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Reporting Agency: Department of Environmental Protection
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Subject: Hazardous Waste Management Needs Assessment Report
Report Due Date: Annual - January 1, 2003
Statutory Requirement: Section 403.7226(2), F.S.
Abstract: Section 403.7226(2), Florida Statutes, requires the Department to identify the short and long-term needs for hazardous waste facilities and services to properly manage hazardous waste generated in Florida. It also requires that an annual report be submitted to the Governor and Legislature giving an assessment of the State's hazardous waste management needs. This assessment is an ongoing process and is updated whenever new information on hazardous waste generation and management becomes available. This Hazardous Waste Management Needs Assessment Report reviews the activities of the State Hazardous Waste Management Programs. It covers the State Hazardous Waste Management Program's statutory framework; progress in the Local Assessment, Notification and Verification Program for small quantity generators of hazardous waste implemented by counties, Regional Planning Councils and the Department; the Enhanced Local Assessment, Notification and Verification Program Pilot Project; the status of the Local Hazardous Waste Collection Center Grant Program; the Mercury, Cadmium and Lead Reduction and Management Programs; Operation Cleansweep for Pesticides; an update to Florida's hazardous waste generation and management database; Florida's Pollution Prevention Program; and the Used Oil Management and Recycling Programs. Copy: Executive Office of the Governor Office of Planning and Budgeting (3 copies)

REPORT TO THE GOVERNOR AND LEGISLATURE

NEEDS ASSESSMENT REPORT
FOR HAZARDOUS WASTE MANAGEMENT



January, 2003

Florida Department of Environmental Protection
Division of Waste Management
Hazardous Waste Management Section

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REPORT TO THE GOVERNOR AND LEGISLATURE

NEEDS ASSESSMENT REPORT FOR HAZARDOUS WASTE MANAGEMENT

January, 2003

INTRODUCTION

In order to protect Florida's water supply, the Legislature has established local, regional, and state responsibilities for proper hazardous waste management. One of the Department's responsibilities is to estimate the amounts and types of hazardous waste generated by large and small businesses, government facilities, and households and to assess the need for proper collection, storage, treatment, and disposal of these wastes. A report to the Governor and the Legislature on the State's hazardous waste management facility needs is required annually as indicated in Section 403.7226(2), Florida Statutes (F.S.).

This report summarizes the progress of each of the Department's programs that address hazardous waste generation and the need for proper management of these wastes. This report highlights the new Enhanced Small Quantity Generator (ESQG) program that for the first time uses county SQG staff to leverage the Department's environmental compliance field presence. It discusses the management of mercury, lead and cadmium-containing wastes such as fluorescent lamps and rechargeable batteries that was first addressed by the 1993 Legislature. The report also includes a discussion of activities related to the management of discarded electronics, particularly lead-bearing cathode ray tubes in most televisions and computer monitors, as directed by the Legislature since 1999. It also reviews the Department's most recent summary and preliminary analysis of the 2001 Biennial Hazardous Waste Report data submission to the United States Environmental Protection Agency (EPA) as required by the federal Resource Conservation and Recovery Act (RCRA). To begin this report, however, an overview of the history of Florida's statutory requirements is given.

OVERVIEW OF FLORIDA'S STATUTORY REQUIREMENTS

The Water Quality Assurance Act of 1983 required the Department of Environmental Protection to coordinate with the Regional Planning Councils (RPCs) and county governments in conducting county and regional hazardous waste management assessments (403.7225, F.S.). The Legislature appropriated 2.16 million dollars for this program. The assessments were phased in over a three-year period. Work was completed on all the counties' initial assessments on July 31, 1987.

This program, known as the SQG Assessment, Notification and Verification Program, continues today and is discussed in more detail on page 5.

The 1985 Legislature, recognizing the need for the local collection and temporary storage of small quantities of hazardous waste, established the Local Hazardous Waste Collection Center Grant Program (403.7265, F.S.), as a strategy for setting up a local hazardous waste collection center network statewide.

The 1986 Legislature amended Section 403.7234, F.S., and authorized the Department to regulate small quantity generators (SQGs) to ensure proper hazardous waste management in a manner consistent with federal requirements. The counties were given authority to collect fines from any small quantity generator that did not disclose information to the counties as to the types of, quantities of, and management practices of hazardous waste generated. Fines collected are to be used for the annual verification process and for local hazardous and solid waste management programs.

The 1987 Legislature amended Section 403.7265, F.S., to direct the Department to recommend a site for a state multipurpose hazardous waste treatment facility by May 1, 1988. An assessment of the suitability of the storage facility sites selected by the Regional Planning Councils was also required.

The 1988 Legislature initiated new programs for waste elimination and reduction of hazardous waste (403.7223, F.S.); the establishment of used oil recycling centers (403.763, F.S.); and reauthorized the local hazardous waste collection center grant program by providing up to \$100,000 to each grant recipient (403.7265, F.S.).

The 1989 Legislature expanded the use of the 3% tax on the gross receipts on each privately owned permitted, commercial hazardous waste transfer, storage, treatment, or disposal facility by the host local government (403.7215, F.S.). It also recognized the designation of the Union County site for constructing and operating a multipurpose hazardous waste facility. In order to establish a centralized and coordinated permitting process for the siting, construction, and operation of a multipurpose hazardous waste facility, the Legislature passed the "Statewide Multipurpose Hazardous Waste Facility Siting Act" (Chapter 89-285, Laws of Florida, codified as Sections 403.78-403.7893, F.S.). In addition, during the 1989 Legislative Session, Senate Concurrent Resolution No. 1146 was passed. The Resolution, in summary, states that there is a need for a comprehensive waste management system including a multipurpose hazardous waste treatment facility; that the Legislature has not and does not intend to enact barriers to the movement of hazardous waste or the siting of hazardous waste facilities for the proper storage, treatment and disposal of hazardous waste; and that the State will work diligently and expeditiously with the private sector toward the siting, construction and operation of such a facility. The 1989 Legislature also amended the strict prohibition on hazardous waste landfills. Untreated hazardous waste is still prohibited from being landfilled in Florida, but if the hazardous waste has undergone treatment, it may be disposed of in a permitted hazardous waste landfill.

The 1990 and 1991 Legislatures again appropriated 1 million dollars to continue the household hazardous waste collection center grant program. The 1991 Legislature also provided for additional uses of the 3% tax levied on the gross receipts of certain hazardous waste facilities (403.7215, F.S.) to strengthen local environmental programs. An amendment was also made to 403.7225, F.S., which authorized counties to impose a small quantity generator notification and verification surcharge (up to \$50) on the business or occupational license or license renewal of any firm that is classified as a small quantity generator of hazardous waste.

The 1992 Legislature again appropriated 1 million dollars to continue the Local Hazardous Waste Collection Center Grant Program.

The 1993 Legislature directed the Department to conduct a Hazardous Waste Needs and Capacity Study under 403.7895(5), F.S., to evaluate the current and future need for hazardous waste incineration capacity, including boilers and industrial furnaces burning hazardous waste fuel, in Florida. This study, submitted in

November of 1994, demonstrated that the need for new commercial hazardous waste incineration facilities in Florida could not be justified.

In 1993, the Florida Legislature adopted provisions for the environmentally sound management of mercury-containing lamps, such as fluorescent lamps, and mercury-containing devices, such as mercury thermostats and thermometers (403.7186, F.S.). Incineration of such lamps from commercial and institutional sources was prohibited after July 1, 1994, and both incineration and landfill disposal of devices were prohibited after January 1, 1996. Additionally, the Department was directed to develop rules to provide criteria for the permitting of mercury reclamation facilities and to set standards for such facilities and associated collection centers. The Department was further directed to conduct demonstration projects to study the collection and recycling of these mercury-containing materials. The Department was also directed (403.7061, F.S.) to fund a pilot project, to be conducted in a local government jurisdiction served by a waste-to-energy facility, that would include the design, implementation and evaluation of programs for removing toxic materials from the waste stream prior to incineration and an evaluation of the effectiveness of the pilot program including analyses of air emissions from the waste-to-energy facility. A report on this pilot project was submitted to the Governor and the Legislature on December 1, 1995 and additional information was submitted on July 22, 1998.

In addition, the 1993 Legislature enacted new requirements for consumers, manufacturers, and sellers of batteries (403.7192, F.S.). The principal provisions were aimed at reducing mercury, cadmium and lead in municipal solid waste (MSW). They included mercury content limitations on household alkaline-manganese and zinc-carbon batteries sold in Florida as verified through annual mercury content certifications from manufacturers and importers of those types of batteries, a sales ban for mercuric-oxide button cell batteries, and mandatory unit management programs sponsored by marketers for the collection and proper disposal of larger mercuric-oxide batteries sold or distributed in Florida. Other provisions included design, labeling, and unit management (collection) program requirements for nickel-cadmium and non-vehicular sealed lead-acid rechargeable batteries and/or the products containing these batteries which are sold in Florida.

The 1993 Legislature amended 403.7265, F.S., giving the Department authority to use grant funds to assist local governments in carrying out the responsibilities of the SQG Assessment, Notification and Verification Program and to promote the continued development of the local government hazardous waste management programs.

The 1994 and 1995 Legislature appropriated 2.8 million dollars to continue the Local Hazardous Waste Collection Center Grant Program and to initiate the use of grant funds to assist local governments through the SQG Assessment, Notification and Verification Program Grant and the Expanded Local Hazardous Waste Management Programs Grant.

The 1996, 1997, 1998 and 1999 Legislatures appropriated \$600,000 for each of these state fiscal years to continue the Local Hazardous Waste Collection Center Grant Program and assist local governments through the SQG Assessment, Notification and Verification Program Grant and the Expanded Local Hazardous Waste Management Grant.

The 1999 Legislature appropriated \$400,000 for research, innovative technologies and equipment and infrastructure development for the reuse, recycling and proper management of lead-containing materials, including cathode ray tubes in TVs and computer monitors (403.71851 and 403.71852, F.S.).

The 2000 Legislature appropriated \$600,000 to continue the Local Hazardous Waste Collection Center Grant Program and assist local governments through the SQG Assessment, Notification and Verification Program Grant and the Expanded Local Hazardous Waste Management Grant. The

Legislature also funded \$400,000 for lead-containing material recycling and innovative technology programs and \$300,000 for the Operation Cleansweep for Cancelled, Suspended and Unusable Pesticide collection program.

The 2001 Legislature appropriated \$600,000 to continue the Local Hazardous Waste Collection Center Grant Program and assist local governments through the SQG Assessment, Notification and Verification Program Grant and the Expanded Local Hazardous Waste Management Grant. The Legislature also appropriated \$400,000 for continuing infrastructure development for the reuse, recycling and proper management of lead-containing materials, including cathode ray tubes in TVs and computer monitors and \$300,000 for the continuation of Operation Cleansweep for Cancelled, Suspended and Unusable Pesticide collection program.

The 2002 Legislature again appropriated \$600,000 to continue the Local Hazardous Waste Collection Center Grant Program and assist local governments through the SQG Assessment, Notification and Verification Program Grant and the Expanded Local Hazardous Waste Management Grant. The Legislature also appropriated \$400,000 for continuing infrastructure development for the reuse, recycling and proper management of lead-containing materials, including cathode ray tubes in TVs and computer monitors and \$200,000 for the continuation of Operation Cleansweep for Cancelled, Suspended and Unusable Pesticide collection program.

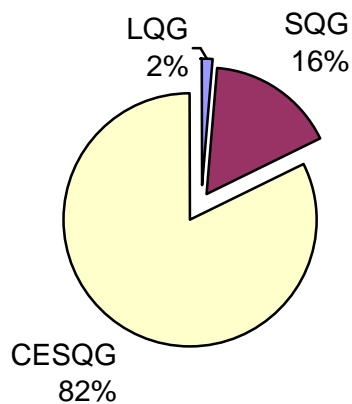
Work conducted under the current and selected previous Legislative mandates are summarized in the body of the report.

ASSESSMENT, NOTIFICATION AND VERIFICATION PROGRAM

BACKGROUND

Sections 403.7225 and 403.7234, F.S., established the Local Hazardous Waste Management Assessments and the Small Quantity Generator Notification and Verification Program (SQG Program). A small quantity generator (SQG) is defined in the federal regulations (40 CFR Part 260.10) as a generator that produces less than 1,000 kilograms (or approximately 2,200 pounds or about 275 gallons) of hazardous waste in any calendar month. Since the end of 1986, SQGs are in one of two hazardous waste generation categories: between 100 and 1,000 kilograms (220 - 2,200 pounds) per month, or 100 kilograms or less of hazardous waste per month. The latter category is referred to as a conditionally exempt SQG (or CESQG). Large quantity generators (LQG) produce more than 1,000 kilograms of hazardous waste in any calendar month. Based on Department estimates there are approximately 353 large quantity generators, 3,800 small quantity generators and 19,300 conditionally exempt small quantity generators of hazardous waste .

Estimated Universe of Hazardous Waste Generators in Florida



A complete summary of Florida's Hazardous Waste requirements can be found at the DEP Hazardous Waste Program website at www.dep.state.fl.us/waste/categories/hazardous/.

The goals of the SQG Program are for local governments to inform SQGs of their legal responsibilities in properly managing their hazardous wastes, to protect public health and the environment (e.g., drinking water resources), and to update the original information submitted to the Department in each county's hazardous waste assessment as required in 403.7225, F.S. A county may have additional uses for the information collected under this program. Knowledge of hazardous materials and wastes stored at a business location can be useful for county departments with responsibility for comprehensive planning, emergency management, fire and police protection, health care, and water quality management.

TYPES OF FUNDING

After the initial funding for conducting assessments under the Water Quality Assurance Act of 1983 had run out, local SQG programs had to develop local funding sources to continue the program. In 1991, the

Legislature amended 403.7225, F.S., allowing counties to impose up to a \$50 surcharge on the occupational license fee of a business classified as a SQG.

Recognizing the need for increased participation by local governments, the Legislature in 1993 amended Section 403.7265, F.S., giving the Department authority to use grant funds to assist local governments in carrying out the responsibilities of this program. Available money is used for grants to assist smaller counties temporarily in developing their local SQG Programs while they establish permanent funding sources at the local level. The total amount for this one-time grant is \$30,000 per county.

The Legislature also established the "Expanded Local Hazardous Waste Management Grant Program" (403.7238, F.S.). The Department was directed to establish a grant program to promote the continued development of local government hazardous waste management programs. The objective of this grant is to assist local governments in developing enhanced local hazardous waste management programs and to help establish local pollution prevention programs. The total amount for this one-time grant is \$50,000 per county.

A summary of current and proposed SQG grant projects can be found in Appendix 1.

LOCAL GOVERNMENT ACTIVITIES

In fiscal year 2001-02, 62 counties in Florida submitted data to the Department (Appendix 2). Approximately 103,482 small businesses were reported in the county's assessment rolls as potential or active small quantity generators of hazardous waste. Under this program, counties notify businesses of their legal waste management responsibilities by on-site visits, mail or through renewal of their occupational/business license. Businesses were also provided options to properly manage their wastes. County and Regional Planning Council (R.P.C.) SQG program coordinators, through mostly on-site visits, verified approximately 19,061 businesses on the assessment roll. Additional educational and pollution prevention assistance in the form of fact sheets and consultation were provided to small businesses during these site visits.

SQG program coordinators meet on a quarterly basis. There are currently five regional SQG program coordinator groups. The main purpose of these groups is to foster better communication and cooperation between state, regional and local hazardous waste management programs, exchange ideas and share information relative to the SQG Program. A representative from the corresponding DEP District office is often present at each meeting.

ENHANCED SQG PROGRAM PILOT PROJECT WITH COLLIER COUNTY-PHASE ONE

"More Protection, Less Process". This is the mission statement for the Department. The Collier County Enhanced Small Quantity Generator (ESQG) program is one way to assist the Department in meeting this mission statement. Collier's program exemplifies the current attitude in government to utilize our common resources for the benefit of all without duplication of effort. The Collier ESQG Program Pilot serves as a demonstration that can be duplicated anywhere in the state.

On November 13, 2001, a contract was signed with the Collier County Government to conduct a pilot program that evaluated the coordination and mutual benefits gained from creating a collaborative partnership between the DEP Hazardous Waste Compliance and Enforcement Program and the County SQG Assessment, Notification and Verification Program. The first phase of this project was completed in June 2002. Phase Two of this project is currently underway and will be completed in June 2003. A summary of the results is presented below.

Background

Since 1984, the County SQG Assessment, Notification and Verification Program has identified and surveyed businesses that generate or have the potential to generate hazardous waste to determine the quantities of hazardous waste generated, waste management practices and to help businesses better manage their hazardous waste.

To date this information has been used to meet the original requirements of the Water Quality Assurance Act of 1983 including determining whether the needs of small quantity generators of hazardous waste are being met by in-state commercial hazardous waste facilities or if additional storage, treatment, or disposal facilities are needed in the state. However, there has been discussion by many at the state and local level on the lack of coordination between the local SQG Program and the DEP Hazardous Waste Compliance and Enforcement Program. While the Hazardous Waste Compliance and Enforcement Program protects human health and environment through pollution control measures, the SQG Program, in contrast, emphasizes compliance and protection through education.

Collier County was selected to implement this “Enhanced SQG Pilot Program.” When compared to the other Florida counties, Collier County was selected because the Department was interested in a county that had successfully implemented the SQG Program and had already established a good working relationship with the DEP District Office. These two attributes would help ensure the success of the pilot program.

As noted above the purpose of this pilot program is to examine more efficient ways to leverage DEP compliance and enforcement expertise with local government efforts for identifying potential compliance problems and correcting them. Specifically, local programs will focus on minor compliance issues discovered, resolve them and direct major compliance issues or imminent threats to the Department for further action.

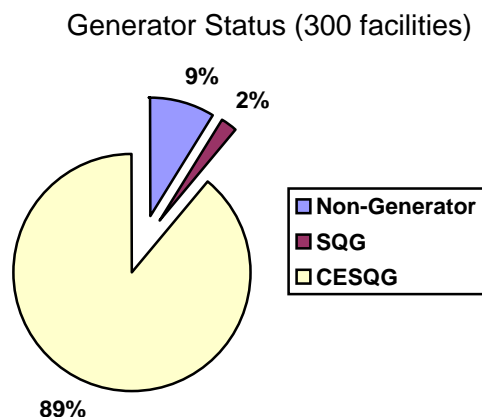
Results

The Department of Environmental Protection’s South District Office provided both classroom and field training for Collier County inspectors. District staff also provided support throughout the contract period by reviewing and critiquing all county inspections. This feedback is critical for the success of this project.

Once adequately trained, county inspectors have a better opportunity to respond to businesses within their boundaries than does the Department. Due to a higher frequency of inspections, businesses have the advantage of developing a relationship with county inspectors, which rarely happens with state or federal inspectors. The net result is better compliance with environmental regulations.

Businesses found to be significantly out of environmental compliance are referred directly to the Department. Also, businesses that do not comply after given an opportunity to correct environmental problems are referred to the Department. This results in better utilization of Department resources to address significant non-compliers and those potentially degrading the environment.

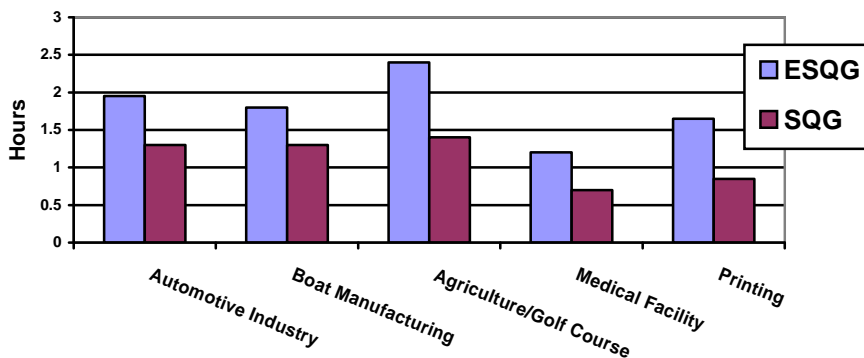
Using a Compliance Assistance Visit inspection checklist developed jointly by DEP and Collier County, 300 facilities received ESQG inspections between November 2001 and May 2002. Just over 89% of the businesses inspected were classified as conditionally exempt small quantity generators of hazardous waste. These businesses generate less than 220 pounds of hazardous waste per month.



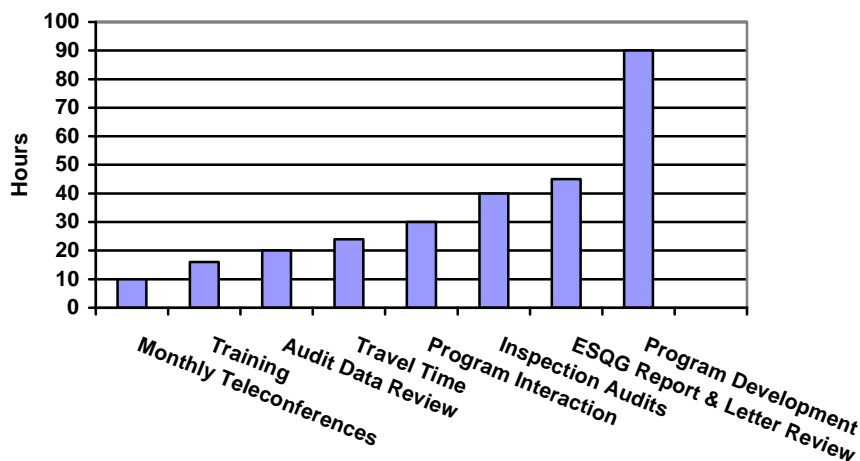
On average, county inspection time almost doubled with the ESQG program as compared to the standard SQG inspection conducted by Collier County. This average is expected to drop as county inspectors become more proficient and efficient in their inspections.

Approximately 275 hours of DEP staff support was provided in the pilot project. That is less than one hour of DEP's time per county inspection conducted in the pilot project. Most of the time was devoted to development of the pilot project since it is new so DEP support time should drop as the program matures. DEP staff time will be evaluated in Phase Two of this project and will be reported in next year's report.

County Inspection Time Per Site



DEP Support Time for Entire Pilot

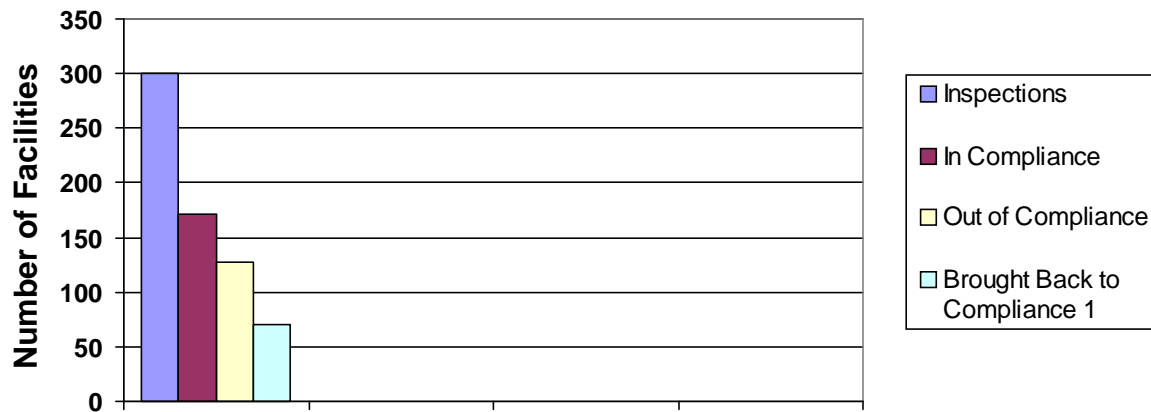


Of the 300 inspections conducted by Collier County, 58% of the businesses were in compliance with the hazardous waste regulations while 42% were out of compliance. Fifty-six percent¹ of the

¹ Not all of the "out of compliance" facilities were not brought back into compliance in time to be reported because of time limitations imposed by the contract. According to Collier County Staff, as of 11/27/02, 67% of the facilities out of compliance have been brought back into compliance.

businesses that were out of compliance were brought back into compliance by the end of the contract period. Three businesses were referred to the District office for follow-up. The top three non-compliance items found are 1) none or incomplete receipts, 2) improper hazardous waste determinations, and 3) lack of container labeling. Other non-compliance items found include missing material safety data sheets, improper fluorescent lamp/device management, lack of a EPA ID number and potential discharge to the environment (only 1% of the facilities inspected had potential discharges to the environment and were referred to the DEP for follow-up).

Compliance Activity



TRAINING AND EDUCATION

The SQG Program Inspector Orientation Course Guide has been developed and will be used to train new county inspectors. The focus of the training program is to provide an updated introductory training course for field staff conducting the county and regional hazardous waste management program. The guide integrates pollution prevention elements and strategies into the SQG Program. The goal is to establish a structured training guide for new county staff on how to conduct the SQG Program and integrate pollution prevention principals into the site visits.

In 2002, four training sessions were conducted around the state to properly train local coordinators in the use of the SQG Program database software. Feedback from the counties has been very positive on the software's usefulness in meeting both the statutory requirements and county specific needs of this program. The database software program used by each SQG Program coordinator has been upgraded from the previous year with additional reporting capabilities. This software update is part of an ongoing effort to improve the quality of data provided to the Department. The database program is distributed on the SQG Program guidelines and reference compact disk (CD) that is provided to each county. This CD includes information needed to run the SQG Program.

The SQG Program Database Advisory Committee has been established to guide the continued development and usefulness of the SQG Program database. The advisory committee is composed of local SQG Program coordinators and DEP staff. The first meeting of this committee was held in October, 2002 in Sarasota, Florida.

Each year the hazardous waste management section sponsors a small quantity generator and household hazardous waste program workshop for local government staff managing hazardous waste programs. Ideas and information are exchanged on pollution prevention, personal and site safety, cost-saving and efficient waste management strategies, and on new legislative mandates.

The SQG Program Listserver was developed in 2002. The SQG Program Listserver is an e-mail tool used as a discussion forum and information sharing venue for all SQG Program Coordinators in Florida. The goal of the listserv is to foster information exchange by making it easy for SQG Program Coordinators to communicate with each other in the search for solutions to problems encountered while conducting the SQG Program.

SUMMARY OF SQG WASTE MANAGEMENT IN FLORIDA

There are approximately 424,089 businesses in Florida (1999 County Business Patterns for Florida). Approximately 20-25% of the businesses may have the potential to produce hazardous waste. This estimate was derived from data collected by local governments as part of the SQG Assessment, Notification, and Verification Program.

Approximately 16,500² potential generators of hazardous waste were evaluated by the Department for their waste management practices. Approximately 12,200 of the verifications came from onsite visits by the counties. The remainder came from phone call verifications, survey notifications or other county specific follow-up. Evaluation of county submitted data show that just over 34% of the SQGs verified were classified as conditionally exempt small quantity generators (CESQGs) generating less than 220 pounds of hazardous waste per month. These CESQGs generate on average 588 pounds of hazardous waste per year. Regulated SQGs (220-2,200 lbs./mo.) account for 6.4% of the businesses verified by the counties over the past year. These SQGs generate on average 7,948 pounds of hazardous waste per year.

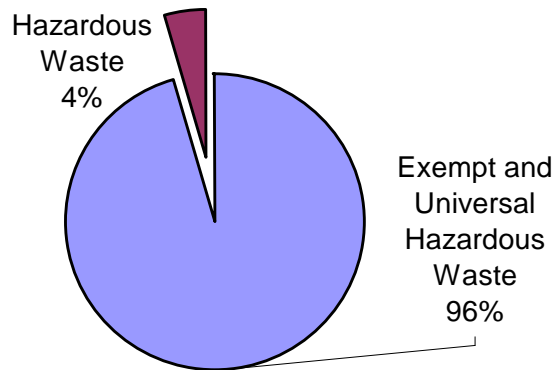
Businesses that generate no waste or exempt and universal hazardous waste (i.e. used oil, car batteries, mercury lamps and antifreeze) account for just over 59% of the businesses verified (Table 1). These businesses reported generating 194,197,344 pounds of hazardous, exempt and universal hazardous waste. Approximately 96% of all waste generated is either exempt or universal hazardous waste (i.e. used oil, car batteries, mercury lamps and antifreeze) and subject to streamlined regulation, when managed separately, as specified by federal and state law. While these wastes are exempt from or subject to streamlined regulation as a "hazardous waste," all contain constituents like oil, mercury and lead that are harmful to public health and the environment if not properly managed. The remaining 4% of the waste reported are considered hazardous waste.

² The number of potential generators evaluated by the Department is less than the 19,061 facilities reported by the counties because, at the time of the data evaluation by the Department (October 2002), information for only 16,500 facilities had been submitted.

Table 1: Types of Generators Identified by County Verifications in 2001-2002

Status	No. Sites	Percent	Avg. HW Generated/Site/Yr. (lbs.)
SQG	768	6.4	7,948
CESQG	4,113	34.3	588
NON-GEN	7,100	59.3	0
Total	11,981	100.0	

Hazardous, Exempt and Universal Hazardous Waste Reported for 2001-02



The vast majority (88%) of exempt and universal hazardous waste reported (such as used oil and lead acid batteries) is recycled. As much as 11% of the exempt and universal hazardous waste and 6.4% of the hazardous waste reported may have been improperly stored, disposed or reported and was “flagged” for further review by the county. A summary of waste generated by small quantity generators for 2001-2002 reporting year can be found in Appendix 4.

LOCAL HAZARDOUS WASTE COLLECTION CENTER GRANT PROGRAM

BACKGROUND

The Local Hazardous Waste Collection Center Grant Program started in 1985 with a \$500,000 Legislature appropriation to establish a statewide network of local and regional hazardous waste collection centers. These facilities collect and manage non-regulated hazardous waste from households and minimally regulated hazardous waste from small businesses. The waste is called Household Hazardous Waste (HHW) and Conditionally Exempt Small Quantity Generator (CESQG) waste. Also, the centers educate citizens about the proper use, storage, and management of their household hazardous products and encourage good purchasing practices to reduce waste volume and toxicity.

The level of service and technical expertise at permanent collection centers increases each year the facility is in operation. Centers are being enlarged to handle new waste streams such as flares and electronics. New equipment is being installed such as paint can crushers, aerosol can puncturing/draining devices, and antifreeze recycling machines. More counties are hiring chemists to staff the facilities which are open 5-6 days per week and are establishing transfer facilities, open 3-5 days per week, for collections. Cost of operations has decreased, as on-site chemists are qualified to sort, bulk, or pack the wastes into drums and sub-contract out various waste streams such as used motor oil or lead -acid batteries.

Recycling is an important component of the collection center operations. Several programs have “swap shops” where reusable products such as aerosols, polishes, waxes, paints, lawn care and pool products are given away. Antifreeze is recycled and reused in county vehicles. Vehicle and rechargeable batteries, used oil, and fluorescent lamps are sent to licensed recyclers. County Departments also use automotive, lawn care and paint products internally when possible.

Paint, the most prolific waste stream collected, is being recycled and reused in a variety of ways. Most of the oil-based products are bulked and shipped off-site for fuel blending. Several counties reprocess the latex paint for distribution to the community. Six counties send their paint to three different Florida paint manufacturers where the paint is mixed, re-manufactured and packaged as a post-consumer product containing as much as 95% recycled paint. One of these counties partners with their local code enforcement, so that a citizen is given recycled paint at the same time of receiving a notice to paint their home. Lastly, a county is reusing latex paint as alternative daily landfill cover. Apparently it works better controlling flying debris and odor than the specialized formulated product.

The Unique Activities and Innovative Projects grant has funded mobile collection units, pilot collections for end-of-life electronic equipment and pesticides, collection and management boater safety flares and ammunition, and collection and recycling programs for fluorescent lamps, freon, used motor oil and filters. A home fuel oil restoration and pumping program was established to manage the numerous abandoned and potentially leaking home fuel oil tanks that were no longer necessary because of conversion to electric or natural gas home heating. The grant has funded several public awareness and educational programs promoting both the proper management of HHW and the reduction of hazardous waste generation. Newsletters, brochures and bilingual public awareness pamphlets have been developed and distributed. Local programs have also coordinated efforts with the Florida Poison Control Center and the local public school system in an effort to educate children.

Nine Florida counties (Martin, Lake, Monroe, Marion, Leon, Volusia, Polk, Okaloosa and Broward) are complimenting their permanent collection center operation and periodic one-to-two day collection events with mobile unit collections. The county vehicles, trucks, large vans, trailers and ambulances have been customized for the safe collection and transportation of HHW. In addition to providing HHW collections at convenient locations, the vehicles' eye-catching side murals and lettering provide advertising for county HHW management programs.

TYPES OF FUNDING

- **Hazardous Waste Collection Center Grant**
Up to \$100,000 per county for constructing one or more safe, secure operational hazardous waste collection centers.
- **Cooperative Collection Center Arrangement Grant**
Up to \$35,000 per grant to reimburse 75% (with a \$25,000 limit) of a smaller county's collection event. The host County, experienced in hazardous waste collections, is reimbursed up to \$10,000 for assisting the neighboring county in holding its collection.
- **Unique or Innovative Project Grant**
Up to \$50,000 per grant with the county providing a 100% match. Funding is only available to counties that are operating permanent hazardous waste collection centers and is in addition to Hazardous Waste Collection Center Grants and Cooperative Collection Center Arrangement Grants.
- **Grants to reimburse expenses associated with local hazardous waste management**
Available to counties with established operational permanent facilities under the Hazardous Waste Collection Center Grant but have received funding less than their \$100,000 limit.

REQUIREMENTS FOR THE HAZARDOUS WASTE COLLECTION CENTER GRANT

- Contracting with a licensed, insured private hazardous waste management company that will be responsible for collecting hazardous waste and assuring the delivery of that waste to permitted recycling, storage, treatment or disposal facilities.
- Guaranteeing operation of the collection center for two years after the facility is constructed, including at least two days per year when HHW will be accepted from private citizens (non-business) at no charge. These "free collection days" will be well advertised to encourage private citizen participation.
- Offering at least two advertised collections per year when conditionally exempt small quantity generators can bring their hazardous waste to the collection center in order to obtain a reduced fee for proper management of the waste at permitted facilities.
- Working with a hazardous waste management company to establish expanded collection route services such as a "milk run" pickup service for small quantity generators of hazardous waste.

Hazardous waste collection center grant program history and funding summary can be found in Appendix 5 and 6.

THE COLLECTION AND MANAGEMENT OF BATTERIES, MERCURY-CONTAINING LAMPS AND DEVICES, OTHER WASTE STREAMS CONTAINING HEAVY METALS, AND PESTICIDES

DIVERSION OF MERCURY, LEAD AND CADMIUM FROM FLORIDA'S MSW

Since 1995 the Department has been tracking the amount of mercury, lead and cadmium entering Florida's municipal solid waste (MSW) stream from discarded products including batteries, mercury-containing devices and lamps, and cathode ray tubes in televisions and computer monitors. The Department has estimated the amounts of these heavy metals potentially entering Florida's MSW in the baseline year of 1995 and then estimated disposal amounts annually for 1996 through 2001. These disposal amounts do take recycling that has been documented into account and therefore represent disposal of heavy metals in products that were not recycled. Reducing the amount of mercury, lead, and cadmium entering Florida's MSW continues to be a key goal of the Department.

The reduction or diversion of mercury from Florida's MSW is primarily the result of source reduction activities on the part of the manufacturers to decrease the use mercury in certain widely-used products like batteries and fluorescent lamps. The growing use of alternative products without mercury, cadmium and lead will also contribute to the reduction of heavy metals in Florida's MSW. Some examples include digital thermometers instead of mercury thermometers; lithium batteries instead of nickel-cadmium batteries; and no-lead flat panel instead of lead-containing CRT displays in television and computer monitors. However, municipal and private collection and recycling programs will continue to be a key part of the ongoing effort to reduce heavy metals entering MSW.

MERCURY: FLUORESCENT LAMPS AND MERCURY-CONTAINING DEVICES

The amount of mercury discarded into MSW has been dropping rapidly due to the reduction or replacement of mercury in the manufacture of widely used products and the increased use of alternate products as well as recycling programs for mercury-containing lamps and devices. Although the volume of such products discarded in MSW can be high (e.g., household batteries) the amount of mercury reaching Florida MSW via these products is estimated to be about 6 tons in 2001, down from an estimated 12 tons in 1995. The estimated percentage contributions of selected product categories to mercury in Florida MSW in 1995-2001 are shown in Appendix 8. State legislation, industry source reduction efforts and product stewardship programs, and local recycling programs should continue to further reduce mercury in MSW. Due to the declining mercury content of the alkaline and carbon-zinc battery waste stream, an increasing number of counties have refocused their battery collection and recycling programs on rechargeable batteries which contain significant amounts of cadmium and lead.

With the ongoing decline of mercury content in batteries and other products, mercury-containing lamps and devices were estimated by the Department to be the largest combined product category source (more than 60%) of mercury being discarded into Florida's municipal solid waste in 2001. Additional information may be found at the Department's Mercury Waste Management web site at www.dep.state.fl.us/waste/categories/mercury.

Fluorescent lamps are the most common type of mercury-containing lamps. Mercury-containing lamps are prohibited from disposal in a municipal waste-to-energy facility or other solid waste incinerator

(403.7186, F.S.). Since most mercury-containing lamps are hazardous wastes, they cannot be disposed of at Florida MSW landfills and would have to be shipped to out-of-state hazardous waste facilities. As an alternative under Florida law, commercial, governmental, or institutional facilities may recycle them under streamlined universal waste regulations at permitted mercury recovery facilities. Mercury-containing lamps from households may be recycled at most county household hazardous waste collection programs. Mercury-containing devices, including those from households, such as thermostats, thermometers, and pleasure boat bilge pump float switches, are prohibited from disposal both in a municipal waste-to-energy facility or other solid waste incinerator and in a landfill (403.7186, F.S.). One boat bilge pump float switch can contain as much mercury as 50 fluorescent lamps. The Department strongly recommends recycling of all mercury-containing lamps and devices.

Chapter 62-737, F.A.C., contains standards for mercury recovery and reclamation facilities that process mercury-containing lamps and devices. Four facilities have permits under this Chapter. The average annual lamp recycling rate for the period 1995-2001 is estimated to be about 25% for commercial mercury-containing lamps in Florida. The recycling rate has fluctuated from a low of 16% in 1998 to a high of 31% in 1996 and 2000 with the 2001 recycling rate at about 24%. These estimates are based upon reports from Florida and out-of-state mercury recovery and reclamation facilities and transporters. The increased use of reduced mercury content fluorescent and other mercury-containing lamps in Florida is expected to further reduce the amount of mercury in Florida MSW from discards of this product category.

The streamlined regulatory structure of the EPA's Universal Waste Rule (adopted by Florida as Rule 62-730.185, F.A.C.) and Florida's universal waste rule for mercury-containing lamps and devices (Chapter 62-737, F.A.C.) has also spawned a product stewardship program funded by mercury thermostat manufacturers. Managed by the Thermostat Recycling Corporation (TRC), the program uses the existing new mercury thermostat distribution network of wholesalers and heating, ventilation, and air conditioning (HVAC) contractors to collect all brands of mercury thermostats taken out of service. Begun in November 1997, this TRC reverse distribution ("take back") program currently reports at least 43 participating wholesale companies with as many as 95 collection containers in Florida. In 2001, more than 100 pounds of mercury (nearly 11,000 thermostats) were collected and recycled by the TRC program in Florida, more than in any other state. Since 1997, more than 300 pounds of mercury from Florida thermostats have been recycled through the TRC program, representing 30% of the total mercury collected by TRC nationally. The cost of this program is built into the cost of the product. The mercury reclaimed from old thermostats is used in the production of new mercury thermostats and other products. Without the streamlined regulatory structure provided by the Universal Waste Rule and Chapter 62-737, F.A.C., the manufacturers would not have been able to set up and fund such a program.

Mercury Research and Demonstration Projects

Since 1995 Florida's continuing research into the behavior of mercury in MSW handling and disposal has yielded an important body of actual field data that has significantly reduced the uncertainties surrounding this previously unexplored topic. Funds appropriated by the Florida Legislature in Fiscal Year 2001-2002 were used for research and demonstration projects following on previous research related to mercury-containing devices and other mercury-bearing products in Florida's MSW. Continuing their 1998-2000 research, a team from the Oak Ridge National Laboratory (Tennessee) quantified mercury emissions from municipal solid waste landfill sites in Palm Beach, Martin and St. Lucie Counties. In addition, a team from the University of Central Florida characterized mercury emissions from about 1,400 municipal solid waste collection containers (dumpsters) at commercial facilities in Orange County. Florida's data set on the behavior of mercury in MSW

handling and disposal now includes emissions from all pathways at 4 landfills, transfer station emissions at 2 transfer stations, landfill gas emissions at 6 landfills and emissions from commercial collection containers in 2 counties.

LEAD AND CADMIUM: ELECTRONICS AND RECHARGEABLE BATTERIES

Lead in Cathode Ray Tubes (CRTs) and Other Electronic Products

In 1998, the Department began to focus on the proper management of discarded cathode ray tubes (CRTs) from televisions and computer monitors as well as other electronic equipment normally discarded along with CRTs, e.g., computers and computer peripheral equipment like printers and keyboards. CRTs, the combined category of computer monitors and TV picture tubes, are estimated by the Department to be the largest source of lead in Florida's MSW (see Appendix 8). Some studies suggest and surveys confirm that much of this obsolete equipment is being stored pending the clarification of its regulatory status and the development of recycling or other cost effective waste management options.

The Department's objective is to encourage cost effective reuse and recycling of electronics. To accomplish this goal a number of actions have been taken. First, in October 1999, the Department issued its strategy paper giving regulatory clarification for end-of-life management of CRTs and other electronic equipment. Second, in June 2000, a statewide contract for recycling end-of-life electronics was developed and made accessible to all state and other governmental entities. Third, time-limited funding is continually being granted in order to develop a sustainable collection system and recycling infrastructure. The funding was specifically appropriated annually since 1999 by the Legislature as part of sections 403.71851 and 71852, F.S. Also, additional monies from the Household Hazardous Waste Unique and Innovative Project Grants and the Innovative Recycling and Waste Reduction Grants have been used. As of October 2002 more than \$2,100,000 has been distributed to 23 counties for electronics collection and recycling programs. In May 2002, a \$200,000 contract was signed with a Florida electronics recycling firm to perform a demonstration project for countywide comprehensive electronics recycling. It is believed that this combined approach will accelerate the development of the reuse and recycling infrastructure in Florida and phase in development and funding of sustainable management programs for these products. The Department is also a leading participant in the National Electronics Product Stewardship Initiative (NEPSI) that has worked since 2001 with manufacturers, governments, environmental organizations and recyclers to develop and fund a sustainable national system for recycling end-of-life electronics products. See www.dep.state.fl.us/waste/categories/electronics for more information.

Rechargeable Nickel-Cadmium and Small Sealed Lead-Acid Batteries

Nickel-cadmium (Ni-Cd) batteries are the largest source of cadmium in Florida's MSW (see Appendix 8). Small sealed lead-acid (SSLA) batteries are a source of lead when disposed of in MSW. Products sold in Florida which contain Ni-Cd and SSLA rechargeable batteries must have a removable battery or battery pack and labeling information with identification and disposal/recycling information. The disposal of Ni-Cd and SSLA rechargeable batteries or products that contain them from any source, including households, into MSW is prohibited (403.7192, F.S.).

Florida became the first state to adopt the EPA's Universal Waste Rule (40 CFR Part 273) on September 7, 1995, thus activating other battery management requirements in Florida's 1993 Solid Waste Act, Section 403.7192, F.S. The Universal Waste Rule streamlines regulations governing the collection and management of certain widely generated hazardous wastes (now defined as "universal wastes"), including Ni-Cd and SSLA batteries, in order to facilitate their proper collection and recycling. Manufacturers and marketers that sell rechargeable batteries or products containing those batteries in Florida are required to have permanent unit management programs for collection and recycling. Annual reporting of the results of these permanent programs was required through October of 2000 and continues on a voluntary basis. See www.dep.state.fl.us/waste/categories/batteries for more information.

The Rechargeable Battery Recycling Corporation (RBRC) manages a rechargeable battery recycling program in Florida and throughout the U.S. and Canada. The program includes county/municipal collection sites, retail collection sites, and a commercial/institutional generator program fully or partially funded by the industry. A licensee fee/rebate program, run by the RBRC and available to battery or product manufacturers and distributors, provides the funding. The fee is included in the cost of the battery or product. As of October 2002, there were 2,017 collection sites (including many county household hazardous waste and solid waste facilities) in 64 Florida counties. Many of these sites are battery and electronics wholesale and retail outlets. Florida's Ni-Cd battery recycling rate is estimated to be about 11% for 2000, with the annual average rate for the period 1995-2001 at about 15%.

The Department has successfully worked in cooperation with the Portable Rechargeable Battery Association (PRBA) and RBRC to expand their Ni-Cd battery recycling program to include SSLAs. On January 1, 2001 the RBRC program began accepting SSLAs, nickel-metal hydride (NiMH) and lithium ion (Li-ion) rechargeable batteries. Now a battery purchaser can receive information on various recycling programs for all their rechargeable battery discards from one phone call (1-800-8BATTERY) or website (www.rbrc.org). The Department encourages an industry-wide approach to battery management since it appears to improve cost effectiveness, especially for smaller battery manufacturers and marketers.

Lead in Vehicular Lead-Acid Batteries

These batteries, typically larger than the SSLAs, contain a liquid acid electrolyte, and are prohibited from disposal in landfills or municipal waste combustors (403.708, F.S.). Retailers who sell these batteries are required under 403.7185, F.S., to collect a fee of \$1.50 for each battery sold which contributes to the state's Water Quality Assurance Trust Fund. Battery retailers are also required to take back spent batteries as trade-ins. In addition, some scrap dealers buy back spent lead-acid batteries. Also, county programs accept these batteries at solid waste/household hazardous waste facilities and collections.

A mature, close-looped recycling infrastructure that is driven by economic incentives within the lead-acid battery industry and convenient collection locations ensures that nearly all lead and plastic casings that are reclaimed from recycled batteries are used to make new batteries. According to the Battery Council International website (<http://www.batterycouncil.org/recycling.html>), "the typical new lead-acid battery contains 60 to 80 percent recycled lead and plastic".

The recycling rate for vehicular lead-acid (VLA) batteries has been estimated by the EPA to be nearly 96% nationally since 2000. No estimates of the recycling rate in Florida are known for VLA batteries, but the rates are believed to be consistent with the national average. Due to the large amounts of lead contained in these batteries, they and SSLAs are believed to be the second largest (behind TV and computer monitor cathode ray tubes) combined source of lead in Florida's MSW stream even with this very high estimated recycling rate (see Appendix 8).

OPERATION CLEANSWEEP

Operation Cleansweep, run jointly by the Department of Agriculture and Consumer Services and the Department of Environmental Protection, provides farmers, nursery operators, golf course operators, and pest control services a safe and economical way to dispose of their cancelled, suspended, and unusable pesticides. Proper disposal can be costly and a regulatory burden for small farmers and other pesticide users. Operation Cleansweep offers an opportunity to avoid these formidable barriers and to promote safe and environmentally sound pesticide use, handling, and disposal. The main goal of Operation Cleansweep is to protect agricultural workers, emergency responders, the public, and the environment from potential health and environmental threats from these stored pesticides. Some of these materials are very old and may be in deteriorating containers. Some, such as chlordane and DDT, are no longer allowed to be used. Others are no longer usable due to changes in the product during long term storage or changes in farming practices. Another goal is to reduce the need for future Operation Cleansweep collections by preventing the creation of unusable pesticides in the first place. Participants receive printed educational materials that include tips on purchasing only as much pesticide product as is needed; proper labeling, storage, and handling techniques; and information for responding to leaks, spills, and exposure incidents.

More than 40 private and public partners have worked together through Operation Cleansweep since 1995 to rid the state of 569,000 pounds (nearly 285 tons) of stored cancelled, suspended, and unusable pesticides from almost 1,000 participants in 62 counties. More than \$607,000 (\$532,000 in state funds; \$75,000 in private funds) has been spent for collection and disposal with public and private partners donating their time for planning, event support and staffing. With an average load of about 500 pounds, each participant saved at least \$2,000 since otherwise they would have had to pay 4 or 5 times more than the state contracted disposal price. Pesticides were collected at specific locations selected by the public and private partners serving on a Steering Committee on the basis of need, availability of a site and other logistical constraints. See www.dep.state.fl.us/waste/categories/cleansweep-pesticides for details on Operation Cleansweep participants, quantities and costs from the 1995 statewide lead arsenate collection program and the 1996-1998 pilot collections through the 2000-2001 and 2001-2002 strategic campaigns. Operation Cleansweep has again been funded by the 2002 Legislature for \$200,000. To efficiently serve the whole state, the 2002-2003 Operation Cleansweep program will provide pickup service to participants statewide on an as-need basis (participants sign up in advance) rather than holding collections on particular days in particular locations.

OVERVIEW OF LARGE QUANTITY GENERATORS OF HAZARDOUS WASTE

IMPORTANT CHANGES IN THE FEDERAL 2001 HAZARDOUS WASTE BIENNIAL REPORTING SYSTEM

The United States Environmental Protection Agency (EPA) started its Waste Information Needs (WIN) Initiative in 1997. Representatives from the EPA and a team of participating states, including Florida, met to design the EPA's future hazardous waste information systems to meet its responsibilities under the Resource Conservation and Recovery Act (RCRA) over the long-term. In 2000, one of the first outcomes of this project was the redesigned Biennial Hazardous Waste report.

As part of the redesign process, some information collected in the 1999 and previous reports was deemed to be beyond the scope of the report and would no longer be collected. Hazardous wastes treated solely within the bounds of a wastewater treatment system regulated by the National Pollutant Discharge Elimination System (NPDES) rules of the Clean Water Act are not used to determine the hazardous waste generator status of a site or facility and so are no longer collected in the report. Information on these wastes previously collected was incomplete and misleading at best and it was felt that the partial information obtained did not justify the reporting burden on the regulated community.

The coding structure for describing the sources of the waste and the waste types generated was streamlined and simplified, but the new codes were designed to make comparisons with the previous codes possible. The historical information presented in this report will be based on these translations and may not strictly correlate with the information published in the previous reports.

Due to the changed nature of the reporting process for 2001 and a change in focus both at EPA and DEP in the usage of the report information, the format of the Biennial Report information presented in this assessment report has changed from the previous reports.

CAPACITY ASSURANCE REPORT NOT INCLUDED IN THIS REPORT

Florida submitted its final Capacity Assurance Plan (CAP) report to the EPA on May 19, 1994. All states were required to submit the CAP by the federal Superfund Amendments and Reauthorization Act of 1986 (SARA). On the basis of Florida and other states' CAPs, the EPA determined that there was enough commercial hazardous waste treatment and disposal capacity at the national level to properly manage all the hazardous waste requiring off-site management across the country. Since the hazardous waste capacity assurance exercise has been completed, it will no longer be discussed in this report. Readers with specific interest in the CAP process and results are directed to the previous Assessment reports.

NOTABLE FACTS ABOUT THE 2001 REPORT

Much has been learned about hazardous waste (HW) management and generation in Florida based on the implementation of the Hazardous Waste Biennial Reporting System (BRS) as required under federal and state laws for large quantity hazardous waste generators (LQGs) and for permitted hazardous waste treatment, storage, disposal and recycling facilities (TSDRs). However, due to the unforeseen complexities that first appeared with the initial implementation of the 1991 BRS report, and the gradual evolution of better data quality control measures and electronic reporting, for which Florida has been a national leader, it has taken some time to get a firmer grasp on these complex data sets and to make clearer comparisons over the reporting years.

Even though a better understanding of the data now exists, the reader is cautioned to not too narrowly interpret the numbers presented here. Since the data sets are very complex and there is much variability over time in components such as one-time and exempt HW generation, including contaminated media derived from the improper disposal of hazardous chemicals, one should be cautious in order to avoid making erroneous or definitive interpretations. In addition, the data's one-time hazardous waste generation component does not include all the hazardous waste that was generated, treated and disposed of on-site (i.e., in place) as a result of the federal Superfund or state cleanup programs.

In order to improve the quality of data collected, the Department has provided four to eight hours of user training for reporting facilities in Tallahassee and three remote locations throughout the state for over 200 participants.

Other quality control measures include :

- Waste shipped off-site is compared to waste received by commercial facilities by site after the data have been finalized at the national level, giving more quality control of the accuracy of waste shipping data.
- Waste generation amounts are compared to previous years' amounts to look for possible anomalies.
- Waste received by Florida facilities is compared to the amounts shipped off-site and treated on-site to ensure correct tracking.

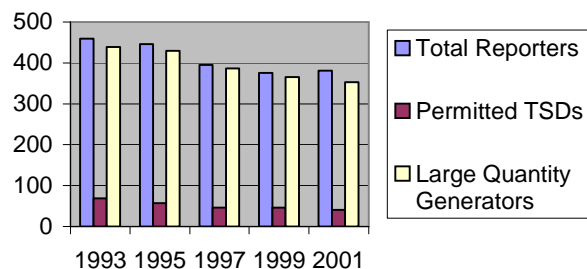
Finally, even though extensive quality control efforts were made, the data in this report are only as good as the data provided to the Department by the LQGs and TSDRs. Although great efforts were made to provide training to these regulated entities on properly completing the BRS reports and using electronic reporting, there is always the possibility of incorrect reporting.

Hazardous Waste generation for the State of Florida in 2001 has increased by a factor of 10 over 1999, due in large part to a 100-fold increase in generation of acidic wastewater from one facility. While comparable volumes of wastewater were generated in the past, changes in the production process at this facility resulted in the change of the acidity of the wastewater entering the storage tanks for their Underground Injection Control system, requiring that it be neutralized before injection and reported as hazardous waste. Excluding this data flier, hazardous waste generation has increased by only 20% when compared with the 1999 reporting cycle.

The number of Large Quantity Generators in 2001 has decreased slightly over 1999 to a total of 353. Some sites in the chart shown were both Treatment, Storage, and Disposal Facilities and Large Quantity Generators, so the total will not be the sum of the categories.

Due to the limited number of commercial treatment facilities in Florida, most of the HW shipped off-site by Florida generators is shipped to storage or transfer facilities at HW transporter sites before final management. Ultimately, most of the HW shipped off-site is exported to out-of-state, permitted treatment, disposal and recycling facilities. Florida is a net exporter of hazardous waste.

Reporting Sites and Site Activities

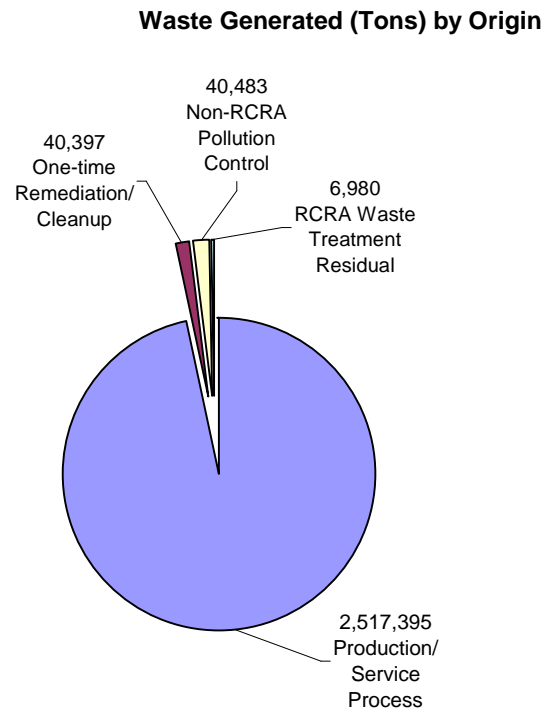


Hazardous waste generation is generally divided into 4 origin types as follows:

1. Primary production or service process wastes (manufacturing process residuals or discarded chemicals from service activities)
2. Remediation cleanup wastes (soils and abandoned chemicals)
3. Waste generated from pollution control processes (air pollution control residuals, etc.)
4. Residuals generated from the treatment of existing hazardous wastes (sludges, etc. from treating wastewaters or other waste chemicals).

For 2001 the 381 reporting facilities in Florida generated RCRA regulated waste as shown (in Tons).

Eighty-eight percent of the primary production or service process waste is in the single new wastewater flow from the single facility mentioned above. The sizable amounts of waste generated from cleanups and pollution control activities were overshadowed by this large waste water flow.



For the primary production or service process wastes, the physical type of waste generated was primarily wastewater (inorganic liquid) as shown in the pie chart.

Over 95% of the waste generated in Florida (and the US in general) is a wastewater of some type (generally waste process waters from electroplating, rinsing, or a chemical manufacturing process.) Due to the changes in the 2001 report, information was not collected on exempt wastewaters that are treated in industrial wastewater management systems before release to National Pollutant Discharge Elimination Systems (NPDES).

The primary production or service process wastes that were managed on-site were managed primarily by neutralization.

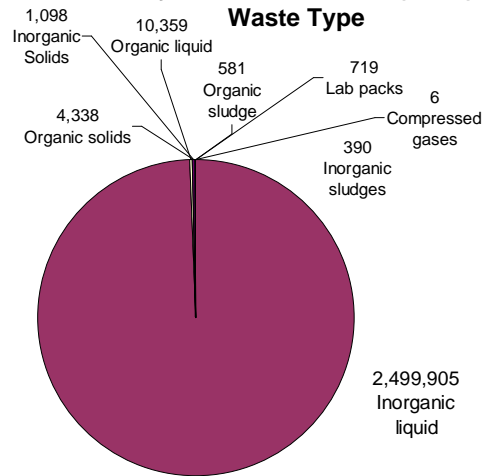
Neutralization (86%) and discharge of acidic aqueous wastes to an Underground Injection Control (UIC) well (11%) were the methods used for over 95% of Florida's on-site hazardous waste (by weight).

UIC wells are generally very deep wells (in excess of 1,000 feet) permitted by DEP to conform with the Safe Drinking Water Act and the Clean Water Act. Information was collected on UICs permitted by RCRA rule to accept either RCRA hazardous waste or the effluents from the neutralization or other management of those wastes.

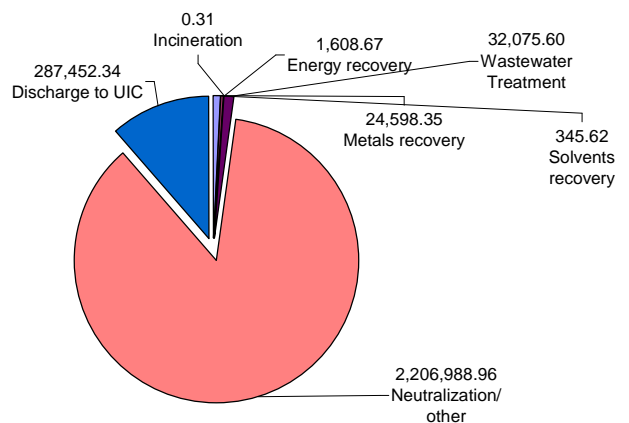
Primary (from initial generator) wastes that were shipped off-site from generators were initially managed as shown in the pie chart.

Almost all of the 66,262 tons of waste shipped off-site (including the 14,154 tons of re-shipped storage/bulking/transfer waste) was eventually managed in another state, (i.e., most of the waste shipped to Florida Treatment, Storage, and Disposal (TSD) sites was bulked or blended and shipped to other states for final management).

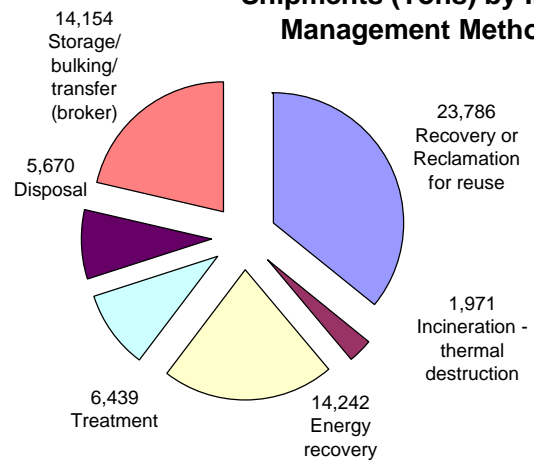
Primary Waste Generation (Tons) By Waste Type



On-Site Management (Tons) By Type



Shipments (Tons) by Initial Management Method



TREND SUMMARY AND OBSERVATIONS 1991-2001

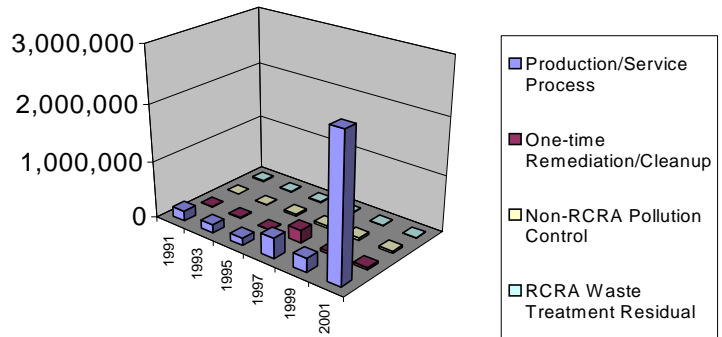
For the years 1991-2001 the generators in Florida generated RCRA regulated waste as shown (in tons).

Eighty-eight percent of the primary production or service process waste for 2001 is in the single wastewater flow mentioned above.

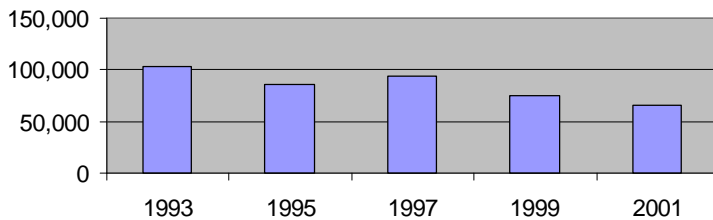
Hazardous waste generation has increased since 1991 with two sizable episodic increases: in 1997, a rise in production waste and a large cleanup at the same facility; in 2001, a large rise in production waste at one facility.

Possible evidence of pollution prevention results in trend data over time may be seen in the reduction of the quantities of hazardous waste shipped off-site for management. A major focus of the Pollution Prevention activities for this Department has been an emphasis on managing the waste at the point of creation (as seen in the total waste shipments chart at the end of this section), lessening the potential for highway or rail spills

Generation (Tons) by Waste Origin by Year



Total Waste Shipments (Tons) By Year



See Appendix 7 for additional information.

FLORIDA'S POLLUTION PREVENTION PROGRAM

DEFINITION OF POLLUTION PREVENTION

Pollution Prevention (P2) is a management tool that eliminates, conserves or reuses materials. Solutions may include replacing, conserving, reusing or reducing the use of materials that are the source of pollution. Ideally, businesses using the P2 approach generate products or services without generating toxic emissions or hazardous waste.

This process should be viewed as an essential part of daily operations as well as a longterm strategy. When implemented, a P2 facility plan should increase efficiency of business operations and consequently provide a competitive edge in the marketplace. Longterm cradle-to-grave liabilities, hazardous waste management fees, and clean-up costs resulting from improper disposal of hazardous substances are eliminated or reduced. Worker exposure to toxins may be reduced. Lower raw material and labor costs may result.

Facilities employ a progressive strategy of source reduction, waste minimization and on-site recycling to achieve P2 goals. Source reduction occurs when chemicals and processes that produce waste are not used or are replaced with ones that produce less waste. Waste minimization simply involves changing products or processes to decrease waste generation. On-site recycling is the reuse of materials or other resources to reduce waste. Water and energy conservation are considered P2 as well.

THE POLLUTION PREVENTION PROGRAM

The Pollution Prevention (P2) Program offers nonregulatory technical guidance and education to Florida citizens and industries. More than 500 businesses have received onsite assistance and countless others have received information in eliminating or reducing their generation of hazardous waste and toxic releases to the environment. Most efforts focus on small businesses because they have fewer resources to research and implement pollution prevention options. The Program's many services include:

- on-site pollution prevention assessments that identify P2 opportunities, analyze economic and environmental benefits, and assist in developing a facility P2 plan or an environmental management system;
- training for private organizations and local governments interested in starting a P2 program;
- technical data such as tip sheets, industry articles, case studies and Best Management Practices, available to the public from the P2 Resource Center;
- independent research tailored to a specific P2 inquiry;
- an annual Statewide Pollution Prevention Conference, featuring speakers from large industry, small businesses, the military and government;
- a newsletter entitled *P2 Links* available electronically or by printed copy;
- speakers for industry specific workshops and government seminars;
- articles for inclusion in trade journals; and

- a database to identify industries in need of assistance and evaluate the success of services provided.

For additional information on any of the above services, contact the P2 Program directly at 850-245-8807, by message at 800-741-4337, or through the P2 Program's web site at www.dep.state.fl.us/waste/categories/p2.

P2 PROGRAM STAFFING

Four full-time engineers with backgrounds in chemical and industrial engineering and three parttime retired engineers with extensive industrial experience provide technical assistance to Florida businesses. An environmental specialist conducts outreach activities. The program manager oversees administrative functions.

DISTRICT P2 COORDINATORS

In addition to the P2 Program staff located in Tallahassee, each of the six DEP districts has a P2 Coordinator. These coordinators work extensively with local governments and industries and participate in statewide projects with the P2 Program.

PARTNERSHIPS AND PROJECTS

With funding from state and federal sources, the P2 Program has embarked on numerous research, development and outreach projects designed to bring the latest P2 concepts to facilities throughout Florida. The resulting partnerships with industries, trade associations, non-profit organizations, and government agencies at all levels have been a critical factor in the P2 Program's continued success. Current projects and related partners include the following:

- Develop a Florida web site, recruit partners and champions, and conduct on-site hospital assessments as part of the Hospitals for a Healthy Environment (H2E) program, a partnership between the American Hospital Association and the EPA.
- Develop a guide to educate personnel in commercial buildings about environmental responsibility in operation and maintenance practices with the Florida Green Building Coalition and Florida Solar Energy Center.
- Conduct environmental management systems (EMS) workshops for business by contract with the University of Florida's EMS Institute.
- Establish a closed loop recycle systems pilot project with DEP's Division of Water Resources.
- Participate in military P2 workshops and meetings held by the Department of Defense.
- Represent EPA Region 4 on the National Pollution Prevention Roundtable's Board of Directors.
- Oversee the Partnership for Pollution Prevention, an awards program to encourage, promote and reward facilities with a continuing commitment to protect the environment.

Upcoming projects and partnerships include the following:

- Integrate pollution prevention into Florida's university level courses with the EPA Green Engineering Program, the FAMU/FSU College of Engineering's Department of Industrial and

Manufacturing Engineering, and the University of Florida's Department of Environmental Engineering Sciences.

- Measure the magnitude of flame retardant chemicals in Florida using industry and commercial statistics to provide a benchmark for future reductions required by future regulatory initiatives such as voluntary phase-outs or bans.
- Create a certification and awards program to encourage lodging facilities to become more environmentally conscious using waste reduction principles, with the DEP Recycling Program, the Florida Hotel and Motel Association, the Florida Water Management Districts, the Solid Waste Management Association of North America (SWANA), utility companies, and other organizations.

NATIONAL POLLUTION PREVENTION WEEK 2002

The statewide theme for P2 Week 2002 was *Greening Your Home and Office Workplace*. The P2 Program, in partnership with the Florida Pollution Prevention Roundtable and participating local governments, promoted green purchasing practices in Florida government and businesses. EPA grant funds received by the P2 Program were used to purchase mouse pads made from recycled rubber that were inscribed with green office tips and promoted the Roundtable web site (www.flppr.org).

LEGISLATIVE BACKGROUND

The 1988 Legislature established an assistance program designed to aid in reducing the amount and toxicity of hazardous waste generated in the State. In 1991, the Florida Pollution Prevention Act (403.072074, F.S.) expanded the original legislation to encourage source reduction (preventing and reducing pollution at its source), waste reduction, resource conservation, and energy efficiency. It also expanded the Department's technical assistance activities, directed all state and local agencies to pursue prevention strategies, and allowed financial and proprietary data collected during on-site technical assistance visits to be kept confidential.

USED OIL PROGRAM

BACKGROUND

Florida's comprehensive, statewide Used Oil Recycling Program is recognized as one of the most successful in the United States and serves as a national and international model. The Florida Department of Environmental Protection (DEP) has implemented a used oil management program under Sections 403.75 through 403.769, Florida Statutes (F.S.), since 1984. The program consists of a registration and record keeping program for used oil handlers and technical assistance to the public and regulated community. The 1988 Solid Waste Management Act substantially changed public policy toward solid waste management and used oil collection, management, transportation and recycling. New initiatives included a 5% price preference for the purchase of recycled and re-refined used oil by state and local governments, as well as some limited liability exemptions for businesses which accept used oil from the public. The 1988 Legislature approved a one-time appropriation of funds amounting to \$1 million for local government grants for establishing public used oil collection centers and \$1.5 million for statewide incentive/awareness and educational programs aimed at Do-It-Yourself (DIY) oil changers and school students. The 2001 Legislature appropriated \$200,000 to update Florida's used oil recycling program. The Department continues its regulatory program and, though the number of regulated parties remains relatively stable, the amount of used oil recycled per capita continues to grow.

Florida law contains several bans on the disposal of used oil. As of October 1, 1988, it has been unlawful for used oil to be discarded into sewers, drainage systems, septic tanks, surface or ground waters, watercourses, or marine waters. It cannot be mixed or commingled with solid waste to be disposed of in landfills, except for those instances wherein the disposal occurs unknowingly, or is approved by the Department (such as in the case of emergency clean-up of accidental oil spills). Used oil cannot be mixed with hazardous substances or hazardous wastes that make it unsuitable for recycling or beneficial use. It cannot be used for road oiling, dust control, weed abatement, or other similar uses that may release used oil into the environment.

The used oil statutes were amended by the 1993 Legislature. The majority of these amendments were made to make Florida law consistent with the federal used oil regulations, especially in the use of terms and definitions. A major change requires retailers who sell over 500 gallons of oil annually to post signs which display the State's toll free number 1-800-741-4DEP (4337). This number uses a voice mail system to provide the locations of all public used oil collection centers in Florida, indexed by post office zip code.

Chapter 62-710 of the Florida Administrative Code (F.A.C.), addresses used oil management and implements the provisions of state law. It establishes a program for registration, record keeping and reporting by handlers of used oil; certification of used oil transporters; and permitting of used oil processing facilities. The federal used oil management standards which are found in Chapter 40, Part 279 of the Code of Federal Regulations (CFR) are adopted by reference in Rule 62-710.210, F.A.C., effective June 8, 1995. The definitions and forms used in this program are found in Chapter 62-701, F.A.C. (Solid Waste Management).

Section 403.756, F.S., requires the Department to "submit an annual report to the Legislature which summarizes information on used oil collection and recycling, analyzes the effectiveness of this act, and makes recommendations for any necessary changes." This report addresses the status of Florida's Used Oil Recycling Program using data collected during 2000.

PUBLIC USED OIL COLLECTION CENTERS

As of December 2001, Florida had a statewide network of 1,053 PUOCCs. The Department has worked closely with all county Used Oil Coordinators, the Florida Petroleum Council, the Florida Petroleum Marketers Association, and others in the quicklube oil-change business in establishing this network. As a

result of this effort, all but four (rural) counties have more than one location where used oil can be taken for recycling. Major oil companies and hundreds of independent service stations, auto repair shops, quick-lube shops and auto parts retailers have volunteered to become public used oil collection centers.

The number of PUOCCs participating in this program seems to be decreasing. Some municipalities have consolidated collection sites or initiated curbside recycling programs. Operators of used oil collection sites who maintain compliance with all applicable management standards are granted certain liability exemptions under Section 114 of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA or Superfund), are granted protection against enforcement penalties related to a release of used oil under Florida Statutes, Section 403.760, but must still assume the significant costs associated with a clean-up. This is proving to be a disincentive to participation in this program. Despite a slow, but steady, decline in the number of PUOCCs over the years, the quantity of used oil collected from household Do-It-Yourselfers (DIYers) continues to increase annually.

PUOCCs accepted 2,709,035 gallons of used oil in calendar year 2000. This past year, Department staff identified a “glitch” in the database used in support of this program. With this anomaly remedied, the total number of gallons reported collected continues to grow at a rate of about 6% each year. It is difficult to estimate the number of DIYers in Florida. The Department applies a stringent estimate of 4 oil changes per year per DIYer. The Department feels that in Florida, because of the size of its retirement age population, the booming quick lube service business, and large lease fleets, the number of DIYers is probably close to 15%. DEP estimates that Florida DIYers generate approximately 7.2 million gallons of used oil. This means that Florida is now collecting about 30% of the used oil generated by DIYers.

The Department maintains a toll-free number (1-800-741-4DEP) which uses voice mail to index PUOCCs by post office zip code. Anyone calling this number is prompted to enter his or her zip code. The system then either reports a listing of PUOCCs in that zip code, or directs the caller to leave a taped message for a prompt reply from a Department representative.

ANNUAL REPORTS FOR CALENDAR YEAR 2001

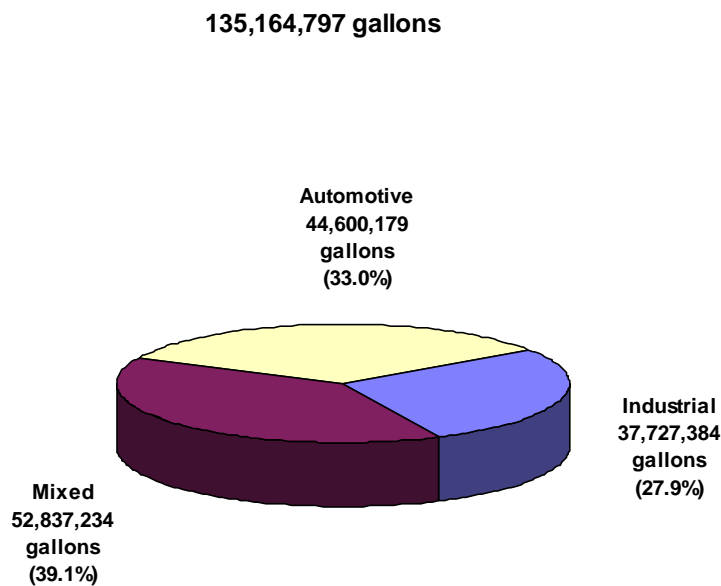
As of December 2001, 120 individual private and public businesses were included in the registration database, 5 of which are based outside of Florida. This is not significantly changed from 2000. Continuing trends are that larger companies with greater financial resources are diversifying their handling operations and maintaining branch facilities throughout the state while small operations with limited resources are quitting this industry and turning over their customer base to larger companies.

Effective June 8, 1995, Used Oil Filter (UOF) Handlers were required to register with the Department's Used Oil Recycling Program. Many used oil handlers now also manage UOFs to meet customer demand. As of December 2001, the DEP database included 103 UOF Transporters, 75 UOF Transfer Facilities, 22 UOF Processors and 2 UOF End-Users (metal foundries and Waste-To-Energy facilities [WTEs] that accept segregated loads of UOFs from non-registered persons). As a WTE facility will burn the oil contained within a filter for energy recovery and recycle the metal casing, the Rule allows generators of used oil filters who live in an area serviced by one of the 16 WTE facilities in Florida to commingle their used oil filters with the rest of their solid waste. The WTE facility, in turn, need not register with the Department to manage commingled filters. Because such a large portion of UOF generators in the state are in areas served by WTE facilities, the reporting requirement for UOF Handlers was made optional within the Rule. As reporting is optional, data regarding UOF management is destined to remain an approximation.

Types and Quantities of Used Oil Generated by Source

In calendar year 2001, 135,164,797 gallons of used oil and oily wastes were reported to have been collected. Automotive used oil and oily waste made up 33.0% of the total amount collected, including 2,709,035 gallons collected from over 1,000 Public Used Oil Collection Centers (Figure 1). Approximately 27.9% of the total were industrial oil collected from bulk petroleum and various industrial facilities, and other sources. The remaining 39.1% of the total was of the mixed type generated by commercial sources (i.e., a combination of automotive and industrial oils). More oil was reported as mixed, compared to last year's data. This seems to indicate a consolidation of loads by handlers to address the previously described tight market conditions.

Figure 1 Amount of Used Oil and Oily Wastes Collected in Florida, 2001



Disposition of Used Oil

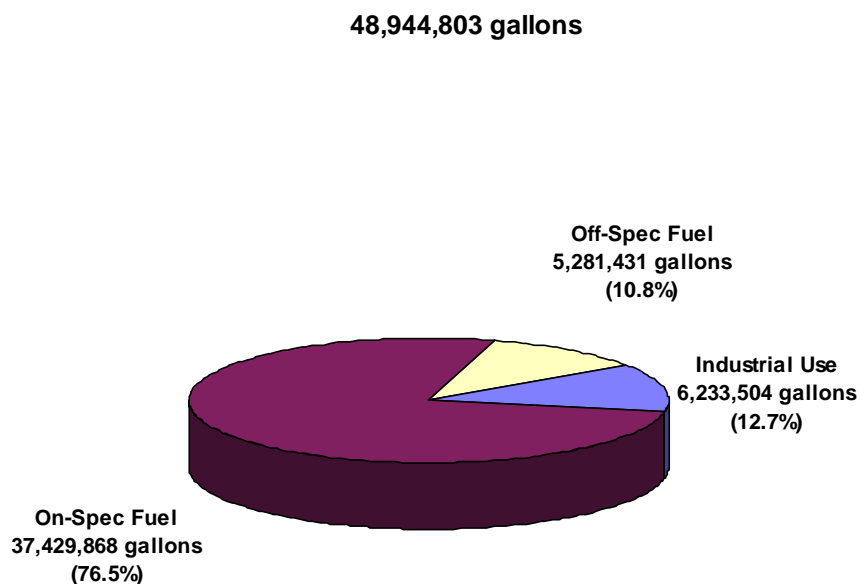
Of the 135,164,797 gallons of used oil reported to have been collected in Florida during 2001, about 47,079,787 gallons represent a duplication of data which occurs when used oil transporters report their collections to the Department and the oil is not end-used but rather is transferred to a another facility. The receiving facility then also reports this same quantity as having been collected at that site. When the on-hand inventory is included and the transferred quantity is removed from the data, a total of 91,285,024 gallons of used oil and oily wastes were reported as collected for management. On the other end, 97,632,299 gallons of used oil are reported as being managed (recycled or disposed). This leaves a difference of 6,347,275 gallons. According to information provided by industry, there is always a degree of error in tracking used oil because of differences in measuring loads of used oil which are intrinsic to the used oil industry. Most transporters use dip sticks to estimate volume during pick-up and transit. Processors use a more sophisticated measure, using

actual weight from certified scales in determining a price per load. It is not uncommon for transporter estimates to differ by 6-12% from the final measured volume, with the mean falling around 7%. The error in this year's annual report calculates to approximately 4.7% of the total quantity reported as collected. This error is well within the expected industry margin and reflects the Department's efforts to increase the accuracy of its data collection and management.

Of the 97,632,299, gallons of used oil and oily waste reported as managed, 48,944,803 gallons (50.0%) were recycled as follows (Figure 2):

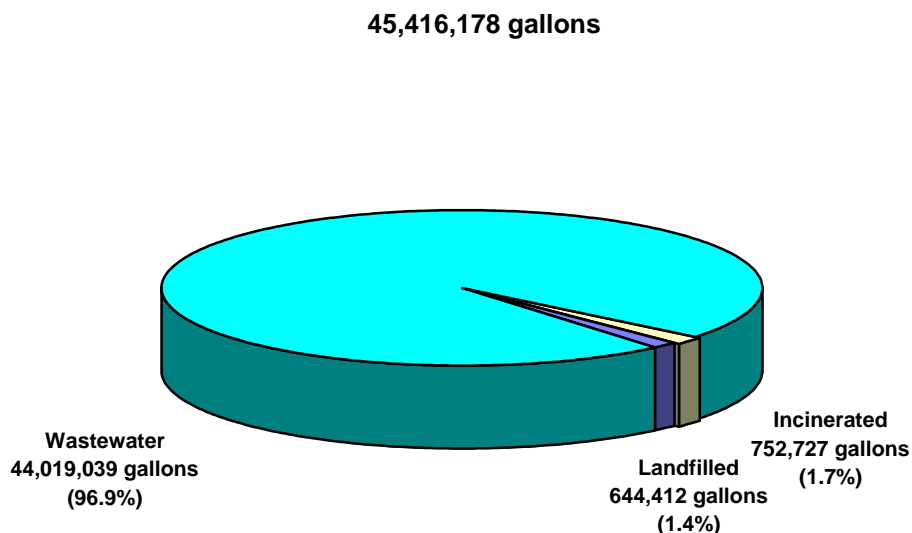
- 37,429,868 gallons (76.5%) were marketed as an on-specification used oil fuel
- 5,281,431 gallons (10.8%) were recycled as an off-specification used oil fuel
- 6,233,504 gallons (12.7%) were marketed for other industrial uses (e.g. phosphate beneficiation)

Figure 2 Disposition of Used Oil Managed in Florida, 2001



The remaining 45,416,178 gallons (50.0% of the total amount of used oil reported managed) ended up as oily wastes. These oily wastes were managed as follows (Figure 3):

Figure 3: Treatment and Disposal of Oily Wastes in Florida, 2001



Used Oil Filters (UOFs)

There are a number of difficulties in deriving conclusions with a high degree of confidence from UOF data. First, as the Department's authority to regulate UOFs extends only to the oil trapped within the filter, the reporting of such data was made optional under the rule. Second, UOFs are collected in a number of different ways (e.g. barrels, drums, roll-off or bins of crushed, uncrushed or shredded filters) and the data are reported using barrel equivalents (1 barrel equals a certain number of filters) and tonnage conversions (converting weight to numbers of filters). Hence, the numbers generated can only be approximations. Furthermore, staff has been unable to obtain sales figures of new oil filters in Florida as the companies consider this proprietary information involved in this business. As a result, staff can only estimate the number of filters generated in the state. Finally, data on filters generated in areas of the state serviced by Waste-to-Energy facilities are not reported at all. This is assumed to be a significant number of filters as approximately 16% of all solid waste generated in Florida is burned for energy recovery (DEP Solid Waste Management in Florida, 2000).

Even though the actual reporting mechanisms are weak, the Department continues to use a very liberal estimate of UOF generation in Florida (assuming four filter changes per year for the 13 million vehicle registrations estimated for 1999 by the Florida Department of Highway Safety and Motor Vehicles). Based on this assumption, DEP now estimates that approximately 52 million UOFs are generated in Florida per year.

From the data reported, approximately 27,714,000 UOFs were collected (diverted from landfill disposal). This accounts for approximately 52% of the UOFs generated in Florida. This is a slight decrease of 2% under last year. It can be assumed that persons served by a WTE facility manage a majority of the unreported filters. Most of the filters reported to have been collected were sent to U.S. Foundry in Dade County, which are recycled into gray steel to produce street drain covers and similar products. The prohibition against the landfill disposal of used oil filters has resulted in the recycling, rather than disposal, of approximately 13,857 tons of steel in 2001. About 403,133 gallons of used oil, trapped within the filter, were collected during the management of these filters and handled under the used oil management standards. Approximately 815,857

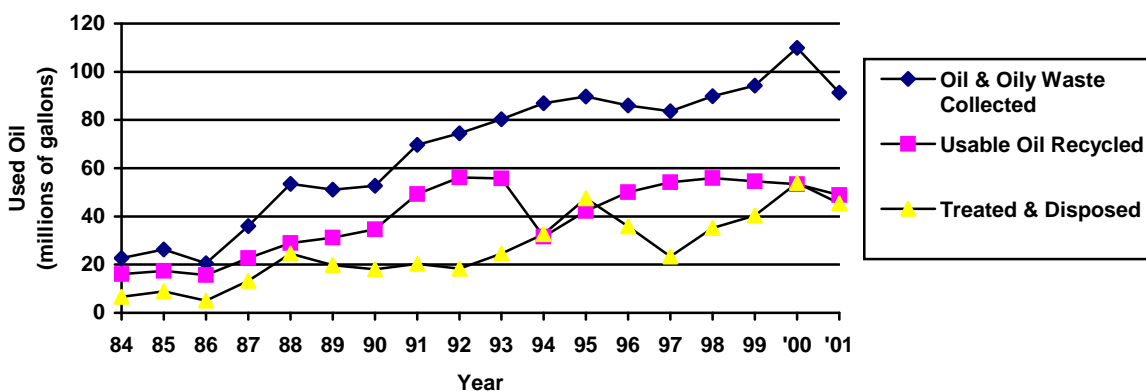
UOFs were reported as end of year, on-site inventory. It is very common for filter handlers to store large quantities of filters on-site until a large bulk load can be shipped to a final end user. This practice minimizes transportation costs, allows for thorough draining of used oil from the filters and ensures a maximum value for the clean metal. A slight degree of error must be assumed, based on the variables mentioned at the start of this section.

Trends

Figure 4 shows the trends of used oil management in Florida from 1984 to present. Overall, the trends (collection, recycling and disposal) show a steady increase in volume over time. This is to be expected, given Florida's steady population growth.

It is difficult to correlate increased rates of used oil recycling to population growth due to many variables. Variables resulting in reduced oil changes include extended vehicle service schedules for newer cars (significant in Florida's large rental fleets) and for those consumers using the new, synthetic oils which have

Figure 4: Used Oil Management in Florida, 1984-2001



a longer life, the use of on-board, in-line oil filtration systems by truck fleets, and the growth of on-site used oil reconditioning and recycling technologies increasingly employed by industry. Nonetheless, the rate of growth in the volume of used oil collected seems to at least keep pace with the population growth rate. A significant adjustment is evident in 1993 and 1995. It was during this time that DEP promulgated amendments to both the Used Oil Management standards and, at the same, adopted standards for the management of Petroleum Contact Water (PCW), respectively. The changes in definitions of used oil, oily wastes, and PCW, along with the fine tuning of the data collected by DEP regarding these activities, resulted in a major data shift. The trend since the shifts during rulemakings is interpreted by DEP to be very positive in that the amount of oil actually recycled remains stable and the volumes reported collected, recycled and disposed of reconcile to within a 5% margin of error.

The Department is continuing to refine the data gathered in assessing the effectiveness of this program for this annual report through explanatory letters and quality control screening of all incoming reports.

In June of 1999, the United Association of Used Oil Services (UAUOS), which represented a good portion of the Used Oil Handlers registered with this Department, folded. The Department has felt the loss of this

association through the lack of knowledgeable input regarding the specifics of the industry in Florida. The Department is examining some sort of mechanism which would restore the strong communication link between government regulators and the private sector in this industry which was lost with the demise of the UAUOS. Some of the strategies being considered include internet technology for easier and more open communication and the encouragement of members of the private sector to take the initiative in restoring this vital communications link.

RECOMMENDATIONS

Florida's statewide Used Oil Recycling Program, one of the most comprehensive, extensive, and successful in the United States, continues to grow as it continues to receive national recognition. There is, however, always room for improvement.

The Department is about to conduct public workshops to promulgate some changes in the rules governing used oil management. The purpose of this rulemaking is fourfold: 1) to correct technical errors; 2) to upgrade the minimal insurance requirement to \$1 million for Certified Used Oil Transporters; 3) to revise the tank standards to reflect changes in the Department's tank rules; and 4) to clarify the applicability of the permitting requirements for used oil processors who market used oil and/or also manage nonoil related solid waste at their facilities. The Department is working closely with industry and does not expect this rulemaking to be contentious.

The 2001 Legislature allocated \$200,000 to the Used Oil Recycling Program to enhance the educational initiatives developed and implemented in 1989-90. During those years, complete formal education curriculum kits were introduced into every public K-1, secondary and post secondary school in the State. The interest, need and demand for such materials continue to grow as these onetime production materials have become outdated and the supply exhausted. The Department has developed a list of five items for which this money may be put to the most cost effective use:

- Radio spots aimed at the DIYer (proved extremely effective in a 1991 post campaign survey)
- "Don't Mix" tank decals for generators (to deter hazardous waste contamination of used oil)
- Used Oil Program information flyers for informal public awareness and education
- Revamping the formal curriculum materials by incorporating it into existing curricula

Funds permitting, the Department is considering reexamining the DIY segment of the used oil universe as it has also been over ten years since the Department quantified this. While statutes, rules and data collection have kept pace with the changing nature of both used oil management and population trends, the tools used to measure the effectiveness of the DIY segment are woefully outdated and in need of refinement.

The Department is concerned that U.S. Foundry is the only UOF end user (aside from the few WTE's) available and is investigating other end markets (e.g. electric arc mini mills).

Florida's Used Oil Recycling Program remains on the cutting edge of change as environmental management and regulation evolves in the new century. The focus of both the regulators and the regulated community is shifting steadily towards management schemes that are multimedia (encompassing a number of heretofore separately regulated waste streams) by nature and increasingly incorporate pollution prevention (P2) goals. The object of P2 is to consider all wastes and to generate as little waste as possible. As over 80% of the used oil in Florida is automotive or mixed with automotive, the automotive service industry has been a major

stakeholder in this program. More and more of these businesses are moving towards P2 management schemes. Used oil is not so much a stand-alone program as it once was. To address this change of focus, Florida's Used Oil Recycling Program has been enhancing its relationship with the Department's P2 staff. Both sections are striving to coordinate and strengthen their communication efforts. Joint efforts in regulatory and education initiatives have begun as these programs position themselves to assume a proactive role in the changing world of environmental regulation.

A critical step in keeping the Used Oil Recycling Program up to date and at the cutting edge of technology occurred in March 1998 when the program established a presence on the World Wide Web at the Department's internet site. The full text of the Used Oil Report and all fact sheets and forms used in this program are available for downloading at this site. Various education materials are being added to the site. The Used Oil Recycling has recently begun to incorporate its data into Geographic Information System (GIS) software which will be used to enhance the information available on its website. The internet address for Florida's Used Oil Recycling Program is http://www.dep.state.fl.us/waste/categories/used_oil/.

HAZARDOUS WASTE MANAGEMENT PROGRAMS WEBSITES

Additional information on the hazardous waste management programs can be found at the following web sites:

1. DEP Home Page www.dep.state.fl.us
2. Batteries <http://www.dep.state.fl.us/waste/categories/batteries>
3. Electronics <http://www.dep.state.fl.us/waste/categories/electronics>
4. Hazardous Waste <http://www.dep.state.fl.us/waste/categories/hazardous>
5. Household Hazardous Waste <http://www.dep.state.fl.us/waste/categories/hazardous/pages/household.htm>
6. Mercury <http://www.dep.state.fl.us/waste/categories/mercury>
7. Operation Cleansweep <http://www.dep.state.fl.us/waste/categories/cleansweep-pesticides>
8. P2 Program <http://www.dep.state.fl.us/waste/categories/p2>
9. Used Oil http://www.dep.state.fl.us/waste/categories/used_oil

APPENDICES

Appendix 1: SQG Program Grant Funding Summary

County/RPC	FY95/96	FY96/97	FY97/98	FY98/99	FY99/00	FY00/01	FY01/02	FY02/03
Bay	0	0	0	0	\$6,000	0	\$6,000	\$6,000
Broward	0	0	0	0	\$25,000	0	\$25,000	\$15,000
Charlotte	0	0	\$6,000	\$6,000	\$6,000	\$6,000	\$5,990	0
Citrus	\$30,000	0	0	0	0	0	0	0
Collier	0	0	0	0	0	0	\$50,000	\$20,000
Dade	0	\$18,000	\$8,600	\$23,400	0	0	0	0
Desoto	0	0	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	0
Escambia	0	0	\$25,000	\$25,000	0	0	0	0
Flagler	0	0	0	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000
Gadsden	\$30,000	0	0	0	0	0	0	0
Gulf	\$30,000	0	0	0	0	0	0	0
Hernando	0	0	0	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000
Hillsborough	\$50,000	0	0	0	0	0	0	0
Leon	0	\$30,000	0	0	0	0	0	0
Nassau	0	0	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	0
North Central Florida RPC (for Bradford, Columbia, Dixie, Gilchrist, Hamilton, Lafayette, Madison, Suwannee, and Union Counties)	0	\$54,000	\$54,000	\$49,700	\$54,000	0	33,459	\$16,140.60
Pasco	0	0	0	\$50,000	0	0	0	0
Putnam	0	0	0	0	\$12,000	\$6,000	\$6,000	\$6,000
Southwest Florida RPC(for Hendry and Glades Counties)	0	0	0	0	\$12,000	\$12,000	\$12,000	\$12,000
St. Johns	0	0	0	0	0	0	\$6,000	\$6,000
Washington	0	0	\$6,000	\$6,000	0	0	0	0
West Florida RPC(for Santa Rosa, Okaloosa, Holmes and Washington Counties)	0	\$18,000	\$18,000	\$18,000	\$24,000	0	\$12,753	\$12,328
Total	\$140,000.00	\$120,000.00	\$129,600	\$202,100.00	\$163,000.00	\$48,000.00	\$181,202.00	\$105,468.60

Appendix 2: Summary of SQG Program Verifications (FY01/02)

County	Assessment Roll	Verification	% Verified
Alachua	1076	428	39.8%
Baker	0	0	NO SQG PROGRAM
Bay	1781	255	14.3%
Bradford	147	27	18.4%
Brevard	2946	520	17.7%
Broward	5096	2108	41.4%
Calhoun	81	17	21.0%
Charlotte	1498	272	18.2%
Citrus	1203	225	18.7%
Clay	304	95	31.3%
Collier	4872	822	16.9%
Columbia	328	68	20.7%
Dade	9226	2416	26.2%
Desoto	0	0	NO SQG PROGRAM
Dixie	98	25	25.5%
Duval	4657	664	14.3%
Escambia	5800	59	1.0%
Flagler	44	14	31.8%
Franklin	61	13	21.3%
Gadsden	245	43	17.6%
Gilchrist	71	21	29.6%
Glades	91	17	18.7%
Gulf	67	6	9.0%
Hamilton	61	24	39.3%
Hardee	459	122	26.6%
Hendry	160	30	18.8%
Hernando	658	150	22.8%
Highlands	1277	274	21.5%
Hillsborough	12500	2233	17.9%
Holmes	69	31	44.9%
Indian River	517	134	25.9%
Jackson	143	29	20.3%
Jefferson	83	17	20.5%
Lafayette	50	24	48.0%
Lake	772	83	10.8%
Lee	12400	927	7.5%
Leon	927	181	19.5%
Levy	215	113	52.6%
Liberty	26	6	23.1%
Madison	141	33	23.4%
Manatee	2225	457	20.5%
Marion	1395	301	21.6%
Martin	1716	248	14.5%
Monroe	655	86	13.1%
Nassau	99	24	24.2%
Okaloosa	1336	124	9.3%
Okeechobee	558	154	27.6%
Orange	3798	865	22.8%
Osceola	2570	246	9.6%
Palm Beach	1893	1122	59.3%
Pasco	3000	482	16.1%
Pinellas	0	0	NO SQG PROGRAM
Polk	3323	672	20.2%
Putnam	122	56	45.9%
St Johns	663	49	7.4%
St Lucie	520	91	17.5%
Santa Rosa	1405	184	13.1%
Sarasota	1171	625	53.4%
Seminole	4006	470	11.7%
Sumter	188	40	21.3%
Suwannee	223	0	0.0%
Taylor	0	0	NO SQG PROGRAM
Union	56	18	32.1%
Volusia	1932	108	11.0%
Wakulla	55	11	20.0%
Walton	310	80	25.8%
Washington	113	22	19.5%
	103482	19061	18.4%

Appendix 3: Estimate of SQGs and CESQGs in Florida

Figure 1 on page 7 is an estimate of the number of hazardous waste generators in Florida. This estimate was derived from two DEP data sets.

Data was reviewed from DEP's Notifier Database that contains a list of businesses that have notified DEP to request an EPA/DEP identification number. EPA ID numbers are required for all SQGs. CESQGs are not required to have EPA ID numbers. One problem with this database is that businesses are not required to re-notify DEP of there changed status. There are currently 16,475 SQGs, and 6,135 CESQGs in this database.

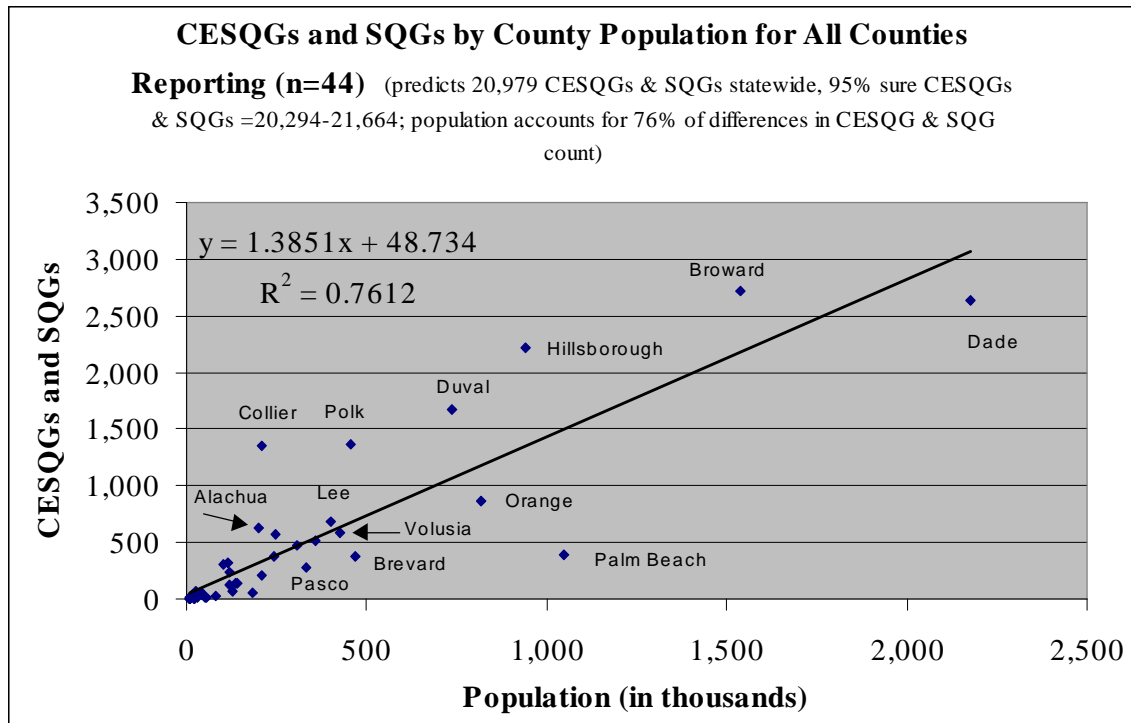
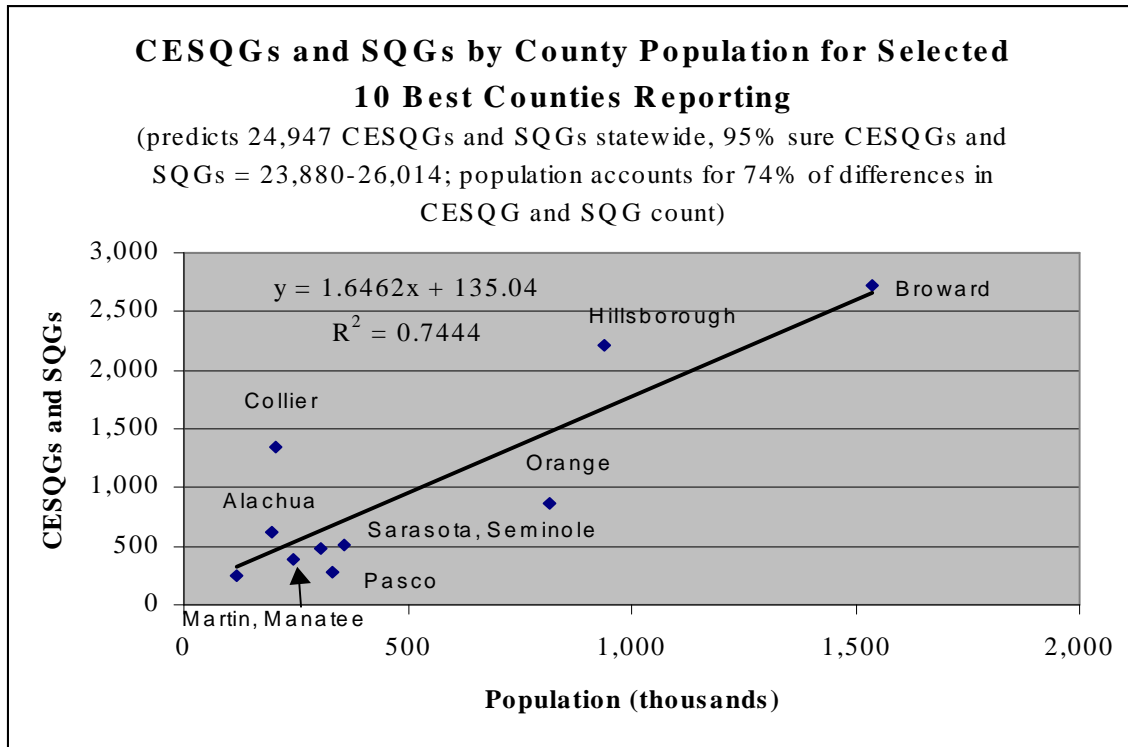
DEP Notifier Database	
Generator Status	
SQG	16,475
CESQG	6,135
Total	22,610

A review was also made from data submitted by county government SQG programs over a four-year period. A scale-up was made from actual on-site visits based on the approximate number of potential hazardous waste generators in Florida identified in each county's assessment roll. Based on this scale up there are an estimated 6,400 SQGs and 27,000 CESQGs.

County SQG Program Database		
Generator Status	Actual Verified (on-site from 1995-99)	Scale Up (based on list of potential generators supplied by the counties)
SQG	2,335 (6%)	6,400
CESQG	9,895 (27%)	27,200
Total CESQG & SQG	12,230 (33%)	33,600
Total (including non- generators)	36,376 (100%)	100,000

Appendix 3: Estimate of SQGs and CESQGs in Florida

Additionally, straight-line regressions were made using the 10 best reporting counties and for all counties reporting. The county data regression analysis predicts, when based on population, an estimated range of 20,294 to 26,014 SQGs and CESQGs in Florida.



Appendix 3: Estimate of SQGs and CESQGs in Florida

Summary of Various Estimates of SQGs and CESQGs in Florida

Generator Status	Notifier Data	Actual Verified (on-site from 1995-99)	Scale Up (based on list of potential generators supplied by the counties)	Regression on County Data
SQG	16,475	2,335	6,400	2,635-5,026
CESQG	6,135	9,895	27,200	17,659-20,988
Total CESQG & SQG	22,610	12,230	33,600	20,294-26,014

Conclusion: How many SQG/CESQGs are there? Based on the analysis there are at least 12,000 generators verified by on-site visits by county governments. When correlated with population, there are about 23,000 generators (mid point of 20,294-26,014 county regression range). However, county data scale-up suggest there may be as many as 34,000 SQG/CESQGs in Florida.

Appendix 4: Small Quantity Generator Waste Summary

Facilities Verified 07/01/2001-12/31/2002 and Generating Less Than 26400 Lbs., All Waste

New Waste Code and Description	Pounds	Percent	Facilities
U USED OIL (AND FILTERS)	120,925,021	62	7,307
B BATTERIES (LEAD-ACID)	46,570,147	24	2,544
A ANTIFREEZE	8,994,177	5	1,482
G GASOLINE AND FUELS	7,620,380	4	206
N NONHALOGENATED SOLVENTS	2,831,298	1	2,978
F FIXER/FILM/DEVELOPER	1,594,656	1	1,153
L LAMPS (FLUORESCENT - HID)	1,165,828	1	335
H HALOGENATED SOLVENTS	1,093,800	1	844
M METALS/METAL CONTAMINATED	843,406	0	280
P PAINTS/COATINGS	773,097	0	531
O OTHER TOXIC CHEMICALS	602,744	0	160
S SOLVENTS (MIXED/OTHER)	522,640	0	415
C CORROSIVE (ACID/BASE)	301,636	0	60
R RECHARGEABLE BATTERIES	155,951	0	16
I INKS/DYES/TONER	151,877	0	69
E PESTICIDES	59,538	0	63
T THERMOSTAT/MERCURY DEVICE	3,330	0	9
X EXPLOSIVES AND REACTIVES	1,806	0	10
Total for all Wastes:	194,211,332		

Facilities Verified 07/01/2001-12/31/2002 and Generating Exempt and Universal Hazardous Waste

Disposal Method	Pounds	Percent	Facilities
EU USED OIL RECYCLING	95,132,920	51	5,707
ER EXEMPT RECYCLE (BATTERY, ETC)	57,405,888	31	3,549
HH HW RCRA TREATMENT	21,189,336	11	145
EC COMMERCIAL LAUNDRY (RAGS)	8,677,445	5	1,414
HR RCRA REUSE/RECYCLE	1,026,133	1	239
EE UNIVERSAL WASTE (LAMP, ETC)	774,031	0	114
OR ONSITE RECYCLE/REUSE	486,918	0	258
TP WW TREATED TO POTW	283,937	0	72
BF HW FUEL BURN/BLEND	115,357	0	10
SL SOLID WASTE LINED LANDFILL	108,037	0	259
DP DISPOSAL TO SEWER	95,574	0	40
HO CESQG HW COLLECTION	83,946	0	61
SF SOLID WASTE INCINERATOR (WTE)	39,979	0	38
BU USED OIL BURNER	38,636	0	4
DD ONSITE LAND DISPOSAL	21,201	0	3
AN ACCUMULATION - NO MANAGEMENT PLAN	19,183	0	61
OE ONSITE EXEMPT TREATMENT	19,135	0	5
HQ QUESTIONABLE HW MGMT	14,630	0	36
OP RCRA PERMITTED TREATMENT	5,504	0	1
SD C&D/UNLINED LANDFILL	2,825	0	10
SO OTHER BAD - HHW COLLECTION	2,757	0	11
TE WW TREATMENT TO EVAPORATION	867	0	1
BO OPEN BURN	107	0	1
DT DISPOSAL TO SEPTIC TANK	100	0	1
DG DISPOSAL TO GROUNDWATER	26	0	1
TO WW TREATED OTHER DISPOSAL	12	0	1
Exempt and Universal Hazardous Waste Disposal Total	185,544,484		
Questionable Mgt. Practices	(19,966,693)	11%	

Appendix 4: Small Quantity Generator Waste Summary

Hazardous Waste Disposal Summary for Verified³ Between 07/01/2001-12/31/2002

Disposal Method	Pounds	Percent	Facilities
HH HW RCRA TREATMENT	6,715,854	78	4,459
EU USED OIL RECYCLING	812,943	9	392
HR RCRA REUSE/RECYCLE	295,960	3	305
ER EXEMPT RECYCLE (BATTERY, ETC)	160,604	2	71
SL SOLID WASTE LINED LANDFILL	114,449	1	312
AN ACCUMULATION - NO MANAGEMENT PLAN	112,882	1	264
HQ QUESTIONABLE HW MGMT	101,796	1	203
EC COMMERCIAL LAUNDRY (RAGS)	69,689	1	42
OR ONSITE RECYCLE/REUSE	65,982	1	83
HO CESQG HW COLLECTION	38,580	0	92
BE EVAPORATION ONLY	38,307	0	60
EE UNIVERSAL WASTE (LAMP, ETC)	21,887	0	10
DT DISPOSAL TO SEPTIC TANK	20,417	0	4
TO WW TREATED OTHER DISPOSAL	14,830	0	7
OE ONSITE EXEMPT TREATMENT	13,118	0	6
DD ONSITE LAND DISPOSAL	11,877	0	4
DP DISPOSAL TO SEWER	10,261	0	22
SD C&D/UNLINED LANDFILL	9,830	0	9
TE WW TREATMENT TO EVAPORATION	7,507	0	14
SF SOLID WASTE INCINERATOR (WTE)	5,444	0	10
OP RCRA PERMITTED TREATMENT	3,674	0	11
TP WW TREATED TO POTW	3,336	0	7
BO OPEN BURN	1,271	0	6
SO OTHER BAD - HHW COLLECTION	1,227	0	4
BF HW FUEL BURN/BLEND	969	0	4
BU USED OIL BURNER	163	0	1
OO OTHER ONSITE TDR	3	0	1
Hazardous Waste Disposal Total	8,652,860		
Questionable Mgt. Practices	(1,278,683)	6.4%	

³ Verified means businesses that received an on-site visit by the county to verify their waste management practices.

Appendix 5: Hazardous Waste Collection Center Grant Program Funding Summary

FY98/99

Funding for Cooperative Collection Center Arrangements	
Gadsden/Wakulla (HW414)	\$12,000
Alachua/Dixie (HW407)	\$20,000
Alachua/Gilchrist (HW408)	\$20,000
Alachua/Lafayette (HW409)	\$15,000
Highlands/Glades (HW413)	\$20,000
Okaloosa/Bay (HW400)	\$35,000
Okaloosa/Calhoun (HW399)	\$20,000
Okaloosa/Gulf (HW406)	\$20,000
Okaloosa/Holmes (HW404)	\$20,000
Okaloosa/Santa Rosa (HW405)	\$25,000
Marion/Sumter (HW412)	\$18,000
Okaloosa/Jackson (HW403)	\$20,000
Okaloosa/Walton (HW401)	\$20,000
Okaloosa/Washington (HW402)	\$20,000
Total	\$285,000.00

Funding for Unique or Innovative Projects	
Pasco (HW416)	\$50,000 (electronics demanufacturing)
Pinellas (HW418)	\$15,000 (electronics demanufacturing)
Okaloosa (HW415)	\$25,000 (mobile unit)
Total	\$90,000.00

FY99/2000

Funding for Cooperative Collection Center Arrangements	
Alachua/Dixie (HW437)	\$20,000
Alachua/Gilchrist (HW436)	\$20,000
Alachua/Columbia (HW435)	\$35,000
Alachua/Lafayette (HW434)	\$15,000
Highlands/Glades (HW443)	\$15,000
Jefferson/Wakulla (HW445)	\$12,000
Okaloosa/Bay (HW423)	\$35,000
Okaloosa/Calhoun (HW422)	\$15,000
Okaloosa/Gulf (HW429)	\$15,000
Okaloosa/Holmes (HW427)	\$15,000
Okaloosa/Santa Rosa (HW428)	\$25,000
Marion/Sumter (HW442)	\$18,000
Okaloosa/Jackson (HW426)	\$20,000
Okaloosa/Walton (HW424)	\$20,000
Okaloosa/Washington (HW425)	\$20,000
Total	\$300,000.00

Appendix 5: Hazardous Waste Collection Center Grant Program Funding Summary

FY99/2000 cont.

Funding for Unique or Innovative Projects	
Hillsborough (HW441)	\$50,000
Palm Beach (HW444)	\$10,000
Sarasota (HW430)	\$20,000
Pinellas (HW431)	\$50,000
Total	\$130,000.00

FY2000/2001

Funding for Cooperative Collection Center Arrangements	
Alachua/Dixie (HW458)	\$20,000
Alachua/Gilchrist (HW460)	\$15,000
Alachua/Columbia (HW459)	\$23,000
Alachua/Lafayette (HW461)	\$10,000
Okaloosa/Bay (HW456)	\$30,000
Okaloosa/Calhoun (HW451)	\$ 7,000
Okaloosa/Gulf (HW450)	\$18,000
Okaloosa/Holmes (HW454)	\$10,000
Okaloosa/Santa Rosa (HW457)	\$25,000
Okaloosa/Walton (HW452)	\$18,000
Okaloosa/Washington (HW453)	\$15,000
Total	\$191,000.00

Funding for Unique or Innovative Projects	
Monroe (HW448)	\$15,000 (flare/ammo management)
Total	\$15,000.00

FY2001/2002

Funding for Cooperative Collection Center Arrangements	
Alachua/Dixie (S006)	\$20,000
Alachua/Gilchrist (S008)	\$20,000
Alachua/Columbia (S007)	\$25,000
Alachua/Lafayette (S009)	\$15,000
Okaloosa/Bay (HW472)	\$32,000
Okaloosa/Calhoun (HW478)	\$15,000
Okaloosa/Gulf (HW477)	\$18,000
Okaloosa/Holmes (HW479)	\$15,000
Okaloosa/Jackson (HW474)	\$20,000
Okaloosa/Santa Rosa (HW475)	\$25,000
Okaloosa/Walton (HW473)	\$20,000
Okaloosa/Washington (HW476)	\$20,000
Highlands/Glades (HW480)	\$15,000
Marion/Sumter (HW481)	\$20,000
Jefferson/Wakulla (S010)	\$15,000
Total	\$295,000.00

Appendix 5: Hazardous Waste Collection Center Grant Program Funding Summary

FY2002/2003 (*Anticipated Funding*)

Funding for Cooperative Collection Center Arrangements	
Alachua/Dixie (S0052)	\$20,000
Alachua/Gilchrist (S0053)	\$20,000
Alachua/Columbia (S0054)	\$28,000
Alachua/Lafayette (S0038)	\$15,000
Okaloosa/Bay (S0051)	\$32,000
Okaloosa/Calhoun (S0037)	\$15,000
Okaloosa/Gulf (S0046)	\$18,000
Okaloosa/Holmes (S0045)	\$15,000
Okaloosa/Jackson (S0047)	\$20,000
Okaloosa/Santa Rosa (S0050)	\$25,000
Okaloosa/Walton (S0048)	\$20,000
Okaloosa/Washington (S0049)	\$20,000
Highlands/Glades (S0039)	\$15,000
Marion/Sumter (S0041)	\$20,000
Jefferson/Wakulla (S0040)	\$15,000
Total	\$298,000.00
Funding for Hazardous Waste Center Construction	
Bay (S0042)	\$100,000
Total	\$100,000.00
Funding for Unique or Innovative Projects	
Palm Beach (S0043)	\$12,500 (database)
Pinellas (S0044)	\$50,000 (marketing campaign)
Sarasota (xxxxx)	\$10,000 (gas cylinder stewardship)
Total	\$72,500.00

Appendix 6: Hazardous Waste Collection Center Grant Program History and Awards

- 1986 The Legislature appropriated \$500,000 to establish local or regional hazardous waste collection centers in Florida. The grant limit per county for capital outlay expenses was \$50,000. In 1987, the following 7 counties took advantage of this opportunity to establish one facility in each county: Brevard, Citrus, Escambia, Indian River, Lake, Marion, and Volusia.
- 1988 The Legislature reauthorized the Hazardous Waste Collection Center Grant Program and appropriated \$1,000,000 funding. The grant limit per county, again primarily for capital outlay for collection center construction, was raised to \$100,000. Requests for funding exceeded the appropriation and awards were made to the following 11 counties: Alachua, Broward, Charlotte, Collier, Highlands, Hillsborough, Monroe, Orange, Palm Beach, Sarasota, and Seminole. Several of these counties have established multiple collection centers.
- 1989 The Legislature again appropriated \$1,000,000 for the Grant Program with the limit remaining at \$100,000 per county. Awards for funding were made to the following 9 counties: Clay, Dade, DeSoto, Duval, Lee, Leon, Martin, Pasco, and St. Lucie.
- 1990 The \$1,000,000 appropriation was used to award grants of \$100,000 each to Hamilton, Manatee, Osceola, Pinellas, Putnam, St. Johns, and Suwannee Counties.
- 1991 The Legislature again appropriated funding for the Grant Program. Awards of \$100,000 each were made to the following 6 counties: Hardee, Hendry, Hernando, Madison, Okaloosa, and Polk. The Grant Program was amended to include the Cooperative Collection Center Arrangement Grant to provide some financial incentive for a county with a permanent collection center to assist a smaller county in holding a State-subsidized collection event. Eleven counties were awarded these cooperative grants.
- 1992 Funding from this appropriation was used to establish a local hazardous waste collection center in Jefferson County and upgrade permanent facilities in several other counties.
- 1993 Three counties: Bradford, Okeechobee, and Taylor received grants for permanent collection center construction. The legislature also provided an additional funding opportunity from the appropriation for the Unique or Innovative Project Grant. This grant is intended for programs or activities that are designed to decrease the generation of household and conditionally exempt small quantity generator hazardous waste and increase the proper management of such wastes.
- 1994 The appropriation was used to fund grants for permanent collection center construction in Flagler, Levy, and Liberty counties. Ten counties were awarded funding for Unique or Innovative Projects and funding was provided for collections in 14 counties under the Cooperative Collection Center Arrangement Grant.
- 1995 Franklin and Gadsden Counties received grants for permanent collection center construction. Eight grants provided funding for Unique or Innovative Projects and 13 counties held collection events under the Cooperative Collection Center Arrangement Grants. Four counties received grants to reimburse expenses associated with local hazardous waste management.
- 1996-97 The appropriation was used for 14 grants each year to fund both Cooperative Collection Center Arrangements and Unique or Innovative Projects.
- 1998 Fourteen smaller counties received collections funded in part from Cooperative Collection Center Arrangement Grants and three counties were recipients of grants for Unique or Innovative Projects.

Appendix 6: Hazardous Waste Collection Center Grant Program History and Awards

- 1999 Cooperative Collection Center Arrangement Grants funded collection events in 15 smaller counties. Unique or Innovative Projects were funded in 4 counties.
- 2000 Cooperative Collection Center Arrangement Grants funded collection events in 11 smaller counties. A Unique or Innovative Project was funded in Monroe County. Most of the appropriation was used to reimburse expenditures incurred completing last year's projects, as the 1999-2000 appropriation was not certified forward as expected.
- 2001 Cooperative Collection Center Arrangement Grants funded collection events in 15 smaller counties.
- 2002 It is anticipated that Cooperative Collection Center Arrangement Grants will fund collection events in 15 smaller counties. Bay County submitted a proposal for funding permanent collection center construction. Funding is also anticipated for three Unique or Innovative Projects. The Solid Waste Authority of Palm Beach plans to develop and maintain an HHW database, Pinellas County plans to develop and distribute a HHW education media campaign, and Sarasota County plans to initiate a small, nonrefillable gas cylinder product stewardship project.

Appendix 7: Large Quantity Generator of Hazardous Waste Management in Florida

Table 2: Primary Generation of HW by Physical Type by Year, In Tons

Waste Type	1991	1993	1995	1997	1999	2001
Lab packs	293	456	316	1,965	175	719
Inorganic liquid	111,918	109,663	111,490	537,732	262,898	2,499,905
Organic liquid	62,022	40,024	25,709	28,852	16,819	10,359
Inorganic solids	22,125	16,638	46,581	65,792	58,735	1,098
Organic solids	1,078	1,423	2,240	1,721	1,876	4,338
Inorganic sludges	4,403	4,401	6,130	2,959	3,187	390
Organic sludge	665	668	800	1,064	520	581
Compressed gases (any type)	8	36	18	5	4	6
Totals	202,513	173,309	193,284	640,091	344,215	2,517,395

Table 3: Management of HW “On-Site” by Year, In Tons

Management Type	1991	1993	1995	1997	1999	2001
Metals recovery including retorting, smelting, etc.	2,086	200	26,719	23,097	25,624	24,598
Solvents recovery (distillation, extraction, etc)	14,711	815	710	562	260	346
Other recovery or reclamation for reuse	149	184	812	0	0	0
Incineration - thermal destruction not use as a fuel	15	4	0	0	0	0
Energy recovery at this site - use as fuel	7,628	2,947	0	7,512	1,585	1,609
Fuel blending prior to energy recovery elsewhere	591	24	0	0	124	0
Chemical treatment	14,466	3,298	250	3,223	5,756	882
Biological treatment	2,608	0	0	197,850	26,765	31,194
Sludge treatment and/or dewatering	8	0	591	0	0	0
Stabilization or chemical fixation prior to disposal	5	143	889	755	581	0
Neutralization/other treatment	1,998	18,334	983	34,343	31,426	2,206,989
Discharge to sewer/POTW or NPDES (RCRA)	68,264	71,342	96,494	295,087	191,966	287,452
Totals	112,529	97,291	127,449	562,429	284,087	2,553,070

Table 4: Overview of HW Shipped “Off-Site” From Florida Primary Generators for Management, In Tons

Year	Recurrent HW	One-Time HW (e.g., Cleanup)
1991	72,912	5,289
1993	59,587	16,891
1995	57,659	8,031
1997	50,672	26,992
1999	47,694	12,064
2001	45,589	6,525

Appendix 7: Large Quantity Generator of Hazardous Waste Management in Florida

Table 5: Total HW Shipped “Off-Site” by Management Type by Year, In Tons

Management Type	1993	1995	1997	1999	2001
Recovery or Reclamation for reuse	25,861	26,125	16,237	17,065	23,786
Incineration - thermal destruction	4,087	4,236	4,728	3,952	1,971
Energy recovery	25,539	24,791	22,255	22,772	14,242
Treatment	19,597	14,249	10,565	10,118	6,439
Disposal	11,338	5,697	30,656	14,757	5,670
Storage/bulking/transfer (broker)	17,363	10,916	9,924	6,447	14,154
Totals	103,784	86,014	94,365	75,112	66,262

Table 6: In-State vs. Out-of-State (Exports) Shipments of Recurrent HW, In Tons

Year	In-State Management		Out-of-State Management
	(Treatment)	(Transfer) ⁴	(Exports)
1991	29,654	1,990	41,268
1993	15,914	2,279	41,376
1995	11,435	4,484	41,740
1997	1,782	3,843	44,948
1999	2,005	2,771	42,917
2001	827	5,746	39,016

Table 7: Total Number of Reporters (All Sites) by Report Year

Year	Managing HW On-Site	Shipping HW Off-Site	Total # of Reporters By Year ⁵
1991	85	427	434
1993	102	453	455
1995	100	435	439
1997	93	390	392
1999	92	368	375
2001	59(POTW excluded)	374	381

⁴ Based on past analyses, after this initial in-state transfer it is believed that most of this HW would have been delivered to out-of-state facilities for final management. In addition, any HW that was treated by an in-state fuel blender in 1995 and 1997 would have been shipped out of Florida for final energy recovery use. Therefore, these numbers only represent initial management of this HW and not final management.

⁵ Many generators manage HW on-site and also ship some HW off-site. In this case they will be counted under each of the on-site and off-site columns, but not in the total # of reporters, and so the number in the total number of reporters column is not equal to the sum of the numbers in the on-site and off-site columns. Some sites that were not LQGs at the time of reporting shipped waste off-site. This is the difference in the count of LQGs and reporters shipping waste.

Appendix 7: Large Quantity Generator of Hazardous Waste Management in Florida

Table 8: Imports of HW to Florida's Commercial HW Management Facilities by Year, In Tons

Management Type	1991	1993	1995	1997	1999	2001
Metals Recovery	0	0	130	330	466	26
Solvents Recovery	4,934	3,248	1,181	259	111	33
Other (e.g., Fuels) Recovery	12,876	8,601	6,616	0	0	0
Energy Recovery	10,276	0	0	0	0	0
Fuel Blending	5,425	4,776	4,521	3,288	2,019	590
Transfer Facility Storage	3,601	3,494	4,601	3,402	3,836	3,365
Totals By Year	37,110	20,120	17,045	7,280	6,332	4,014

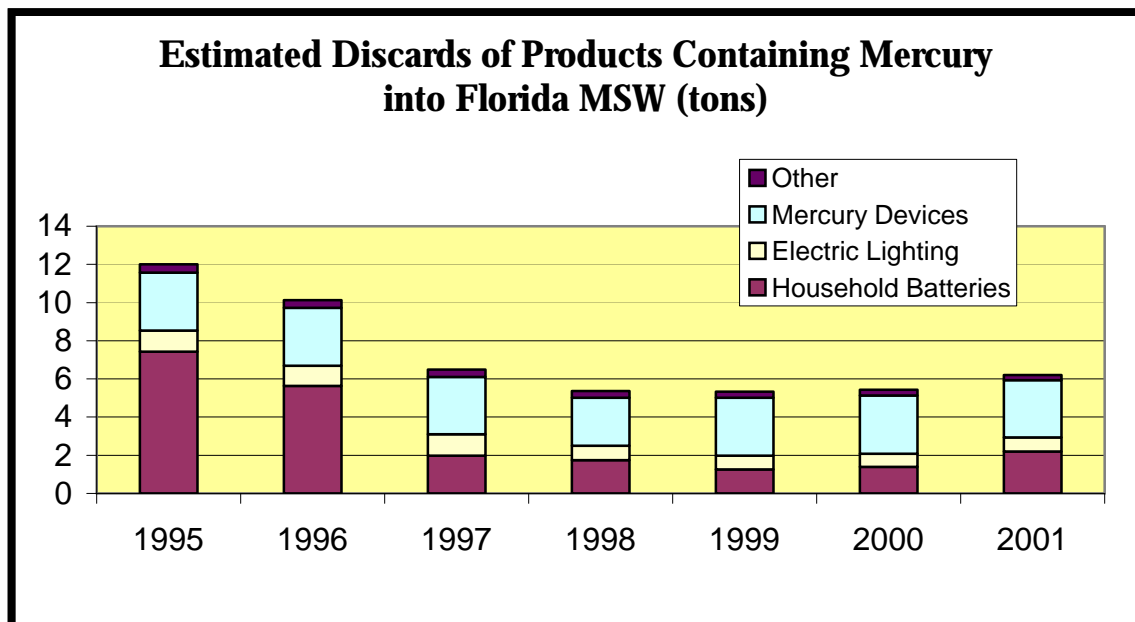
Table 9: Top 20 2001 Primary Generators and Generation by Year, In Tons

Generator	1993	1995	1997	1999	2001
SOLUTIA INC.	696	473	175,147	27,875	2,206,347
K.C. INDUSTRIAL, LLC, MULBERRY	71,342	96,494	120,009	164,152	287,413
AIRCO PLATING CO., INC.	475	80	96	216	40,451
TYCO-MELBOURNE	659	784	1,207	262	34,281
GULF COAST RECYCLING, INC.	3,115	29,563	30,880	38,801	33,913
PCM PRODUCTS, INC.	0	0	140	232	33,659
MUNTERS CORPORATION	0	24	197,859	26,768	31,155
AVESTA POLARIT PIPE INC	325	706	397	438	27,785
JEA,NORTHSIDE GENERATING	13,494	0	23,428	22,749	25,264
AMERISTEEL; JACKSONVILLE	6,990	7,144	10,516	8,972	5,832
STIMPSON COMPANY, INC.	94	59	157	64	5,739
SUPERIOR PLATING,INC	12	52	35	29	5,230
ARIZONA CHEMICAL	6,766	4,693	3,681	2,242	2,353
UNIVERSAL SAND LAKE ROAD	0	0	0	764	2,315
SAFETY-KLEEN (BARTOW), INC.	2,045	4,527	5,408	2,849	2,142
C.L. INDUSTRIES	0	0	0	0	1,742
AIR PRODUCTS AND CHEMICALS,	4,664	0	7,555	8,493	1,685
BUSH BOAKE ALLEN	262	41	28	15	1,363
INDUSTRIAL GALVANIZERS	0	0	0	0	1,055
U.S. NAS JACKSONVILLE	1,532	4,144	2,061	3,565	1,027

Appendix 8: Estimated Discards of Mercury, Cadmium and Lead Products in the Florida Municipal Solid Waste Stream, 1995 -2001

Table 10: Estimated Mercury in Florida Municipal Solid Waste, 1995-2001 Estimate, In Tons

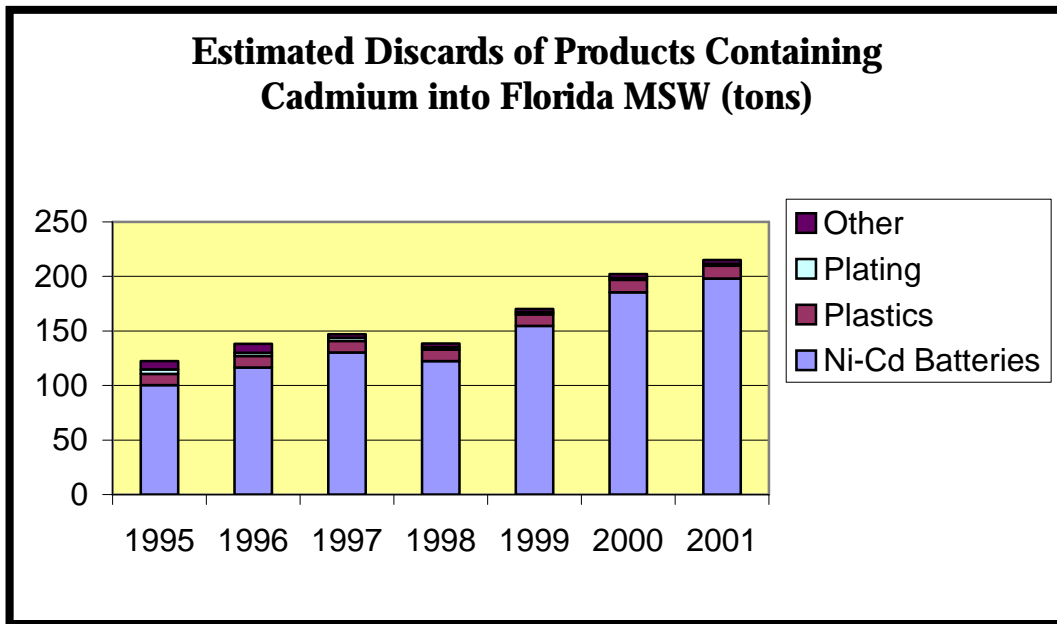
Product Category	1995	1996	1997	1998	1999	2000	2001
Household Batteries	7.4	5.6	2.0	1.7	1.3	1.4	2.2
Electric Lighting	1.1	1.1	1.1	0.7	0.7	0.7	0.7
Mercury Devices	3.0	3.0	3.0	2.5	3.0	3.0	3.0
Other	0.4	0.4	0.4	0.4	0.3	0.3	0.3
Total	12.0	10.1	6.5	5.4	5.3	5.4	6.2



Appendix 8: Estimated Discards of Mercury, Cadmium and Lead Products in the Florida Municipal Solid Waste Stream, 1995 -2001

Table 11: Estimated Cadmium in Florida Municipal Solid Waste, 1995-2001, In Tons

Product Category	1995	1996	1997	1998	1999	2000	2001
Ni-Cd Batteries	100.2	116.6	130.3	122.3	154.9	185.4	198.1
Plastics	10.5	10.5	10.5	10.5	10.6	11.6	11.8
Plating	4.1	3.0	3.1	2.5	2.0	1.7	1.7
Other	7.4	8.1	3.1	3.1	3.1	3.5	3.5
Total	122.3	138.2	147.0	138.4	170.6	202.2	215.1



Appendix 8: Estimated Discards of Mercury, Cadmium and Lead Products in the Florida Municipal Solid Waste Stream, 1995 -2001

Table 12: Estimated Lead in Florida Municipal Solid Waste, 1995-2001, In Tons

Product Category	1995	1996	1997	1998	1999	2000	2001
Vehicular Lead Acid Batteries	4,645	1,524	2,597	2,794	2,853	1,780	1,722
Small Sealed Lead Acid Batteries	339	375	397	433	465	439	427
TV Picture Tubes	1,144	1,144	2,557	2,567	2,681	3,426	3,563
Computer Monitors	691	742	999	1,153	1,322	1,515	1,549
Other	926	857	827	811	795	854	860
Total	7,745	4,641	7,378	7,758	8,115	8,014	8,120

