To ensure that a hazardous waste generator is a CESQG and not a regulated SQG, program sponsors should establish procedures to differentiate between the two types of generators. Some programs exclude SQG waste by requiring pre-registration by CESQGs. At the time of pre-registration, program personnel can inquire about the types and quantities of waste that the generator wishes to bring to the collection.

The Comprehensive Environmental Response, Compensation, And Liability Act (CERCLA/Superfund)

Congress passed CERCLA in 1980 to address the cleanup of inactive and abandoned hazardous waste sites. Under CERCLA, if cleanup of a hazardous waste disposal site is necessary, all sources of the waste, as well as the owner or operator of the site, might be potentially responsible parties (PRPs), who are liable for the entire cleanup cost for the site.

CERCLA does not exclude HHW from liability, nor does it allow any exemption based on the amount of waste generated. If HHW contains a substance defined as hazardous under CERCLA, potential liability exists. The Agency, however, will generally not notify generators or transporters of municipal solid waste—including HHW collection programs—that they are considered PRPs, *unless* EPA has information indicating that the waste came from an industrial, institutional, or commercial process or activity. This includes, but is not limited to, SQG

waste from commercial or industrial processes or activities, and used or spent solvents from private or municipally owned maintenance shops. EPA makes decisions about notifying PRPs on a case-by-case basis, and may, in exceptional situations, notify parties who generated or transported only household waste to a site. PRPs may sue other parties that they believe share liability. Citizen suits are unrestricted.

While CERCLA does not exempt HHW collection programs from liability, it is important to realize that the potential for liability might be greater if a community takes no action to ensure proper disposal of HHW. The additional safeguards provided by HHW collection and Subtitle C management can reduce the likelihood of environmental and human health impacts, and thereby might reduce potential CERCLA liability.

For more information about federal laws pertaining to HHW, you can call the RCRA/Superfund Hotline at 800-424-9346. In Washington, DC, please call 703-412-9810. The Hotline is open Monday through Friday, 8:30 a.m. to 7:30 p.m. EST. For the hearing impaired, the TDD number is 800-553-7672. Alternatively, you can contact your EPA regional office (see Appendix B).

State and Local Requirements

Some states have regulations or guidelines for HHW management programs or permanent HHW management facilities that are more stringent than the federal requirements. These may include requirements for a permit, permit variances, or a plan for the collection day.

Some states do not have an exemption for CESQGs; others might use a lower cut-off than 100 kilograms per month or have different management requirements. States also might have CERCLA-type legislation allowing recovery of the costs of hazardous waste site cleanup. Organizers of HHW management programs must check with their state environmental officials (see Appendix B) to learn about applicable regulations. In addition, local zoning, building, and fire codes might apply to HHW collections; the appropriate local agencies must be contacted to ensure compliance.

APPENDIX B

State and Regional Hazardous Waste Contacts

State Contacts

Alabama

Land Division
Alabama Department of Environmental Management
1751 Cong. William L. Dickinson Drive
Montgomery, AL 36130
205-271-7730

Alaska

Solid and Hazardous Waste Management Section
Alaska Department of Environmental Conservation
410 Willoughby Avenue, Suite 105
Juneau, AK 99801-1795
907-465-5150

American Samoa

Environmental Quality Commission
Government of American Samoa
Pago Pago, American Samoa 96799
Overseas Operator: 684-663-2304

Arizona

Office of Waste Programs
Arizona Department of Environmental Quality
3033 N. Central Avenue
Phoenix, AZ 85012
602-207-4108

Arkansas

Hazardous Waste Division
Arkansas Department of Pollution Control and Ecology
P.O. Box 8913
Little Rock, AR 72219-8913
501-562-7444

California

Department of Toxic Substances Control
Hazardous Waste Division
P.O. Box *806*
400 P Street
Sacramento, CA 95812-0806
916-324-1826

Colorado

Hazardous Materials and Waste Management Division
Colorado Department of Health
4210 E. 1 lth Avenue
Denver, CO *80220*
303-331-4830

Commonwealth of Northern Mariana Islands

Division of Environmental Quality
Department of Public Health and Environmental Services
Commonwealth of the Northern Mariana Islands
Saipan, Mariana Islands 96950
Overseas Operator: 670-234-6114
Cable Address: Gov. NMI Saipan

Connecticut

Bureau of Waste Management
Department of Environmental Protection
State Office Building
165 Capitol Avenue
Hartford, CT 06106
203-566-8476

Delaware

Division of Air and Waste Management
Department of Natural Resources and Environmental Control
P.O. Box 1401
89 Kings Highway
Dover, DE 19903
302-739-4764

District of Columbia

Pesticides and Hazardous Materials Division
Department of Consumer and Regulatory Affairs
2100 Martin Luther King Avenue, SE.
Suite 203
Washington, DC 20020
202-404-1167

Florida

Division of Waste Management
UST
Department of Environmental Regulations
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32339-2400
904-487-3299

Georgia

Land Protection Branch
Floyd Towers East/Room 1154
205 Butler Street, SE.
Atlanta, GA 30334
404-656-2833

Guam

Hazardous Waste Management program
Guam Environmental Protection Agency
IT& E Harmon Plaza
130 Rojas Street, Unit D-1
Harmon, Guam 96911
Overseas Operator 671-646-8863

Hawaii

Solid and Hazardous Waste Branch
Department of Health
5 Waterfront Plaza, Suite 250
500 Ala Moana Boulevard
P.O. Box 3378
Honolulu, HI 96813
808-586-4226

Idaho

Hazardous Materials Bureau
Water Quality Bureau, Division of Environmental Quality
1410 North Hilton Street
Boise, ID 83706
208-334-5860

Illinois

Division of Land Pollution Control
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, IL 62794-9276
217-785-8604

Indiana

Hazardous Waste Management Branch
Indiana Department of Environmental Management
105 S. Meridian Street
Indianapolis, IN 46206-6015
317-232-3292

Iowa

Air Quality and Solid Waste Section
Department of Natural Resources
900 East Grand Avenue
Des Moines, IA 50319-0034
515-281-8852

Kansas

Air and Waste Management
Department of Health and Environment
Forbes Field, Building 740
Topeka, KS 66620
913-296-1593

Kentucky
Division of Waste Management
Department of Environmental Protection
18 Reilly Road
Frankfort, KY 40601
502-564-6716

Louisiana
Hazardous Waste Division
Louisiana Department of Environmental Quality
P.O. Box 82178
7290 Bluebonnet Drive
Baton Rouge, LA 70884-2178
504-765-0355

Maine
Bureau of Hazardous Materials Control and Solid Waste Control
Department of Environmental Protection
State House, Station #17
Augusta, ME 04333
207-289-2651

Maryland
Hazardous and Solid Waste Management Administration
Maryland Department of the Environment
2500 Browening Highway
Baltimore, MD 21224
410-631-3304

Massachusetts
Divison of Solid and Hazardous Waste
Massachusetts Department of Environmental Protection
One Winter Street, 7th Floor
Boston, MA 02108
617-292-5853

Michigan
Waste Management Division
Department of Natural Resources
608 W. Allegan Street
Box 3338
Lansing, MI 48933
517-373-2730

Minnesota
Hazardous Waste Division
Minnesota Pollution Control Agency
520 Lafayette Road, North
St. Paul, MN 55155
612-297-8502

Mississippi
Division of Hazardous Waste Management
Department of Natural Resources
P.O. Box 10385
Jackson, MS 39289-0385
601-961-5171

Missouri
Waste Management Program
Department of Natural Resources
Jefferson Building
205 Jefferson Street
P.O. Box 176
Jefferson City, MO 65102
314-751-3176

Montana
Solid and Hazardous Waste Bureau
Department of Health and Environmental Sciences
Cogswell Building
Helena, MT 59620
406-444-2821

Nebraska
Department of Environmental Control
P.O. Box 98922
301 Centennial Mall S.
Lincoln, NE 68509-8922
402-471-4210

Nevada
Waste Management program
Division of Environmental Protection
Department of Conservation and Natural Resources
Capitol Complex
123 West Nye Lane
Carson City, NV 89710
702-687-5872

New Hampshire
Office of Waste Management
Department of Environmental Services
6 Hazen Drive
Concord, NH 03301-6509
603-271-2900

New Jersey
Division of Hazardous Waste Management
Department of Environmental Protection
401 East State Street/CN 028
Trenton, NJ 08625
609-292-1250

New Mexico
Hazardous and Radioactive Waste Bureau
Environmental Department
525 Camino de los Marquez
P.O. Box 26110
Santa Fe, NM 87502
505-827-4308

New York
Division of Solid and Hazardous Waste
Department of Environmental Conservation
50 Wolf Road
Albany, NY 12233
518-457-6603

North Carolina
Solid and Hazardous Waste Management Branch
Division of Health Services
Department of Human Resources
P.O. Box 27687
Raleigh, NC 27611-7687
919-733-2178

North Dakota
Division of Waste Management
Department of Health Management and Special Studies
1200 Missouri Avenue, Room 302
Bismarck, ND 58502-5520
701-221-5166

Ohio
Division of Solid and Hazardous Waste Management
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, OH 43266-0149
614-644-2958

Oklahoma
Hazardous Waste Management Service
Oklahoma State Department of Health
1000 Northeast l0th Street
Oklahoma City, OK 73117-1299
405-271-7052

Oregon
Hazardous and Solid Waste Division
Department of Environmental Quality
811 Southwest 6th Avenue, 8th Floor
Portland, OR 97204-1390
503-229-5913

Pennsylvania
Division of Hazardous Waste Management
Pennsylvania Department of Environmental Resources
P.O. Box 2063
Fulton Building
Harrisburg, PA 17105-2063
717-787-9870

Puerto Rico
Environmental Protection Agency
1413 Fernadez Juncos
Santurce, PR 00909
809-729-6920

Rhode Island
Air and Hazardous Materials Program
Department of Environmental Management
291 Promenade Street
Providence, RI 02908
401-277-2797

South Carolina

Bureau of Solid and Hazardous Waste Management
Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201
803-734-5200

South Dakota

Office of Air Quality and Solid Waste
Department of Water and Natural Resources
523 E. Capitol
Foss Building, Room 416
Pierre, SD 57501
605-773-3153

Tennessee

Division of Solid Waste Management
Tennessee Department of Public Health
701 Broadway
Customs House, 4th Floor
Nashville, TN 37219-5403
615-741-3424

Texas

Industrial and Hazardous Waste Division
Texas Water Commission
P.O. Box 13087
Austin, TX 78711-3087
512-908-2334

Utah

Bureau of Solid and Hazardous Waste Management
Department of Environmental Quality
288 North 1460 West
Salt Lake City, UT 84114-4880
801-538-6170

Vermont

Hazardous Waste Management Division
Agency of Environmental Conservation
103 South Maine Street
Waterbury, VT 05761-0404
802-244-8702

Virgin Islands

Department of Planning and Natural Resources
Suite 231, Nisky Center
45-A Estate Nisky
St. Thomas, VI 00802
809-774-3320

Virginia

Hazardous Waste Division
Virginia Department of Waste Management
Monroe Building, llth Floor
101 North 14th Street
Richmond, VA 23219
804-225-4761

Washington

Solid and Hazardous Waste Management Program
Department of Ecology
P.O. Box *47600*
Olympia, WA 98504-7600
206-459-6316

West Virginia

Waste Management Division
Commerce, Labor, and Environmental Resources
1356 Hansford Street
Charleston, WV 25301
304-348-5929

Wisconsin

Bureau of Solid and Hazardous Waste Management
Department of Natural Resources
P.O. Box 7921 /SW-3
Madison, WI 53707-7921
608-266-2111

Wyoming

Solid Waste Management Program
State of Wyoming Department of Environmental Quality
122 West 25th Street
Herschler Building
Cheyenne, WY 82002
307-777-7752

EPA Regional Contacts

EPA Region 1

(Connecticut Maine, Massachusetts, New Hampshire, Rhode Island, Vermont)

Contact:

Waste Management Division
90 Canal Street
Boston, MA 02 14
617-573-5707

EPA Region 2

(New Jersey, New York, Puerto Rico, Virgin Islands)

Contact:

Hazardous Waste Compliance Branch
26 Federal Plaza, 10th Floor
New York, NY 10278
212-264-2301

EPA Region 3

(Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia)

Contact:

Waste Management Branch (3HW30)
841 Chestnut Street
Philadelphia, PA 19107
215-597-6633

EPA Region 4

(Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)

Contact

Residuals Management Branch
345 Courtland Street, NE.
Atlanta, GA 30365
404-347-7603

EPA Region 5

(Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)

Contact:

RCRA Program Management Branch
77 W. Jackson Boulevard HRE-8
Chicago, IL 60604-3507
312-886-4434

EPA Region 6

(Arkansas, Louisiana, New Mexico, Oklahoma Texas)

Contact:

RCRA Programs Branch (6H-H)
First Interstate Bank Tower
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733
214-655-6700

EPA Region 7

(Iowa, Kansas, Missouri, Nebraska)

Contact:

RCRA Branch
726 Minnesota Avenue
Kansas City, KS 66101
913-551-7051

EPA Region 8

(Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming)

Contact

Hazardous Waste Management Division
One Denver Place
999 18th Street Suite 500
Denver, CO 80202-2405
303-293-1720

EPA Region 9

(Arizona, California, Hawaii, Nevada, Guam, Marianas)

Contact

Office of Waste Programs (T-2A)
75 Hawthorne Street
San Francisco, CA 94105
415-744-1500

EPA Region 10

(Alaska, Idaho, Oregon, Washington)

Contact:

Hazardous Waste Management
1200 Sixth Avenue, 1 lth Floor
Seattle, WA 98101
206-553-4973

APPENDIX C

Information Resources

Organizations

Agency of Environmental Conservation (paint swaps)
103 S. Main Street, M Building
Waterbury, VT 05671-0407
802-244-7831

Bio-Integral Resource Center (BIRC)
P.O. Box 7414
Berkeley, CA 94707
510-524-2567

California Integrated Waste Management Board
8800 Cal Center Drive
Sacramento, CA 95826
916-255-2200

Center for Safety in the Arts
5 Beekman Street, Suite 1030
New York, NY 10038
212-227-6220

Concern, Inc.
1794 Columbia Road, NW.
Washington, DC 20009
202-328-8160

Ecology Center of Ann Arbor
201 Detroit Street
Ann Arbor, MI 48104
313-761-3186

Environmental Hazards Management Institute (EHMI) (HHW wheels)
10 Newmarket Road, P.O. Box 932
Durham, NH 03824
603-868-1496

Environmental Health Coalition
1717 Kettner Drive #100
San Diego, CA 92101
619-235-0281

Household Hazardous Waste Project
1031 East Battlefield, Suite 214
Springfield, MO 65807
417-889-5000

Metrocenter YMCA
909 Fourth Avenue
Seattle, WA 98104
206-382-5013

Minnesota Office of Consumer Policy
NCL Tower, Suite 1400
445 Minnesota Street
St. Paul, MN 55101-2131
612-296-7575

Minnesota Pollution Control Agency
520 Lafayette Road, North
St. Paul, MN 55155
612-296-6300

National Coalition Against the Misuse of Pesticides
701 E Street, SE., Suite 200
Washington, DC 20003
202-543-5450

National Recycling Coalition
1101 30th Street, NW.
Suite 305
Washington, DC 20007
202-625-6406

Nuclear Regulatory Commission (smoke detectors)
Washington, DC 20555
301-504-2240

Office of Solid Waste
U.S. EPA
401 M Street, SW. (0S-305)
Washington, DC 20460
EPA RCRA/Superfund Hotline:
800-424-9346

Project ROSE (used oil)
University of Alabama
P.O. Box 870203
Tuscaloosa, AL 35487-0203
205-348-4878

Solid and Hazardous Waste Management Program
Washington Department of Ecology
P.O. Box 47655
Olympia, WA 98504-7655
206-459-6303

Solid Waste Information Clearinghouse (SWICH)
800-67-SWICH

Toxicant/HHW Project
METRO
821 Second Avenue, Mail Stop 81
Seattle, WA 98104
206-684-1233

University of Wisconsin Cooperative Extension
Environmental Resources Center
1450 Linden Drive
Madison, WI 53706
608-262-0020

Washington Toxics Coalition
4516 University Way, NE
Seattle, WA 98105
206-632-1545

Waste Watch Center
16 Haverhill Street
Andover, MA 01810
508-470-3044

Books and Pamphlets

Alternatives (a series of fact sheets), Washington Toxics Coalition. (EPA/530-SW-88-014).

Bibliography on Household Hazardous Wastes, U.S. Environmental Protection Agency. Available through the RCRA/Superfund Hotline, 800-424-9346.

Chemicals in Household Products, Bradley C. Clark, Ingham County Health Department, 5303 S. Cedar, P.O. Box 30161, Lansing, MI 48909.

Decision Makers Guide to Solid Waste Management (1990), U.S. Environmental Protection Agency. Available through the RCRA/Superfund Hotline, 800-424-9346. (EPA/530-SW-89-072).

Disposal—Do It Right, Household Products Disposal Council, 1201 Connecticut Avenue, NW., Suite 300, Washington, DC 20036,202-659-5535.

The "Environmentally Friendly" Consumer Office of the Minnesota Attorney General, Consumer Services Division, 1400 North Central Life Tower, St. Paul, MN 55101,612-296-3353.

Fire Protection Guide to Hazardous Materials (1990), National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101,800-344-3555.

Guide to Hazardous Products Around the Home (1989), Household Hazardous Waste Project, Springfield, MO.

Hazardous Wastes from Homes, Enterprise for Education, 1320 A Santa Monica Mall, Santa Monica CA 90401, 213-394-9864.

Home Safe Home, Washington Toxics Coalition.

Household Batteries in Minnesota, Karen Arnold et al., Minnesota Pollution Control Agency.

Household Hazardous Waste: Guidelines for Conducting Collection Events (1989), Washington Department of Ecology.

Household Hazardous Wrote: Solving the Disposal Dilemma, Gina Purin et al., Local Government Commission, 909 12th Street, Suite 205, Sacramento, CA 95814,916-448-1198.

Household Hazardous Waste Management Planning (1990), Donald Seeberger, Hennepin (MN) County Environment and Energy Division/Urban Consortium Ninth Year Energy program.

Household Hazardous Waste Wheel, EHMI, Durham, NH.

Household Hazardous Wastes: Feasibility of Operating a Collection and Disposal Assistance Program, (1989), Illinois Environmental Protection Agency (IEPA/ENV/99-066).

Household Hazards: A Guide to Detoxifying Your Home (1991), League of Women Voters, 35 Maiden Lane, Albany, NY 12207-2712,518-465-4162.

Household Waste: Issues and Opportunities, (1989) Andy Knaus et al., Concern, Inc..

How to Organize a Community Collection Day, Department of Environmental Protection, Hartford, CT.

How to Set Up a Local Program to Recycle Used Oil (1989), U.S. Environmental protection Agency (EPA/530-SW-89-039a).

The Merck Index: An Encyclopedia of Chemicals and Drugs, Merck and Company, Rahway, NJ.

Proceedings of the Sixth National Conference on Household Hazardous Waste Management, Dana Duxbury & Associates, 1991. Summaries of the First (PB89-179-501), Second (PB89-179-519), and Third (PB89-179-527) National Conferences also are available from the Center for Environmental Management, Tufts University. Proceedings from the Fourth (PB90- 163-189) and Fifth (PB91-206-607) National Conferences are available from the National Technical Information Service, Springfield, VA 800-553-6847 or Waste Watch Center 508-470-3044.

Recycling Used *Oil:* What *Can You Do?* (EPA/530-SW-89-039B), *Recycling Used Oil: 10 Steps to Change Your Oil (EPA1530-SW-89-039C), Recycling Used Oil: For Service Stations and Other Vehicle Service Facilities* (EPA/530-SW-89-039d), U.S. Environmental Protection Agency. These pamphlets are available through the RCRA/Superfund Hotline, 800-424-9346.

States' Efforts to Promote Lead-Acid Battery Recycling (PB92-119-965), U.S. Environmental Protection Agency. Available from the National Technical Information Service, 800-553-6847.

A Survey of Household Hazardous Wastes and Related Collection Programs, U.S. Environmental Protection Agency. Available through the RCRA/Superfund Hotline, 800-424-9346 (EPA/530-SW-86-038).

Take Me Shopping: A Consumer Guide to Using Specific Materials, Techniques, and Substitutes for HHW Santa Clara County Hazardous Waste Management Program, 408-441-1195.

Used Oil Recycling (newsletter), U.S. Environmental Protection Agency. Available through the RCRA/Superfund Hotline, 800-424-9346.

Periodicals

BioCycle
419 State Avenue, Second Floor
Emmaus, PA 18049
215-967-4135

Garbage
2 Maine Street
Gloucester, MA 01930
508-283-3200

Household Hazardous Waste Management News
The Waste Watch Center
16 Haverhill Street
Andover, MA 01810
508-470-3044

Resource Recycling
P.O. Box 10540
Portland, OR 97210
800-227-1424

Wanner Bulletin
The World Resource Foundation
83 Mount Ephraim
Tunbridge Wells, Kent UK TN4 8BS
0892-24626

Waste Age
1730 Rhode Island Avenue, NW.
Suite 1000
Washington, DC 20036
202-861-0708

World Wastes
Communications Channels, Inc.
6255 Barfield Road
Atlanta, GA 30328
404-256-9800

Audiovisual Materials

Videotapes and other audiovisual materials are available from:

Ecology Center of Ann Arbor
417 Detroit Street
Ann Arbor, MI 48104
313-761-3186

Environmental Health Coalition
1717 Kettner Blvd. #100
San Diego, CA 92101
619-235-0281

HHW Project
Washington Department of Ecology
P.O. Box 47655
Olympia, WA 98504-7655
206-459-6303

Massachusetts League of Women Voters
133 Portland Street
Boston, MA 02114
617-523-2999

Prevention Program
Contra Costa County Health Services
75 Santa Barbara Road
Pleasant Hill, CA 94523
510-646-6511

Refuse Industry Products, Inc.
P.O. Box 1011
Grass Valley, CA 95945
916-274-3092

San Bernardino County DHS
HazMat Risk Assessment & Planning
385 N. Arrowhead Ave.
San Bernardino, CA 92415-0160
714-387-4629

The Video Project
LMV of California
926 J Street, Suite 1000
Sacramento, CA 95814
916-442-7215

HHW Curricula for Schools

(compiled from information provided by the Household Hazardous Waste Project, Springfield, MO)

Activities for Teaching about Hazardous Materials in the Home (1989). Grades: K-3, 4-6,7-9, 10-12. ERIC Science, Mathematics, and Environmental Education Clearinghouse, The Ohio State University, 1200 Chambers Road, 3rd Floor, Columbus, OH 43212, 614-292-6717.

Bags, Beakers, and Barrels: An Action Curriculum Toward Resolving Hazardous Materials Issues (1987). Six units and 35 activities. Grades: Middle and High School. Industrial States Policy Center, 17 Brickel Street, Columbus, OH 43215, 614-224-4111.

CHEM: Chemicals, Health, Environment, and Me (1990). Ten teaching units. Grades: Middle or High School. Chemical Education for Public Understanding Program (CEPUP), Lawrence Hall of Science, University of California, Berkeley, CA 94720, 510-642-8718.

Garbage in America (1988). Recycling and environmental curriculum, including video. Grades: K-6, Junior High, Senior High. Refuse Industry Productions, P.O. Box 1011, Grass Valley, CA 95945, 916-274-3092.

Hazardous Waste Education Kit. Kit with *5* workbooks and a resource section. Grades: 7-9. Federation of Ontario Naturalists, 355 Lesmill Road, Don Mills ON, M3B 2W8 CANADA, 416-444-8419.

Hazardous Wrote School Curriculums. Grades: K-12. State of Alaska, Department of Environmental Conservation, PO. Box O, Juneau, AK 99811-1800,907-465-2671.

Healthy Environment-Healthy Me (1990). Interdisciplinary with videos. Grades: K-5. Resource Center for EOHSI, Brookwood II, 45 Knightsbridge Road, Piscataway, NJ 08854,908-463-5353.

Household Hazardous Materials and Labels: A Reference for Teachers (1986). Book and worksheets. Grades: Middle School. East Michigan Environmental Action Council, 21220 West Fourteen-mile Road, Birmingham, MI 48010,313-258-5188.

Household Hazardous Materials: Pollution Solutions Start at Home (1989). Three 5-day units. Grades: Middle School. Environmental Health Coalition, 1717 Kettner Blvd. #100, San Diego, CA 92101,619-235-0281.

Household Hazardous Waste Educational Program Kit (1986). Handbook and instructional materials. Grades: K-6. San Bernardino County, Department of Environmental Health Services, Environmental Education Program, 385 N. Arrowhead Avenue, San Bernardino, CA 92415-0160,714-387-4639.

Household Hazardous Waste Learning Stations (1990). Ten learning stations and a video. Grades: 4-6. Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, MN 55155, 612-297-8324. Will distribute only in MN.

Household Toxics (1988). Grades: 4-6. Six lesson plans with activities and games. Environmental Health Coalition, 1717 Kettner Blvd. #100, San Diego, CA 92101,619-235-0281.

Household Toxics (1 989). Interdisciplinary with activities and teaching materials. Grades: 5-6. Municipality of Anchorage, Solid Waste Services, P.O. Box 196650, Anchorage, AK 99519-6650, 907-261-5221.

Making the Connection. A Teacher's Guide to Household Hazardous Substances and the Classroom. Video with activities and resources. Grades: Middle and High School Teachers. Ecology Center of Ann Arbor, 201 Detroit Street, Ann Arbor, MI 48104,313-761-3186.

A Manual for the Household Hazardous Materials Audit (1987). Booklet and survey. Grades: Middle Schools through Adults. Alaska Center for the Environment, 519 W 8th Avenue, Suite 201, Anchorage, AK 99501, 907-274-3621.

Project Erase Waste (1991). Ten lessons about solid waste management with activities. Grade: 6. Kern County Waste Management 2700 "M" Street, Suite 500, Bakersfield, CA 93301,805-861-2159.

SLEUTH: Strategies and Lessons to Eliminate Unused Toxicants, Help! (1982). Teaching unit that presents HHW issues. Grades: 4-12. METRO, Water Resources Section, HHW Project, 821 Second Avenue, MS 81, Seattle, WA 98104-1598,206-684-1233. This document is only available on a check-out basis.

Too Close for Comfort: Reducing Household Toxics. Video on health and environmental problems associated with common household products. Grades: 4 through Adult. Prevention Program, 75 Santa Barbara Road, Pleasant Hill, CA 94523,510-646-6511.

Tools for the Environmental Teacher (1992). Inventory, worksheets, and a game. Grades: Junior and Senior High School. Household Hazardous Waste Project, 1031 East Battlefield, Suite 214, Springfield, MO 65807, 417-884-5000.

Toxics in My Home? You Bet! (1984). One-week curriculum available in English and Spanish. Grades: K-12. Local Government Commission, Inc., 909 12th Street, Suite 205, Sacramento, CA 95814,916-448-1198.

GOVERNMENT PRINTING OFFICE : 1993 O - 357-445 : QL 3

APPENDIX D

Sample Participant Questionnaire

1. Do **you own** or **rent your home?**
   ❑ **Rent** ❑ Own

2. Age under 25 ❑ **26-40** ❑ **41-65** ❑ **Over 65**

3. Sex
   ❑ Female ❑ Male

4. City _____ Zip Code _____

5. This waste is left over from what type of operation?
   ❑ Household ❑ Farming/ranching ❑ Commercial/business

6. Please check the type of hazardous waste you brought:
   ❑ Used oil ❑ Medications ❑ paint ❑ Unlabeled Containers
   ❑ Solvents ❑ Pesticides ❑ Batteries ❑ Other Wastes

7. Are the wastes you brought from more than one household?
   ❑ Yes ❑ No
   How many households? _____

8. How long have you had the wastes?
   _____

9. How far did you drive to come to today's collection event?
   ❑ 1-5 miles ❑ 6-10 miles ❑ 11-15 miles
   ❑ 16-20 miles ❑ Over 20 miles
   How far would you be willing to drive? _____

10. How did you hear about the collection day?
    ❑ Poster ❑ Billboard ❑ Radio ❑ Brochure delivered to home
    ❑ Television ❑ Insert with utility bill ❑ Newspaper article ❑ Word of mouth
    ❑ Newspaper ad ❑ School/children ❑ Grocery store flyer
    ❑ **Other** _____

11. Have you ever been to a household hazardous waste collection before?
    ❑ Yes ❑ No

12. How much would you be willing to pay to dispose of your household hazardous waste on a regular basis? (Household hazardous waste is very expensive to dispose of properly-over $350 per drum for waste paint.)
    ❑ Nothing ❑ $5/month $ _____ (fill in amount)

13. How often would you use a household hazardous waste collection in your area?
    ❑ Monthly ❑ Twice a year ❑ Once a year ❑ Once every 2 years

14. If this collection event had not been held, what would you have done with your household hazardous waste?
    _____
    _____
    _____

Source Dakota County Household Hazardous Waste Collection Inventory and Data Sheet; San Francisco Household Hazardous Waste *Collection* **Facility Participant Questionnaire; Klickitat County Household Hazardous Waste Collection Days Questionnaire; Iowa Deportment of Natural Resources Toxic** *Cleanup* **Days Questionnaire.**

This publication was reviewed by professional experts not employed by the Environmental Protection Agency, and by appropriate offices within the Agency.