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RCRA, Superfund & EPCRA Call Center Training Module

Introduction to:

RCRA Solid Waste Programs

Updated October 2001

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RCRA SOLID WASTE PROGRAMS

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1. INTRODUCTION

During the 1980s, solid waste management issues began to pose potential crises in many areas of the country because of increasing solid waste generation, shrinking landfill capacity, rising disposal costs, and strong opposition to new solid waste facility siting. This problem was illustrated by the much-publicized Mobro garbage barge, which traveled on a 6-month odyssey of over 6,000 miles, including 6 states and 4 countries, before the cargo was finally disposed in New York, where it was originally generated. Many solid waste management officials are faced with problems posed by shrinking landfill capacity and increased costs. The growing volume of waste generated has made it increasingly important to develop an overall strategy to manage wastes safely and effectively and to reduce the amount and toxicity of material entering the solid waste stream.

RCRA §4001 encourages environmentally sound solid waste management practices that maximize the reuse of recoverable material and foster resource recovery. Unlike regulations addressing hazardous waste management, EPA has not promulgated regulations dictating how solid wastes should be managed. Instead, solid waste is primarily regulated by states and municipalities and managed on the local level. The only exceptions are the 40 CFR Part 257 federal solid waste disposal facility criteria for nonhazardous, nonmunicipal landfills, and the Part 258 municipal solid waste disposal facility criteria. EPA set forth these regulations to specify how landfills are to be designed and operated. Primarily, EPA's role in implementing solid waste management programs includes setting national goals, providing leadership and technical assistance, and developing educational materials.

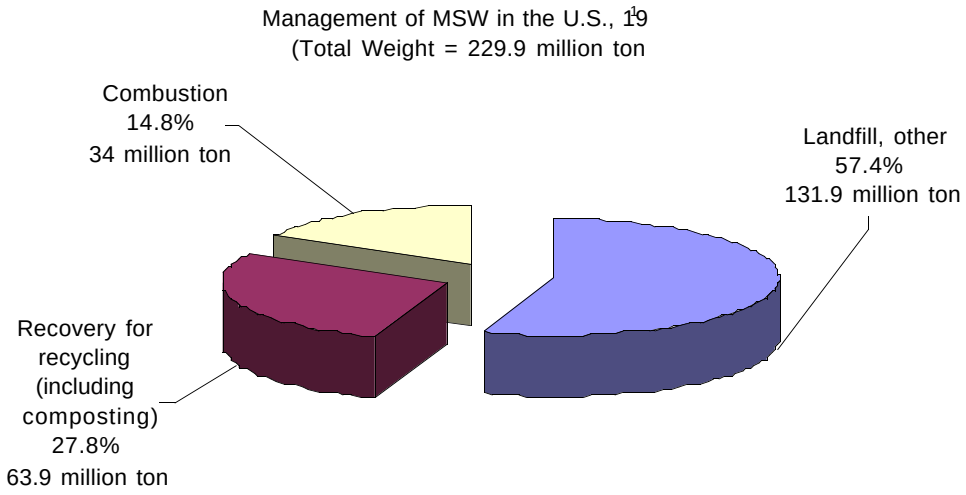
This module focuses on EPA's efforts in two areas: municipal and industrial solid waste. The garbage that is managed by our local governments is known as municipal solid waste (MSW). Garbage excluded from hazardous waste regulation but not typically collected by local governments is commonly known as industrial solid waste. This category includes domestic sewage and other wastewater treatment sludge, demolition and construction wastes, agricultural and mining residues, combustion ash, and industrial process wastes. EPA has developed programs and policies regarding MSW, while federal programs covering industrial solid waste are still in their infancy.

2. MUNICIPAL SOLID WASTE

EPA defines municipal solid waste as durable goods and nondurable goods. Examples of waste from these categories include appliances, tires, batteries (durable goods) and newspapers, clothing, boxes, disposable tableware, office and classroom paper, wood pallets, and cafeteria wastes (non-durable goods). In other words, MSW is waste generated by commercial and household sources that is typically collected and disposed in MSW landfills.

Generation of MSW has grown steadily over the past 30 years, from 88 million tons per year, or 2.7 pounds per person per day in 1960, to 229.9 million tons, or 4.62 pounds per person per day in 1999. While generation of waste has grown steadily, recycling and recovery of waste have also greatly increased. In 1960, about 7 percent of MSW was recycled and in 1999, this figure had increased to 27.8 percent. The breakdown of how MSW is managed is shown in Figure 1. While the majority of solid waste is still landfilled, statistics show there is a clear trend away from reliance on this method.

Figure 1

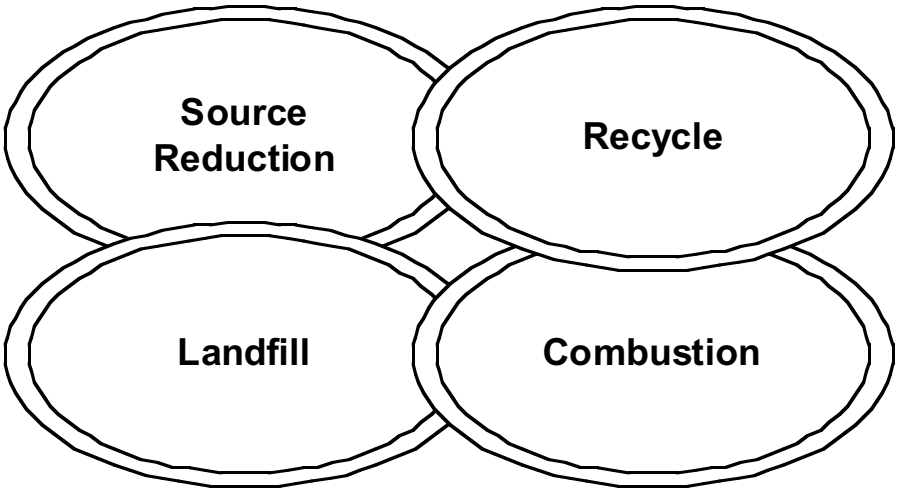


[1] Based on statistics in Municipal Solid Waste in the United States: 1999 Facts and Figures

2.1 EPA'S INTEGRATED WASTE MANAGEMENT HIERARCHY

In 1989, EPA published Solid Waste Dilemma: An Agenda for Action, which presents goals and recommendations for action by EPA, state and local governments, industry, and consumers to address the solid waste problems facing the country. EPA recommends an integrated, hierarchical approach to waste management using four components: source reduction, recycling, combustion, and landfilling. This comprehensive approach addresses critical junctures in the manufacture, use, and disposal of products and materials to minimize wastefulness and maximize value. It favors source reduction to reduce the volume and toxicity of waste and to increase the useful life of products. Recycling, including composting, is the preferred waste management approach to divert waste from landfills and combustors. Combustion is used to reduce the volume of waste being disposed and to recover energy from this process, and landfilling is used for final disposal of nonrecyclable and noncombustible material. The goal of this approach is to use a combination of all of these methods (shown in Figure 2) to safely and effectively handle the municipal solid wastestream with the least adverse impact on human health and the environment. Each community should choose a mix of alternatives that most effectively meets its needs. The four elements of the hierarchy are discussed below.

Figure 2
Hierarchy of Integrated Waste Management



2.2 SOURCE REDUCTION

Source reduction is a front-end approach to addressing MSW problems by changing the way products are made and used. Focusing on source reduction is an attempt to move away from the traditional "end-of-the-pipe" waste management approach used in the past. Source reduction is defined as the design, manufacture, and use of products in a way that reduces the quantity and toxicity of waste produced when the products reach the end of their useful lives. Source reduction activities fall into some basic categories:

- Product reuse (e.g., reusable shopping bags and coffee mugs)
- Reduced material volume (e.g., less unnecessary packaging for products)
- Reduced toxicity of products (e.g., use substitutes for lead, cadmium, mercury, and other toxics)
- Increased product lifetime (e.g., design products with longer useful life)
- Decreased consumption (e.g., changing consumer buying practices, bulk purchasing).

Businesses, households, and state and local governments can all play an active role in implementing successful source reduction programs. Businesses can implement source reduction through the design and manufacture of products that use less packaging or that use substitutes for toxic constituents. Many businesses have also used source reduction to significantly reduce the amount of material that enters the wastestream (e.g., reusing packaging for shipping products, double-sided copies, maintaining equipment to extend its useful life, reusable envelopes). These changes have often resulted in significant savings in waste management costs and raw material purchasing. EPA developed the WasteWi$e program (discussed later in this module) to help businesses achieve these goals.

If source reduction is going to play a key role in overall waste reduction, consumers also must incorporate this concept into their buying practices. Consumers purchasing products that reduce unnecessary packaging or that eliminate toxic constituents will increase demand for products with these attributes. Finally, source reduction must be part of state and local governments' strategic long-term planning to address solid waste problems. Some states have passed legislation to reduce lead, cadmium, chromium, and mercury in packaging. Some local governments have established model communities that use source reduction and recycling concepts as the focus of their strategic waste management plans.

UNIT PRICING

Many waste management officials have had success with programs of economic incentives to encourage citizens to reduce generation of solid waste. One of the most successful economic incentive programs used to achieve source reduction is variable rate refuse collection. Variable rate collection systems, also known as unit pricing, or pay-as-you-throw systems, include an array of programs with a common objective: customers who dispose of more waste pay more for the collection and disposal service. There are several different types of variable rate systems. Most require residents to pay a per-bag fee for refuse collection, and require the purchase of special bags or tags to place on bags; or require residents to choose among refuse containers and pay substantially more for collection of wastes in the larger containers. Some communities are beginning to experiment with weight-based collection programs, in which the hauler weighs the waste residents set out at the curb and bills the resident accordingly. Unit pricing programs aim to ensure that waste service prices reflect the actual costs of solid waste management. It is expected that higher waste disposal rates will encourage source reduction, and the per capita demand for disposal will decrease. EPA has developed a helpful guidance document to assist communities in establishing unit pricing programs, titled Pay-As-You-Throw: Lessons Learned About Unit Pricing.

2.3 RECYCLING

Municipal solid waste recycling refers to the separation and collection of wastes and their subsequent transformation or remanufacture into usable or marketable materials. Recycling, including composting, diverts potentially large volumes of material from landfills and combustors, and stops unnecessary waste of natural resources and raw materials. Recycling collection and separation programs vary in degree of implementation: some may be simple drop-off programs, while others may involve comprehensive curbside collection and complex source separation at a material recovery facility. Successful recycling, however, is more than the separation and collection of postconsumer materials. These are only the first steps postconsumer materials must also be reprocessed or remanufactured, and only when the materials are reused is the recycling loop complete.

Centralized composting of yard and food wastes is also classified as recycling. Yard waste composting is a key element in addressing the municipal solid wastestream because yard waste accounts for nearly one-eighth (27.7 million tons) of the MSW generated in the United States in 1999. Some communities have begun to conduct large-scale centralized composting of yard waste in an effort to save landfill capacity. Individuals are also helping to reduce waste by composting yard waste in their backyards, and by not bagging grass clippings or other yard wastes (these activities are actually classified as source reduction). Composting yard waste has seen tremendous growth in the past eight years. In 1980, the amount of yard waste recovered was negligible (less than 5,000 tons, or 0.05 percent). According to

Municipal Solid Waste in the United States: 1999 Facts and Figures, by 1999 the amount of yard waste recovered had grown to 12.6 million tons, or 45.3 percent.

FEDERAL PROCUREMENT

The recycling loop is not complete until a recycled product is reused. One of the biggest problems in the attempt to increase recycling rates is the wide fluctuation in market demand for secondary materials. It is important to acknowledge the interdependence between buying recycled content products and the success of recycling, and to recognize the impact that the purchasing power of the federal government can have in stimulating markets for recycled materials. For this reason, Congress added RCRA §6002, establishing the government's "buy-recycled" or procurement program. The procurement program is designed to increase recycling, waste prevention and the acquisition of recycled content materials. The program uses the government's purchasing power to build markets for recycled content products and to reduce solid waste. (In 1992, federal, state, and local governments purchased $1.32 trillion out of a total economy of $5.95 trillion, or 22 percent of U.S. goods and services.)

RCRA §6002 requires procuring agencies who purchase $10,000 or more worth of an EPA-designated item in the current fiscal year, or $10,000 or more worth of a designated item in the preceding fiscal year, to procure the item composed of the highest percentage of recovered materials practicable, considering the item's availability, price, and performance standard. Procuring agencies are federal, state, and local agencies, and their contractors, that use appropriated federal funds. In addition, RCRA §6002 requires all federal agencies to revise their product specifications to eliminate any exclusion of recycled materials and any requirement that products be manufactured from virgin materials.

It is EPA's responsibility to designate items that are or can be made with recycled content pursuant to §6002. EPA designates these items in the Comprehensive Procurement Guidelines (CPG), which are codified in 40 CFR Part 247. In addition, EPA must issue recommendations to assist procuring agencies in establishing their affirmative procurement programs. These recommendations typically contain a minimum content standard. For example, EPA recommends that procuring agencies purchase rubber patio blocks with a minimum of 90 to 100 percent postconsumer content. Depending on the unique characteristics of a particular item, however, EPA may recommend some alternate standard. For example, EPA recommends that procuring agencies purchase either retread tires or a retreading service to retread the agency's used tires. EPA publishes these recommendations in the Federal Register as Recovered Materials Advisory Notices (RMANs). EPA is required to update the CPG every two years and the RMANs periodically to reflect changes in market conditions.

In 1995, EPA issued the first CPG which covered EPA's original five procurement guidelines (paper and paper products, re-refined lubricating oils, retread tires,

building insulation products, and coal fly ash) and added 19 products. The first CPG update (CPGII), published in November of 1997, designated an additional 12 items. A second CPG update (CPG III), published in January 2000, designated an additional 18 items.

Figure 3 lists those items that EPA has specifically designated to date.

Figure 3
DESIGNATED ITEMS

Paper and Paper Products	Playground Equipment
Vehicular Products	Playground Surfaces
Engine Coolants	Running Tracks
Re-Refined Lubricating Oils	**Landscaping Products**
Retread Tires	Food Waste Compost
Construction Products	Garden and Soaker Hoses
Building Insulation Products	Hydraulic Mulch
Carpet	Lawn and Garden Edging
Carpet Cushion	Plastic Lumber Landscaping Timbers
Cement and Concrete Containing Fly Ash or Ground Granulated Blast Furnace Slag	and Posts
	Yard Trimmings Compost
	Non-Paper Office Products
Consolidated and Reprocessed Latex Paint	Binders
	Office Recycling Containers
Floor Tiles	Office Waste Receptacles
Flowable Fill	Plastic Clipboards
Laminated Paperboard	Plastic Folders
Patio Blocks	Plastic Clip Portfolios
Railroad Grade Crossing Surfaces	Plastic Desktop Accessories
Structural Fiberboard	Printer Ribbons
Transportation Products	Toner Cartidges
Channelizers	**Miscellaneous Products**
Delineators	Awards and Plaques
Parking Stops	Industrial Drums
Traffic Barricades	Manual-Grade Strapping
Traffic Cones	Mats
Park and Recreation Products	Pallets
Park Benches and Picnic Tables	Signage
Plastic Fencing	Sorbents

On August 28, 2001, EPA published a proposed update to the CPG (66 FR 45297). The update, referred to as CPG IV, proposes to designate 11 new items that are or can be made with recovered materials. Additionally, EPA is proposing to revise its previous designations for polyester carpet and railroad grade crossing surfaces. EPA also announced the availability of a draft Recovered Materials Advisory Notice (RMAN IV), which contains the recommended recovered materials content levels

for the items proposed for designation in CPG IV. EPA is proposing to designate the following items: rebuilt vehicular parts, tires, cement and concrete containing cenospheres, cement and concrete containing silica fume, nylon carpet and nylon carpet backing, modular threshold ramps, non-pressure pipe, roofing materials, office furniture, bike racks, and blasting grit.

Within one year after EPA designates an item, procuring agencies must revise any agency specifications for that item, and establish an affirmative procurement program to assure that these items will be purchased with recycled content to the maximum extent practicable. An affirmative procurement program should, at a minimum, contain (1) a preference program to show the agency's preference for recycled products; (2) a promotion program to promote the agency's preference program; (3) a program for obtaining estimates and certifications of recycled materials content and for verifying the estimates and certifications; and (4) an annual review and monitoring of the effectiveness of an agency's affirmative procurement program.

JOBS THROUGH RECYCLING INITIATIVE

In another effort to foster the markets for recycled materials, EPA launched the "Jobs Through Recycling Initiative" (JTR) in 1994. The goal of the pilot initiative is to foster markets for recycled goods by promoting and assisting the development of businesses using recovered materials, creating new recycling jobs, and spurring innovative technologies demonstrating the connection between environmental benefits and economic viability. From 1994 to 1999, the JTR program offered a variety of grants to
strengthen recycling market development and economic development programs. Under the initiative, EPA allotted $2.6 million in grants to distribute to states, tribes, and organizations representing states and tribes who responded to one of two solicitations. Although JTR grant funding is no longer available, several entities (e.g., states, territories, and tribes) with a primary focus on recycling and/or economic development received funding. JTR funding has helped create more than 8,500 jobs, generate $640.5 million in capital investment, create 15.3 tons of capacity, and utilize 13.9 million tons of recovered materials.

One of the solicitations invited proposals to develop Recycling and Reuse Business Assistance Centers (RBACs). The purpose of the RBAC is to create a highly visible and recognizable source of expertise offering technical, business, financial, and marketing assistance to new and existing recycling businesses. Each center will provide an infrastructure to concentrate the combined resources and efforts of multiple agencies on the development of markets for secondary materials.

The other solicitation invited proposals to develop Recycling Economic Development Advocates (REDAs). The REDA is a professional dedicated exclusively to the purpose of attracting, expanding, and retaining manufacturers and other businesses that use recovered materials. The primary purpose of the REDA is

to build a bridge between traditional economic development activities and growth of businesses using secondary
materials. REDAs will be integrated into state or tribal agencies responsible for economic development where they will serve as advocates for recycling businesses.

Generally, EPA does not provide grants to fund new recycling technologies or programs for private parties. On the other hand, the Small Business Administration has various loan programs for small businesses as well as Small Business Development Centers which provide equipment and other resources for marketing activities.

WASTEWI$E PROGRAM

In 1994, EPA developed the WasteWi$e program to assist businesses in taking cost-effective actions to both reduce and recycle solid waste at the source. The program offers several advantages to companies that voluntarily commit to achieving results in waste prevention, recycling collection, and buying or manufacturing recycled products. According to the WasteWi$e Sixth-Year Progress Report, WasteWi$e partners' waste prevention activities removed 583,000 tons of material from the solid waste stream, and conserved another 8.4 million tons via recycling in 1999. The WasteWi$e program offers several forms of technical assistance to help participating companies find waste reduction opportunities and set waste reductions goals. EPA has established a special hotline to provide information on the program, 1-800-EPA-WISE.

2.4 COMBUSTION

For centuries, burning has been a popular method of reducing the volume and the odor of garbage. Until the early 1970s, Americans routinely managed much of their trash by burning it. People often burned large-volume combustible trash such as leaves in their backyards, while dump operators purposely set fires in waste pits to reduce volume. As concern about air pollution increased, local governments began to impose restrictions on uncontrolled burning of trash. The Clean Air Act of 1970 essentially banned uncontrolled burning of solid waste.

The energy crisis of the 1970s also influenced changes in the handling of MSW. A more sophisticated system of incineration was developed that could use waste as a fuel to produce energy. Modern combustion facilities no longer just destroy garbage, but instead are designed to recover energy that is used to produce steam and electricity. These waste-to-energy facilities can be used in conjunction with source reduction and recycling programs, because many items that are traditionally recycled, such as aluminum cans and glass, have low heating values. According to Municipal Solid Waste in the United States: 1999 Facts and Figures,, combustion of solid waste increased from 9.0 percent in 1980 to 16.9 percent in 1997, and then decreased to 14.8% in 1999.

MUNICIPAL SOLID WASTE COMBUSTION ASH

Waste-to-energy units and incinerators are not really waste disposal facilities, but waste reduction units. After incineration, the noncombustible component of MSW remains as ash. Two types of ash are generated during incineration: fly ash, which collects in the air pollution control devices which "clean" the gases produced during the combustion of the waste; and bottom ash, which collects on the bottom of the combustion unit and comprises approximately 75 to 80 percent of the total ash. EPA studies indicate that fly ash generally contains the highest concentration of inorganic chemical constituents.

Municipal waste combustion ash is periodically removed from the incinerator and usually land disposed, either in a MSW landfill or a "monofill" specifically intended for the ash. This procedure presents potential threats to human health and the environment due to the risks of inhalation near combustion and disposal sites. In March 1990, EPA completed a study which characterized ash, ash leachate, and extracts from five municipal waste combustors and their ash monofills. The study concluded that ash samples often fail the Toxicity Characteristic Leaching Procedure (TCLP) due to the presence of lead or cadmium. The TCLP subjects samples to a very aggressive leaching medium to mimic the conditions that waste would encounter in a poorly operated MSW landfill. Ash samples subjected to a less aggressive leaching medium (similar to acid rain) did not leach metals above levels of concern. EPA concluded (from a technical standpoint) that the disposal of ash in an appropriately designed monofill greatly minimizes the potential for release of any leachable constituents of concern.

The way that EPA has approached municipal waste combustion ash (from a regulatory standpoint) over the past 15 years is complex. In the first federal hazardous waste regulations, promulgated in 1980, the ash enjoyed an exemption from the federal hazardous waste regulations on the basis that it is derived from exempt household waste. In 1984, Congress amended RCRA by adding §3001(i), which stated that a resource recovery facility recovering energy from the mass burning of MSW and nonhazardous commercial or industrial waste shall not be deemed to be treating, storing, disposing, or otherwise managing hazardous waste under certain circumstances. In 1985, EPA announced that although RCRA exempted municipal waste combustors from hazardous waste permitting requirements, the ash that was generated was not exempt. Between 1985 and 1992, various EPA officials and court decisions took differing positions on the issue. In 1992, EPA Administrator Reilly issued a memo announcing that the Agency had concluded that ash could be safely disposed in MSW landfills that are in compliance with the 40 CFR Part 258 criteria.

On May 2, 1994, in the case of City of Chicago v. Environmental Defense Fund, the U.S. Supreme Court ruled that ash from municipal waste-to-energy combustors that exhibits a hazardous waste characteristic is not exempt from regulation as a

hazardous waste under RCRA. Owners and operators of waste-to-energy facilities are now required to determine whether their ash is hazardous. Facilities generating ash that is a hazardous waste must manage the ash in accordance with RCRA hazardous waste regulations. If the ash is not a hazardous waste, it may be disposed of in a MSW landfill that meets applicable RCRA standards. Because of the substantial confusion caused by the evolution of the federal regulatory interpretation, EPA has developed a strategy to gradually phase in the hazardous waste regulations and enforcement provisions that now apply to the waste-to-energy facilities.

In the City of Chicago case, the Supreme Court issued a narrowly focused opinion that §3001(i) does not exempt ash generated by waste-to-energy facilities. The Court did not address the issue of the precise point at which regulation of waste must begin, and §3001(i) does not expressly address the issue. In an effort to provide some guidance to the regulated community, EPA published a Notice of Statutory Interpretation entitled "Determination of Point at Which Subtitle C Jurisdiction Begins for Municipal Combustion Ash at Waste-to-Energy Facilities" on February 3, 1995. EPA interprets RCRA §3001(i) to first impose hazardous waste regulation at the point that the ash leaves the "resource recovery facility," defined as the combustion building, including connected air pollution control equipment. Consequently, the point at which the hazardous waste determination for the ash should be made and when Land Disposal Restrictions standards, once promulgated, will begin to apply is the point at which the ash exits the combustion building following the combustion and air pollution control processes. This interpretation is critical, because it means that many facilities will be able to test their ash after the fly ash and the bottom ash have been combined. Often when fly ash that exhibits the toxicity characteristic is combined with bottom ash, the resulting mixture no longer exhibits a characteristic of hazardous waste, and would not be regulated as such.

In the February notice, EPA asserted that if it comes to EPA's attention that waste-to-energy ash is being managed or disposed of in a manner that is not protective of human health and the environment, the Agency may consider issuing ash management guidelines or promulgating additional regulations to address those situations. In addition, at individual sites, if the disposal of ash presents an imminent and substantial endangerment to human health and the environment, EPA may invoke RCRA §7003 authorities to require responsible parties to undertake appropriate action.

2.5 LANDFILLING

Even with the use of source reduction, recycling, and combustion, there will always be waste that ultimately must be disposed. According to Municipal Solid Waste in the United States: 1999 Facts and Figures, , landfilling, at the end of the hierarchy of solid waste management, still remains the most widely used waste management method (approximately 57.4 percent). Many communities are having difficulties

siting new landfills largely because of increased citizen and local government concerns about the potential health risks and aesthetics of having a landfill in their neighborhoods. EPA promulgated new technical standards for MSW landfills in 1991. These new standards address location restrictions, design and operating criteria, groundwater monitoring, financial assurance, closure and post-closure requirements, and corrective action. (See the training module entitled Subtitle D: Municipal Solid Waste Disposal Facility Criteria.)

2.6 MUNICIPAL SOLID WASTE MANAGEMENT ISSUES

Unlike industrial wastestreams, which tend to be generated separately and managed in separate systems, MSW is mixed as soon as it is generated. Thus, municipal waste management officials are faced with taking care of a collection of waste that includes materials that are rotting along with materials that may never degrade and materials that may be dangerous or hazardous along with inert materials. This complicates already difficult technical, environmental, political, and economic decisions. The following is a sample of some of the complex solid waste management issues that EPA has addressed.

FLOW CONTROL

Flow controls are legal authorities used by state and local governments to designate where MSW must be taken for processing, treatment, or disposal. This waste management approach requires waste to be delivered to specific facilities such as waste-to-energy facilities, materials recovery facilities, composting facilities, transfer stations, and/or landfills. One of the direct effects of flow control is that designated facilities are assured of receiving a guaranteed amount of MSW. If the designated facility charges a fee for receipt of the waste or recyclables, flow control assures a source of revenue to meet their capital and operating costs.

Waste flow control laws often play an important role in the development of integrated solid waste management systems. Without the power to direct the flow of waste within its jurisdiction, a municipality may have difficulty determining the appropriate capacity of its solid waste disposal facilities. In addition, if a municipality has an expensive waste-to-energy facility, and waste haulers choose to avoid the facility in favor of a cheaper landfill elsewhere, the municipality will lose revenue. On the other hand, the waste management industry often contends that by eliminating the right of waste haulers to seek the facility with the lowest tipping fee, waste flow control creates monopolies and drives up waste disposal costs.

In September 1992, Congress directed EPA to develop and submit a Report to Congress on flow controls as a means of MSW management. EPA's report, published in March 1995, found that 35 states, the District of Columbia, and the Virgin Islands explicitly authorize flow control directly, 4 additional states authorize flow control indirectly, and 11 states have no flow control authority. EPA also

found that flow controls play a limited role in the solid waste market as a whole. EPA concluded that although flow controls have provided an administratively efficient mechanism for local governments to plan for and fund their solid waste management systems, there are alternatives. EPA also determined that there are no data showing that flow controls are essential for the development of new solid waste capacity or for the long-term achievement of state and local goals for source reduction, reuse, and recycling.

DEGRADABLE RING RULE

In response to concerns about the effects of nondegradable plastic ring carriers (for beverages), Congress passed the Degradable Plastic Ring Carriers Act (P.L. 100-556). Congress found that nondegradable plastic ring carriers have been found in large quantities in the marine environment, and may entangle fish and other wildlife. Congress did not consider the issues of landfilling, littering, or ingestion of plastic pieces of ring carriers in this Act. Congress did not include any enforcement authority in this Act; therefore, it is not clear if EPA can enforce 40 CFR Part 238.

Pursuant to the Degradable Plastic Ring Carriers Act, EPA issued a final rule establishing regulations that required plastic ring carriers to be made of naturally degradable materials which, when discarded, would decompose within a specified period of time (59 FR 9866; March 1, 1994). The regulations, codified in 40 CFR Part 238, describe one test for ring carriers made of biodegradable material (referred to as the in situ test) and another test for photodegradable material (referred to as the lab test). Ring carrier processors and importers of ring carriers must determine that their ring carriers degrade according to one of these two tests.

HOUSEHOLD HAZARDOUS WASTE

Some communities choose to include a household hazardous waste (HHW) management program as a component of their MSW management system. EPA has not estimated, nationwide, the amount of HHW found in the municipal solid wastestream; however, most studies to date have found HHW to be less than one percent of the municipal solid wastestream. Household waste is exempt from the definition of hazardous waste under RCRA Subtitle C (§261.4(b)(1)). EPA promulgated the exemption for household waste based on its belief that Congress did not intend for household wastes to be regulated under Subtitle C. The effect of the exemption is to exclude waste that would otherwise meet hazardous waste listings or exhibit characteristics of hazardous waste and thus have to be managed in accordance with Subtitle C regulations. Generally, the exemption allows waste streams from residences to be managed as nonhazardous regardless of the nature of the wastestream.

In the absence of HHW-specific federal regulation and with few state regulations, programs and requirements for managing HHW have been enacted at the local level. Some states have provided support to communities choosing to run HHW

collection programs. Communities conduct HHW collection and management programs in order to reduce specific toxicity loadings (e.g., states that depend heavily on combustion of MSW may be interested in reducing heavy metals entering combustors). EPA encourages communities conducting such programs to use the following hierarchy for managing HHW after it is collected:

- Reuse and recycle as much HHW as possible
- Treat HHW in a hazardous waste treatment facility
- Dispose of remaining HHW in a hazardous waste landfill.

HHW, except used oil generated by "do-it-yourselfer" oil changers, retains the exemption at all phases of its management, including when it is collected in large quantities, provided it is not mixed with regulated quantities of hazardous waste. Therefore, HHW can be aggregated and stored in any amount for any time period under federal regulations (states and localities may have their own requirements). Transportation does not require manifesting. Many communities that have HHW collection programs are also interested in separating and collecting conditionally exempt small quantity generator (CESQG) wastes from the municipal solid wastestream to minimize the amount of hazardous constituents in landfills and combustion facilities. EPA has clarified that state-approved/registered collection programs that accept and mix CESQG wastes with HHW have not violated the mixture rule and the mixture is subject to regulation as CESQG waste (OSWER Directive 9574.00-02).

EPA issued several outreach documents on HHW collection programs to assist the public and local officials in setting up and managing HHW collection programs. The publications include Household Hazardous Waste: Steps to Safe Management, Household Hazardous Waste Management: A Manual for Community Collection Programs, and Used Dry Cell Batteries: Is a Collection Program Right for Your Community?

3. INDUSTRIAL SOLID WASTE

Under RCRA, "industrial nonhazardous waste" or "industrial solid waste" means waste that is neither MSW nor considered a hazardous waste under RCRA Subtitle C. Industrial nonhazardous waste consists primarily of manufacturing process wastes, including wastewaters and non-wastewater sludges and solids. EPA estimates there are 7.6 billion tons of industrial nonhazardous waste generated annually in the United States by 12,000 facilities, and disposed of on-site in surface impoundments, landfills, land application units, or waste piles.

The states are responsible for regulating the management of industrial nonhazardous waste. State requirements for management of industrial nonhazardous waste vary widely, and may include standards for design and operation of waste management facilities, location monitoring, and recordkeeping. EPA's role in the management of industrial nonhazardous waste is very limited. Under RCRA Subtitle D, EPA issued minimal criteria prohibiting "open dumps" (40 CFR 257) in 1979, but has no authority to regulate beyond issuing these criteria. The states, not EPA, are responsible for implementing the open dumping criteria, and EPA has no back-up enforcement role.

REVISED CRITERIA FOR SOLID WASTE DISPOSAL AND FACILITY PRACTICES

On July 1, 1996, EPA promulgated a final rule revising the existing criteria for solid waste disposal and facility practices (61 FR 34252). Specifically, the final rule allows only those nonmunicipal nonhazardous waste disposal units that meet specified standards to receive CESQG hazardous waste. Standards that need to be complied with include location restrictions, groundwater monitoring, and corrective action.

GUIDANCE ON MANAGEMENT OPTIONS

EPA and the Association of State and Territorial Solid Waste Management Officials (ASTSWMO) have developed a draft voluntary guidance for the management of industrial nonhazardous waste in land-based disposal units. The highlights of this joint guidance are to:

- Encourage pollution prevention and waste minimization
- Affirm state leadership
- Recommend good industrial nonhazardous waste management practices that are environmentally sound and protective of public health.

The draft guidance was released in June 1999 for comments.