A REGIONAL LOOK AT MUNICIPAL SOLID WASTE (MSW) MANAGEMENT IN OKALOOSA AND WALTON COUNTIES, FLORIDA

Institute for Senior Professionals
Environment & Natural Resources Focus Group
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TABLE OF CONTENTS

DISCLAIMER

Data contained in this briefing was obtained by the ISP Environment & Natural Resources Focus Group members during the latter half of 2008 form governments, companies, and the internet. This is a survey, not a research project, and reflects a snapshot in time. Northwest Florida State College bears no responsibility for the accuracy or currency of the data presented.

A. Motivation for study:

One of the most challenging issues faced by municipalities and industry is the sustainable management of wastes and residues generated by our society. The U.S. produces 1.4 Billion Tons of wastes and residue materials per year, impacting air and water quality, decreasing land values, limiting future use of land, and increasing costs to municipalities, industry, and ultimately the consumer. Municipalities, industrial facilities, and universities are particularly challenged in managing the increasing volumes of all kinds of wastes.[1] This is particularly exacerbated in geographic areas experiencing rapid population growth such as we have in Okaloosa and Walton Counties. In our Environmental & Natural Resources Focus Group's (The Group) past environmental study of the Choctawhatchee watershed and the polluting problems of toxic storm water runoff and ground water contamination, we looked into various sources of this pollution. One of the critical environmental concerns is the leachate from closed and operating solid waste landfills.

Since Sept, 2006 numerous articles appeared in internet news media about a plan in St. Lucie County, Florida to use their Municipal Solid Waste (MSW) stream and MSW landfill to fuel a Plasma Arc Gasification Facility.[2] [3] [4] [5] It would gasify up to 3000 tons of MSW a day. The St. Lucie County daily intake of MSW is 1500 to 2000 tons and the remaining 1000 to 1500 tons of MSW would be mined from the existing landfill. This plant is designed to be an efficient source of alternative energy, generating enough electricity from its syngas to make the plant self supporting with a surplus of energy to sell to the utility grid. The Environmental Protection Agency (EPA) Environmental Technology Council has reported that municipal solid waste and animal waste can be used to produce energy and hydrogen for fuel cells in an environmentally friendly manner and has identified plasma arc facilities as a way for municipalities to safely dispose of waste while generating revenue from energy production.[6]

These articles piqued the interest of the Environmental and Natural resources Focus Group, "The Group" and a field trip was made to St Lucie County. The St Lucie County Public Works Department operation was very impressive and convinced The

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[1] ETC: Problem Statements: Recovering the Value of Waste for Environmental and Energy Sustainability
[2] USAtoday.com/news/nation/2006-09-09-fla-county-trash
[3] Home>News>St Lucie County: Plans for Trash Vaporization Facility in St. Lucie County
[4] Tcpalm.com/news/2007/nov/Trash Zapper in St. Lucie County gets shot in arm from Crist
[5] Tcpalm.com/news/2008/mar/ Nonprofit joins St. Lucie County effort to bring trash power to Fla.
[6] ETC: Problem Statements: Municipal Solid Waste and Animal Waste to Energy Production

Group that St. Lucie Counties handling of Municipal Solid Waste would become a model for the rest of the country when they complete the proposed plant in 2009.

Not only was great interest generated by the proposed significant impact on the environment but also by the generation of alternative energy to decrease our dependence on fossil fuels. The progress at St. Lucie County on plasma arc gasification of solid waste is impressive and a generational step forward in dealing with this immense environmental problem. It caused us to ask, could this technology apply to our situation in Okaloosa and Walton Counties and should it be part of our long range planning.

When The Group started to research the feasibility of applying the Plasma Arc Gasification process in our region we found we knew little of how Municipal Solid Waste was handled in Walton and Okaloosa Counties. To use St. Lucie County as comparative model we had to establish a base line of local area information.

B. Study Objectives:

We needed to explore how governments in our two county region currently manage their municipal solid waste (Residential Solid Waste, Yard Waste, Construction and Demolition Waste, Hazardous Waste, Commercial Waste and Recyclables). We needed to assess how we are doing compared to the norm by looking into the current operations and advanced MSW initiatives in other counties (eg: St. Lucie). We needed to create a briefing and study report that could be available to any who are responsible for the MSW program in our region.

C: Approach:

We collected data for our study by meeting with responsible parties in the two county area: Okaloosa County, Laurel Hill, Crestview, Niceville, Valparaiso, Ft. Walton Beach, Eglin AFB, Hurlburt Field, Cinco Bayou, Mary Esther, Shalimar, Destin and Walton County, Freeport, DeFuniak Springs Paxton. We visited MSW facilities to better understand their function & efficiency with field trips to: Transfer stations, Material Recycling Facilities, Yard Waste Landfill and closed landfill under EPA monitoring, operating class I landfills in Jackson County and St. Lucie County and Baling and Recycling Facility in St. Lucie County. Analyze data, make critical observations and communicate our findings to regional stakeholders.

D. Brief History:

Early in 20th century North America, most MSW was burned either at home, at work, or at an open burning dump. The waste collector was known as “the ash man.” Schools and businesses had incinerators in the basement to dispose of the day’s waste, and periodically the ashes were hauled out to uncontrolled junk yards at the edge of town to be dumped with the rest of society’s discards.

Congress passed the Solid Waste Disposal Act in 1965 and the Environmental Protection Agency (EPA) was created in 1970. The regulatory pace quickened with the advent of the Love Canal debacle and subsequent passage of the 1976 Resource

Conservation and Recovery Act (RCRA), which imposed criteria for ground water protection and landfill gas migration control.

In 1984, the RCRA Hazardous and Solid Waste Amendments were passed granting the EPA regulatory authority over landfills and directing the preparation of landfill operating criteria. In an effort to isolate waste piles from groundwater, and to limit air pollution, the "dry tomb" concept was born. This philosophy of physically encapsulating waste piles remains the dominant landfill practice in North America today.[7]

E. MSW – National Perspective:

In 2006, Americans generated about a million tons of trash with each individual generating about 4.6 pounds a day. 82 million tons (32.5%) of materials were recycled. Composting recovered almost 21 million tons (8.4%) and more than 31 million tons (12.5%) were combusted with energy recovery. About 138 million tons (55%) were discarded in landfills.[8] This is 3 pounds every day for every man, woman and child in the US. That's enough to cover a football field 703 miles high with garbage.[9]

Currently, over 30 percent of MSW generated in the United States is recycled annually. While not producing this waste in the first place is the preferred management strategy for this material, recycling is preferred over any method of disposal. The majority of MSW that is not recycled is typically sent to landfills after it is collected. As an alternative, MSW can be directly combusted in waste-to-energy facilities to generate electricity. Because no new fuel sources are used other than the waste that would otherwise be sent to landfills, MSW is often considered a renewable power source. Although MSW consists mainly of renewable resources such as food, paper, and wood products, it also includes nonrenewable materials derived from fossil fuels, such as tires and plastics.

Using MSW as a combustible fuel is one of the eight major electricity Generation Techniques, (Natural Gas, Coal, Oil, Nuclear Energy, Hydroelectricity, Non-Hydroelectric Renewable Energy and **Municipal Solid Waste)**

At the power plant, MSW is unloaded from collection trucks and shredded or processed to ease handling. Recyclable materials are separated out, and the remaining waste is fed in to combustion chambers to be burned. The heat released from burning the MSW is used to produce steam, which turns a steam turbine to generate electricity.

The United States has about 89[10] operational MSW-fired power generation plants, generating approximately 2,500 megawatts, or about 0.3 % of total national power generation. The combustion of MSW reduces MSW streams, reducing the creation of new landfills. MSW combustion creates a solid waste called ash, which can contain any of the elements that were originally present in the waste. MSW power plants reduce the need for landfill capacity because disposal of MSW ash requires less land area than does unprocessed MSW. However, because ash and other residues from MSW operations may

[7] MSW Management Magazine, US Landfill Disposal the big picture, elements 2009 http://mswmanagement.com/elements-2009/us-landfill-disposal.aspx

[8] EPA-530-F-07-030, November 2007

[9] USA Today 9/9/2006

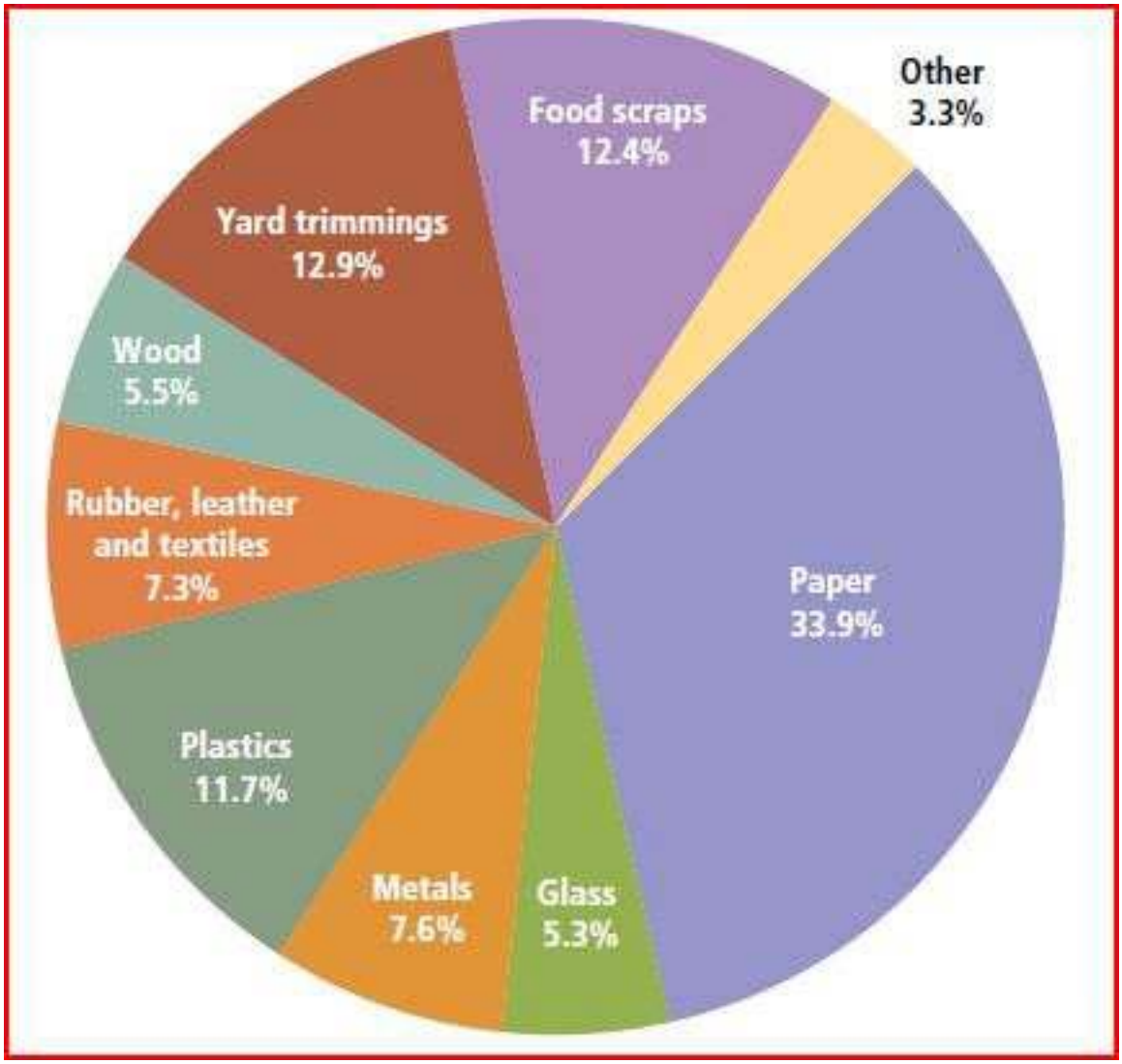
[10] A look at Waste-to-Energy/Maria Zannes, IWSA, Columbia University, NYC

contain toxic materials, the power plant wastes must be tested regularly to assure that the wastes are safely disposed to prevent toxic substances from migrating into ground-water supplies.

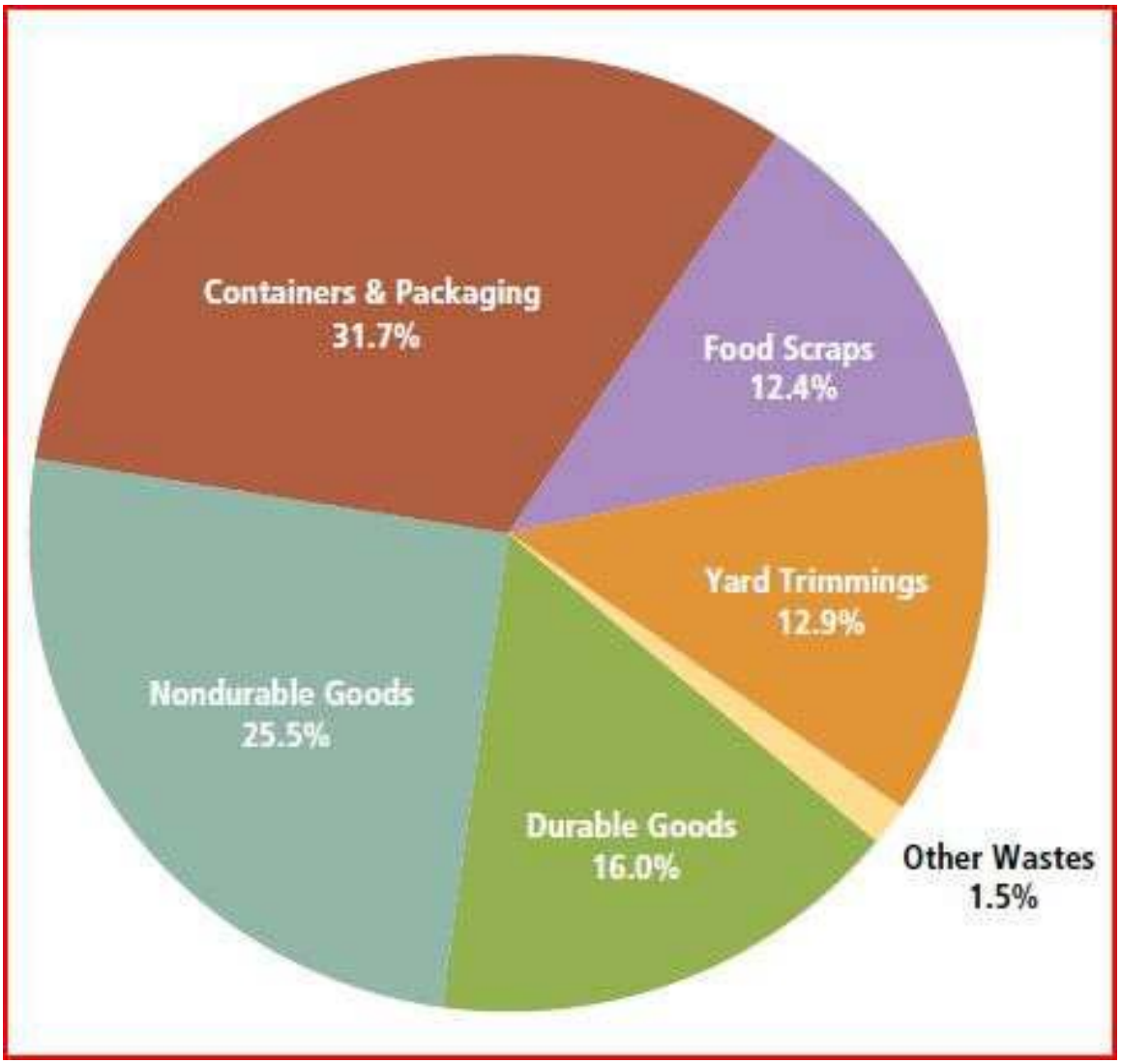
Under current regulations, MSW ash must be sampled and analyzed regularly to determine whether it is hazardous or not.[11] Hazardous ash must be managed and disposed of as hazardous waste. Depending on state and local restrictions, non-hazardous ash may be disposed of in a MSW landfill or recycled for use in roads, parking lots, or daily covering for sanitary landfills.

[11] U.S.EPA, Office of Solid Waste, MSW Disposal

Total MSW Generation (by Materials), 2006



Total MSW Generation (by Category), 2006



F. General Municipal Solid Waste Operations:

1. **The collection of residential garbage** is done by a wide range of pickup methods from fully automated collection vehicles to those that require manpower

to bring the garbage from the household or curbside and dump it into the vehicle. The operators are municipal public works departments or contractors.

2. **After collection**, the MSW is handled in several different ways. It is taken to a transfer station and dumped for the separation of recyclables and subsequent loading into long haul trucks for the trip to the landfill or incinerator; taken to a transfer station where it is merely dumped for subsequent loading into long haul trucks for the trip to the landfill or incinerator; or taken directly to the landfill or incinerator.

3, **Transfer Stations:**

Waste transfer stations are facilities where municipal solid waste is unloaded from collection vehicles and briefly held while it is reloaded onto larger long-distance transport vehicles for shipment to landfills or other treatment or disposal facilities. By combining the loads of several individual waste collection trucks into a single shipment, communities can save money on the labor and operating costs of transporting the waste to a distant disposal site. Although waste transfer stations help reduce the impacts of trucks traveling to and from the disposal site, they can cause an increase in traffic in the immediate area where they are located. If not properly sited, designed and operated they can cause problems for residents living near them If there is no separate recycling collection operation, the transfer station can be a single stream recycling area where recyclables are pulled from the garbage stream and the remaining MSW is loaded into the long-haulers.

4. **Recycling methods** vary from municipality to municipality. Some municipalities have mandatory recycling where there is a curbside pickup with a fee charged to the household. Other municipalities have voluntary recycling with drop off points for residents to use. Items recycled are, OCC-corrugated cardboard, White and green glass, GNP-newsprint, comingled plastics and aluminum. After collection, the material is dumped at a recycling facility where it is sorted, baled or containerized and shipped to venders. Nationwide it is estimated that of the total waste material that could be recycled, less than 30% is. Everything that isn't recycled ends up in the landfill or disposal facility. There are a few Materials Recycling Facilities (MRFs) that are fully automated to sort single stream waste accurately with a minimum of manpower required. In some cases, it is cost effective to ship comingled recycled materials in long-haulers to these MRFs.

5. **Long-haulers** are normally contracted truck companies as municipalities can't bear the costs of maintaining and operating large fleets of trucks.

6. **Landfills:**

Modern landfills are well-engineered facilities that are located, designed, operated, and monitored to ensure compliance with federal regulations. Solid waste landfills must be designed to protect the environment from contaminants

which may be present in the solid waste stream. The approved landfill site plan does the following: Prevents the placement of landfills in environmentally sensitive areas, provides on-site environmental monitoring systems, monitors for any sign of groundwater contamination and landfill gas and provides additional safeguards. In addition, many new landfills collect potentially harmful landfill gas emissions and convert the gas into energy. Municipal solid waste landfills (MSWLFs) receive household waste. MSWLFs can also receive non-hazardous sludge, industrial solid waste, and construction and demolition debris. All MSWLFs must comply with the federal regulations. The general classifications of MSW are: Household Garbage, Construction and Demolition, Yard and Garden, and Hazardous Waste.

Landfill Classifications:

Class I- receive an average of 20 tons or more per day of municipal waste.

Class II- receive less than 20 tons per day of municipal waste

Class III- receive only yard trash, construction & demolition debris, waste tires, asbestos, carpet, cardboard, paper, glass, plastic, furniture (other than appliances)

Construction & Demolition Debris Facilities- discarded materials generally considered to be not water soluble and non-hazardous in nature, i.e. steel, glass, concrete, asphalt, brick, pipe, gypsum, lumber, lot clearing debris, clean paper, plastic, cardboard.

7. **Perspective on Landfill Life:**

According to a recent Smith Barney Report, citing Chartwell data, remaining U.S. landfill capacity as of 2003 was 21.3 years.

Although a few new Greenfield landfills are planned- and a few have recently been constructed- most industry professionals report severe and increasing public and political resistance to new landfill construction, even to major expansions of existing airspace. This finite landfill life is the first force for change in the landfill industry. Increasingly, it appears that landfill capacity within feasible transport distance is not an expandable commodity and that eventually tipping fees will rise, creating incentive for disposal volume reduction. This will take the form of increased waste reduction, recycling, conversion, and production of higher effective density at existing landfills.

Independent of rising tipping fees resulting from airspace limitations, there is a second force for change: growing public sentiment for greater reliance on other elements of the integrated waste management system.

MSW landfills remain the dominant disposal method; however, its share of the total has dropped from 93.6% in 1960 to 54.3% in 2005. At the same time recycling has risen from 6.4% of the total and composting and waste to energy have risen from negligible to 8.4% and 13.6%, respectively.[12] Some of the most important reasons for

[12] MSW Management Magazine, US Landfill Disposal the Big Picture, Elements 2009

this decreasing volume of MSW going to landfills are: Our nation's increasing awareness of environmental issues such as ground water contamination and green house gasses (methane) effecting our atmosphere, An increasing national interest in using MSW as an energy source to decrease our reliance on foreign fossil fuels, and the increasing use of recycling to produce materials that can be reconstituted using much less energy than the original production from base materials.

This welcome trend in MSW disposal gives us some hope for a cleaner earth in the future, but to date, we have merely made a small dent in the overall MSW management problem. Every day at home and work, each of us creates 4.5 pounds of waste (up 2 pounds since 1960). Today's 70-year-old has generated 50 tons of trash in his lifetime. There's some good news: A third of that waste is now recycled, compared with just 6 percent in 1960. The rest still goes to landfills or incinerators. With the exponential rise in population, one can almost see a doomsday scenario where we will eventually all live on trash heaps if we haven't already succumbed to ailments caused by the toxins spewing forth from them. A brief history of MSW management since the earliest days of mankind shows how the problem of waste has grown but also how mankind has changed methods and habits to combat the problem:

500 BC—Athens establishes civilization's first city dump and establishes one mile trash free zone outside city walls.

1690-First paper recycling mill opens outside Philadelphia.

1899-New York City opens garbage-sorting facility to capture recyclables.

1900- To dispose of food scraps, U.S. cities use "piggeries" where swine eat residents' discarded slop.

1934-U.S. Supreme Court prohibits dumping of municipal waste into ocean.

1937-Fresno, California, establishes nation's first "sanitary landfill", a dump where soil and ash are laid over garbage to contain fumes and odor.

1974-University City, Mo., establishes nations' first curbside bin pickup program for recycling newspapers.

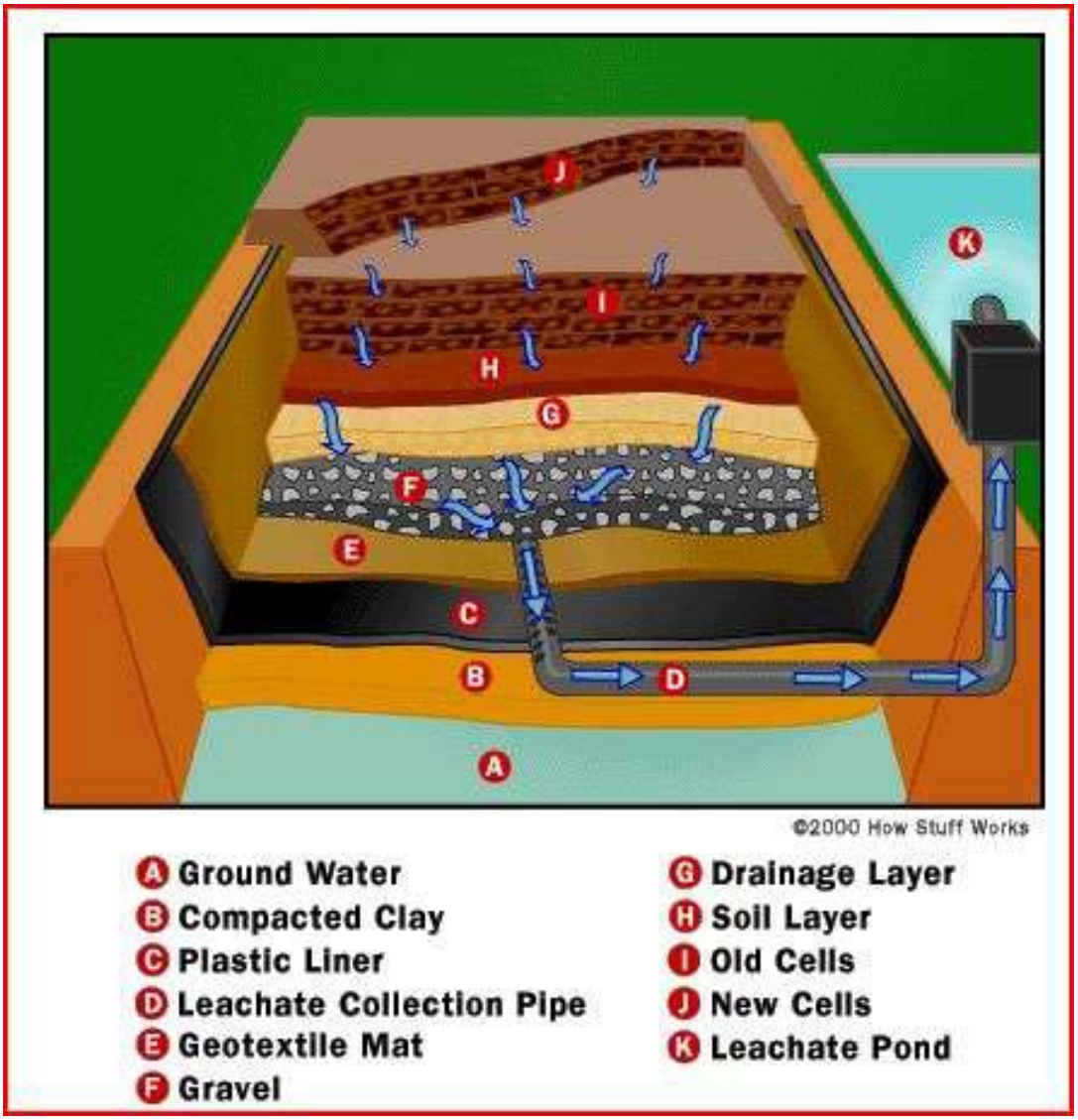
2008-Moviegoers slurp jumbo sodas and munch bucketfuls of popcorn while watching Wall-E, the tale of an endearing trash compactor on a toxic earth.[13]

This gives us hope that we will continue to find viable solutions to the MSW disposal problem and can end up with a clean earth, free of toxic landfills, for our future generations.

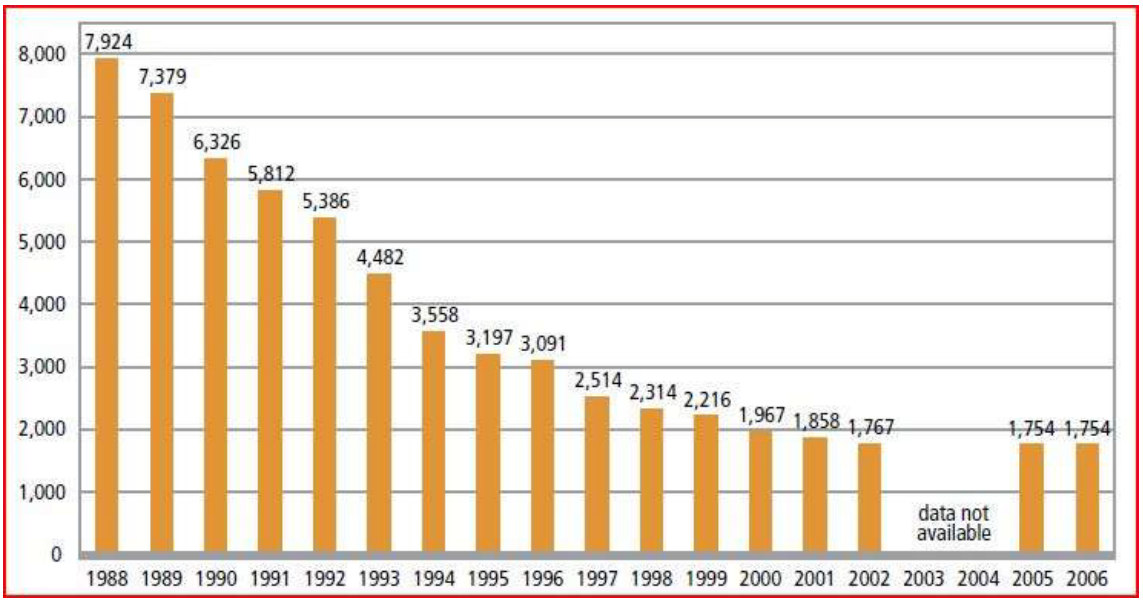
[13] AARP Bulletin, September, 2008, Betsy Towner

Municipal Solid Waste Landfill Construction

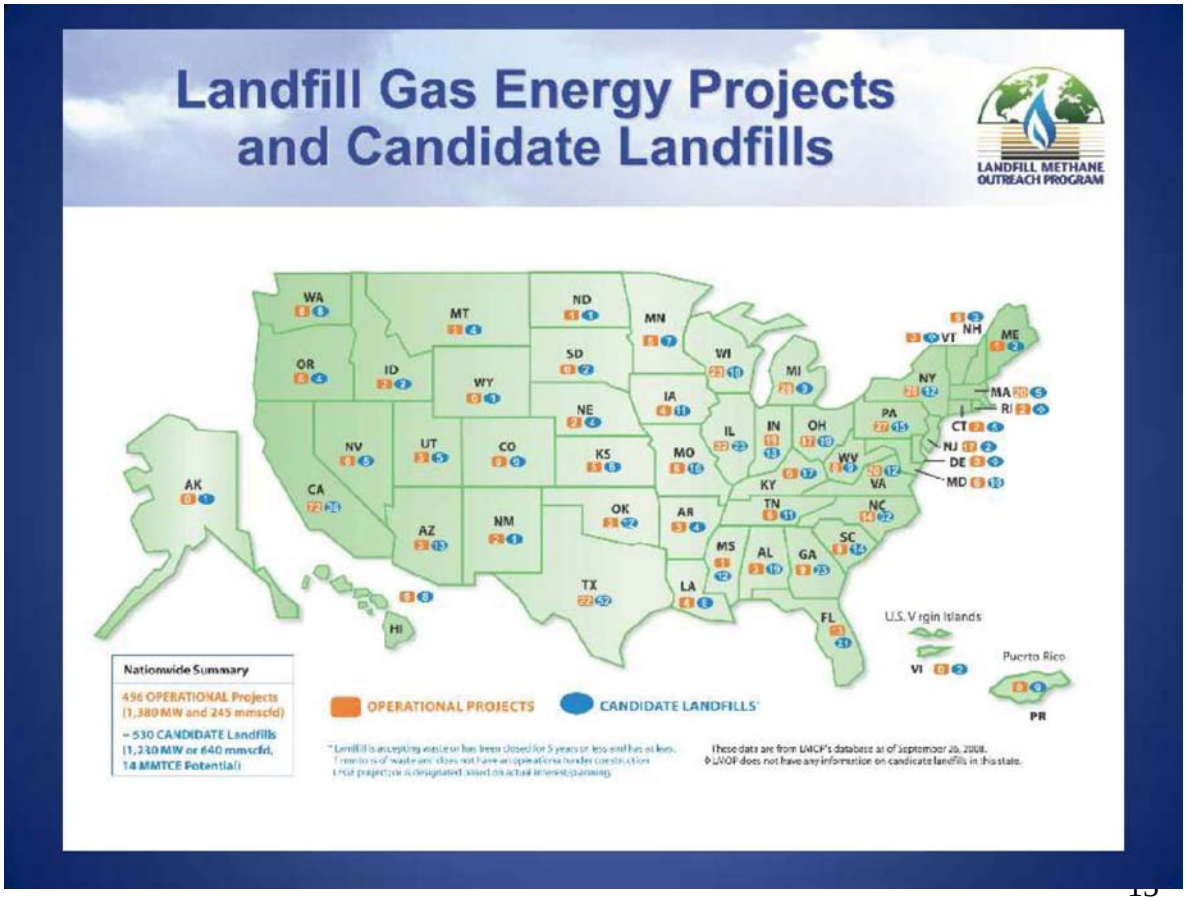
Since 1993, all municipal solid waste landfills must comply with Subtitle D of the Resource Conservation and Recovery Act (RCRA). These landfills are commonly referred to as "Subtitle D Landfills" or municipal solid waste (MSW) landfills.



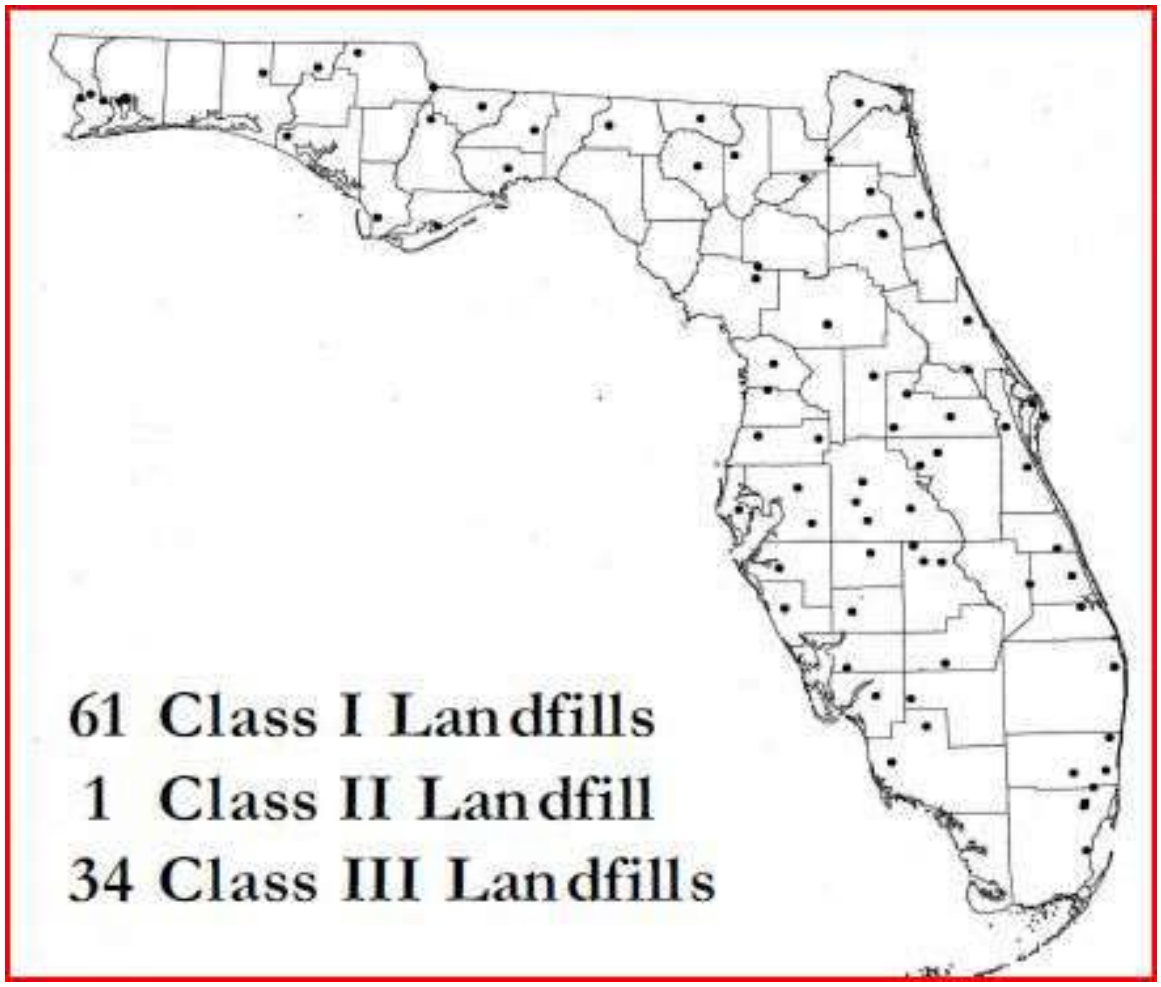
Number of landfills in the U.S.



Landfill Gas Energy Projects



Active Class I, II & III Landfills in Florida



G. Okaloosa and Walton Counties Municipal Solid Waste (MSW) Data:

Our study concentrates on residential MSW; therefore we have not detailed data on Construction and Demolition Waste, Hazardous Waste, and Special Waste, batteries, medical wastes, etc.

In calendar year 2006, Okaloosa County had a population of 192,672. The county managed 336,020 tons of MSW with 0% combusted and 42,022 tons (12.5%) recycled. 293,998 tons (87.5) went into landfills which equates to 9.56 pounds per person per day.

In 2006, the population of Walton County was 55,786. The county managed 139,641 tons of MSW that year. They combusted 0% and recycled 4,539 tons (3%) of their MSW and sent 135,102 tons (97%) to landfills. This breaks down to 13.3 pounds of MSW per person per day sent to landfills.

All class I and II landfills are closed as they were not built to meet current environmental standards. Sixteen closed landfills are being monitored under the watchful eye of the Florida Department of Environmental Protection (DEP). Testing wells for ground water sampling and any resultant required remediation is funded by fees collected at the counties two transfer stations.

All entities in Okaloosa and Walton County currently export their Residential MSW to landfills in other counties. **Landfills being used are:**

Springhill Regional Landfill, Campbellton, FL (Jackson County)

Owned and operated by Waste Management
198 mile round trip from VPS airport
2008 tipping fee-$46.07/ton for general public
Receive 4000 tons/day-usable life remaining is 47 years at current rate.

Timberlands Sanitary landfill, Brewton, AL

Owned by Escambia County Environmental Corp. and operated by Allied Waste.
160 mile round trip from VPS airport
2008 tipping fee is $35 /ton
2500 tons/day—life remaining unable to obtain

Santa Rosa County Landfill, Milton, FL

Owned and operated by Santa Rosa County
100 mile round trip from VPS airport
2008 tipping fee-$32/ton for household waste and $22/ton for C & D
Receive 350 tons/day with a very long life remaining for their 700 acres.

Walton County has recently permitted an MSW landfill in the north County as a contingency site only.

Household waste is collected in the counties by various means:

In Okaloosa County:

Unincorporated areas are contracted to Waste Management.
Fort Walton Beach provides its own service.
Mary Esther, Niceville, Cinco Bayou, Destin, and Shalimar are contracted to Waste Management.
Eglin AFB and Hurlburt Field are contracted to El Dorado.
Crestview is contracted to Waste Pro.

Laurel Hill is contracted to Two Cans.

Valparaiso is contracted to Allied Waste.

Commercial dumpster service is open market only in unincorporated Okaloosa County and Valparaiso. Other municipalities franchise the commercial dumpster business with their MSW contractor.

Walton County MSW contracts are split between the North County and the South County:

South of the Bay and along Hwy 20 is contracted to Waste management

North of the bay is contracted to Dayco

Transfer stations:

Okaloosa County:

County transfer station in FWB off Martin Luther King Jr. Blvd is owned by the county and operated by Waste Management. There is no recycling at the transfer station. It is co-located with Waste Management's Recycling Facility.

Baker transfer station at the Baker landfill is owned and operated by the county. Waste Management is contracted to transfer the MSW to the Springhill landfill. There is no recycling.

Walton County:

Transfer station north of DeFuniak Springs owned and operated by the county. This is a single stream operation with recycling done manually by prison labor. Waste management is contracted to transport the MSW to the Springhill landfill. The county is planning to build a new transfer station at the same location.

Costs per household:

Costs range from $12.50 to $26.34 per month. Some fees include local government add on fees and some have recycle charges included. In Walton county MSW collection is funded with tax revenue. Many contracts are renewing in the next few years after 5 years of no rate increases for fuel.

Okaloosa County
Residential Solid Waste

GOVT. ENTITY	PICKUP	TRANSFER STATION	TRANSPORT	DISPOSAL
CincoBayou	**Waste Management**	FWB Transfer Station operated by **Waste Mgt.**	**CEI as vendor to Waste Mgt.**	**Springhill landfill Jackson County, FL**
Crestview	**Waste Pro**	Commercial through Baker Transfer Station - Residential direct to Santa Rosa Landfill	**CEI as vendor to Waste Mgt.**	**Santa Rosa County landfill Milton, FL**
Destin	**Waste Management**	FWB Transfer Station operated by **Waste Mgt.**	**CEI as vendor to Waste Mgt.**	**Springhill landfill Jackson County, FL**
Eglin AFB	**El Dorado**	**Allied Waste** transfer station	**Allied Waste**	**Brewton, AL landfill Escambia County, AL**
Ft. Walton Beach	Collected by Public Works trucks & employees	**Allied Waste** transfer station	**Allied Waste**	**Brewton, AL landfill Escambia County, AL**
Hurlburt Field	**El Dorado**	**Allied Waste** transfer station	**Allied Waste**	**Brewton, AL landfill Escambia County, AL**
Laurel Hill	**Trash Can H**independent hauler (also does Rocky Bayou)	Baker Transfer Station **Waste Management**	**Waste Management**	**Springhill landfill Jackson County, FL**
Mary Esther	**Waste Management**	FWB Transfer Station operated by **Waste Mgt.**	**CEI as vendor to Waste Mgt.**	**Springhill landfill Jackson County, FL**
Niceville	**Waste Management**	FWB Transfer Station operated by **Waste Mgt.**	**CEI as vendor to Waste Mgt.**	**Springhill landfill Jackson County, FL**
Okaloosa County (unincorporated areas +)	**Waste Management** **Adams Sanitation** for rural	FWB & Baker locations – County owned - operated by **Waste Management**	**CEI as vendor to Waste Mgt.**	**Springhill landfill Jackson County, FL**
Shalimar	**Waste Management**	FWB Transfer Station operated by **Waste Mgt.**	**CEI as vendor to Waste Mgt.**	**Springhill landfill Jackson County, FL**
Valparaiso	Collected by Public Works trucks & employees	**Allied Waste** transfer station	**Allied Waste**	**Brewton, AL landfill Escambia County, AL**

Okaloosa County
Recycle

GOVT. ENTITY	PICKUP	Material Recycle Facility	Notes
Cinco Bayou	**Waste Management**	FWB MRF operated by **Waste Management**	
Crestview	**Waste Pro, Inc.**	Recycle station in Santa Rosa County	
Destin	**Waste Management**	FWB MRF operated by **Waste Management**	Baled and sent to their facility in Orange County
Eglin AFB	**El Dorado**	MRF on Eglin operated by govt. employees	Prisoners sort & bale – recycle sold by Eglin
Ft Walton Beach	None	None	Discontinued residential service about a year ago – not profitable
Hurlburt Field	**El Dorado** (pickup at Housing only. **Services SQ** handles clubs, buildings, etc.	MRF on Hurlburt operated by Services SQ	Sorted, bundled, & sold
Laurel Hill	None	None	
Mary Esther	**Waste Management**	FWB MRF operated by **Waste Management**	
Niceville	**Waste Management**	FWB MRF operated by **Waste Management**	Baled and sent to their facility in Orange County
Okaloosa County	**Waste Management**	FWB MRF operated by **Waste Management**	Baled and sent to their facility in Orange County
Shalimar	**Waste Management**	FWB MRF operated by **Waste Management**	Baled and sent to their facility in Orange County
Valparaiso	None	None	

Okaloosa County
Yard Waste

ENTITY	PICKUP	TRANSPORT TO DISPOSAL	DISPOSAL	NOTES
Cinco Bayou	**Waste Management**	**Waste Management**	Wright Landfill	
Crestview	**Waste Pro, Inc.**	Direct	Point Center landfill in Crestview	
Destin	**Waste Management**	**Waste Management**	Wright Landfill	168 tons (2007)
Eglin AFB	**El Dorado**	**El Dorado**	Wright landfill at no charge	
Ft. Walton Beach	Picked up with same trucks and personnel as household garbage	Taken to **Allied Waste** Transfer Station – Ready Ave	Brewton, AL landfill	
Hurlburt Field	**El Dorado**	**El Dorado**	Wright landfill at no charge (on Eglin land)	
Laurel Hill	**Trash Can II** - with regular trash		Comingled	
Mary Esther	**Waste Management**	**Waste Management**	Wright Landfill	
Niceville	By City Employees using City equipment	Direct	Young's Contracting on Kelly Rd.	$35/trailer load Young's mulches & sells to power plant for fuel
Okaloosa County (unincorporated)	**Waste Management**	**Waste Management**	Mulched by County employees @ Baker landfill	Used for settling and erosion control
Shalimar	**Waste Management**	**Waste Management**	Wright landfill	Used for settling and erosion control at landfills + free to anyone
Valparaiso	Public Works pickup weekly.	Public Works delivers to Young's Contracting in Valparaiso.	Young's Contracting chips yard waste and sells as mulch.	City pays $25.00 for each 23 cubic yard trailer delivered to Young's.

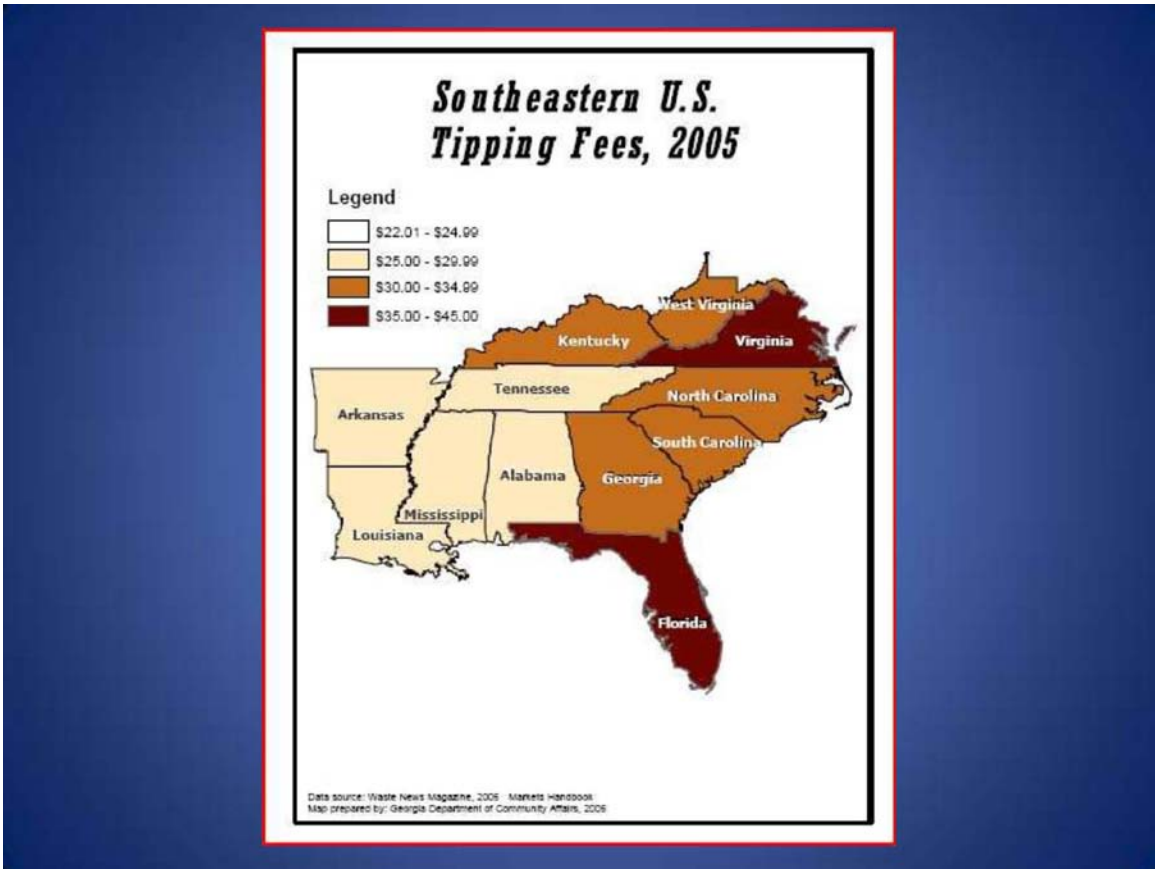
Okaloosa County
Cost Per Household

ENTITY	COST PER HOUSEHOLD PER MO	Estimated # OF HOUSEHOLDS	BILLED BY	EST TONS PER YEAR	NOTES
Okaloosa County – unincorporated	$16.85		Charged on water bill		Contract with **Waste Management** – competition for renewal in 2009 – awd 2010
Cinco Bayou	~$12.50	Small			Month-to-month
Crestview	$19	8,500	Charged on water bill		5-year contract with **Waste Pro, Inc.** signed Jan 08.
Destin	XXXXX			5930 tons/yr (2007) 168 tons/yr yard waste	
Eglin AFB	$21.73		Services contracted and paid by base CE		Residential waste - 6,400 tons/yr
Ft. Walton Beach	$15.70	8,000	Charged on water bill	24,000 tons/yr garbage (residential and commercial – equal split) 6,000 tons/yr yard waste	Contract with Allied Waste negotiated in 2000 (signed in 2001) took effect 2003 --runs thru 2012 with a 1 year option to extend
Hurlburt Field	~$21.42	680 households	Services contracted and paid by base CE	3860 tons/yr excluding recycle	5-yr **El Dorado** contract – to be recompeted in 2010 Current value $387K/yr

Cost Per Household (cont.)

Laurel Hill	$20.50/mo	Over 435 residents get water but only 225 have garbage pick-up	Billed by city	90 tons a month	In middle of 5 year contract with Trash Can II – will renew in 2011
Mary Esther	~ $15.85				Now in Competition
Niceville	$25.90	5500 households	Billed by City	Residential – 5205 tons/yr Businesses– 5140 tons/yr Arena C&D – 24,483 cu yds/yr Emerald Waste – 425 cu yds/yr	C&D and dirty yard waste picked up by city & dumped in Arena Landfill near Crestview.l $50/20-yard truck load
Shalimar	$15.22 for CY 2008		Charged on water bill		Contract recompetition in 2009
Valparaiso	$26.34 per residence, $38.53 per commercial site	1900 Residences. 134 Commercial sites.	Bill issued by City	In 2007: 2395 tons of garbage delivered to tipping station. 340 loads (23 cu. yd. each) of yard trash delivered to Young's Construction. 40 loads of C & D delivered to Emerald Waste Services.	Original contract with BFI Waste Services, LLC for solid waste was signed May 1, 2003, and will expire April 30, 2013. BFI is now Allied Waste.

Southeastern U.S. Tipping Fee Costs, 2005



Okaloosa County Landfills

Facility Name	Facility Status	Class
BAKER (#1) DUMP(AKA BAKER EAST)	CLOSED, WITH GW MONITORING	CLASS I LANDFILL
BAKER (#1) DUMP(AKA BAKER EAST)	CLOSED, WITH GW MONITORING	YARD TRASH PROCESSING (REGISTERED/UNDER PERMIT)
CRESTVIEW DUMP	INACTIVE	OLD DUMP
HOLT DUMP	INACTIVE	OLD DUMP
LAUREL HILL (#1) DUMP	CLOSED, WITH GW MONITORING	OLD DUMP
NICEVILLE-VALPARAISO (#1) DUMP	CLOSED, WITH GW MONITORING	OLD DUMP
WRIGHT (#1) DUMP	CLOSED, WITH GW MONITORING	OLD DUMP
BAKER LANDFILL	CLOSED, WITH GW MONITORING	CLASS I LANDFILL
LAUREL HILL LANDFILL	INACTIVE	CLASS I LANDFILL
LAUREL HILL LANDFILL	INACTIVE	CLASS II LANDFILL
LAUREL HILL LANDFILL	INACTIVE	CLASS III LANDFILL
NICEVILLE LANDFILL	CLOSED, WITH GW MONITORING	CLASS III LANDFILL
WRIGHT LANDFILL	CLOSED, WITH GW MONITORING	CLASS I LANDFILL
WRIGHT LANDFILL	CLOSED, WITH GW MONITORING	YARD TRASH PROCESSING (REGISTERED/UNDER PERMIT)
HOLT DUMP	INACTIVE	OLD DUMP
BAGGETT CREEK DUMP	CLOSED, WITH GW MONITORING	OLD DUMP
MILLIGAN SAWMILL DUMP	CLOSED, WITH GW MONITORING	OLD DUMP
LOVEJOY ROAD DUMP	CLOSED, WITH GW MONITORING	OLD DUMP
OKALOOSA COUNTY BAKER EAST C & D	INACTIVE	CONSTRUCTION/DEMOLITION DEBRIS
BAKER TRANSFER STATION	ACTIVE	TRANSFER STATION
EGLIN AFB C & D FACILITY	ACTIVE	CONSTRUCTION/DEMOLITION DEBRIS
EGLIN AFB PETRO SOIL REMEDIATION	ACTIVE	SPECIAL WASTE
BAYOU WOODS DUMP	CLOSED, WITH GW MONITORING	OLD DUMP
GIBSON LANDFILL	CLOSED, WITH GW MONITORING	CLASS III LANDFILL
CRESTVIEW C & D FACILITY #1	CLOSED, NO GW MONITORING	CONSTRUCTION/DEMOLITION DEBRIS
CRESTVIEW C & D FACILITY #2	CLOSED, NO GW MONITORING	CONSTRUCTION/DEMOLITION DEBRIS
BHC POINT CENTER LANDFILL	ACTIVE	CONSTRUCTION/DEMOLITION DEBRIS

Okaloosa County Landfills
(cont)

WHITFIELD C&D DISPOSAL SITE	CLOSED, WITH GW MONITORING	LAND CLEARING DEBRIS
WHITFIELD C&D DISPOSAL SITE	CLOSED, WITH GW MONITORING	CONSTRUCTION/DEMOLITION DEBRIS
OKALOOSA COUNTY TRANSFER STATION	ACTIVE	TRANSFER STATION
OKALOOSA COUNTY TRANSFER STATION	ACTIVE	WASTE TIRE COLLECTION CENTER
MIDWAY SANITATION WT COLL. CENTER	ACTIVE	WASTE TIRE COLLECTION CENTER
L. F. SULLIVANT C & D FACIL.	CLOSED, NO GW MONITORING	CONSTRUCTION/DEMOLITION DEBRIS
GREG M. CASEY C & D FACIL.	INACTIVE	CONSTRUCTION/DEMOLITION DEBRIS
DAVIS C & D FACIL.	CLOSED, NO GW MONITORING	CONSTRUCTION/DEMOLITION DEBRIS
J & K OF OKALOOSA	INACTIVE	LAND CLEARING DEBRIS
J & K OF OKALOOSA	INACTIVE	CONSTRUCTION/DEMOLITION DEBRIS
KING C & D FACIL.	CLOSED, NO GW MONITORING	CONSTRUCTION/DEMOLITION DEBRIS
BOWMAN C & D FACIL.	CLOSED, NO GW MONITORING	CONSTRUCTION/DEMOLITION DEBRIS
H & J LANDSCAPING C & D FACIL.	ACTIVE	LAND CLEARING DEBRIS
SWEENEY'S LANDSCAPING C & D FACIL.	INACTIVE	CONSTRUCTION/DEMOLITION DEBRIS
WASTE RECYCLERS OF N.FL C & D FACIL	ACTIVE	CONSTRUCTION/DEMOLITION DEBRIS
ROYSTER C & D FACILITY	INACTIVE	CONSTRUCTION/DEMOLITION DEBRIS
WINGARD C & D FACILITY	CLOSED, NO GW MONITORING	CONSTRUCTION/DEMOLITION DEBRIS
PARKER C & D FACILITY	ACTIVE	CONSTRUCTION/DEMOLITION DEBRIS
ARENA LANDFILL & SAND LLC	ACTIVE	CONSTRUCTION/DEMOLITION DEBRIS
SOUTHSIDE SAND PIT, INC.	ACTIVE	LAND CLEARING DEBRIS
DAVID A. RUSSELL C&D FACILITY	CLOSED, NO GW MONITORING	CONSTRUCTION/DEMOLITION DEBRIS
RAY CONSTRUCTION OF OKALOOSA COUNTY	CLOSED, NO GW MONITORING	CONSTRUCTION/DEMOLITION DEBRIS
FRED C. AND MARIE BOWMAN C&D	CLOSED, NO GW MONITORING	CONSTRUCTION/DEMOLITION DEBRIS
J&B SAND COMPANY	INACTIVE	LAND CLEARING DEBRIS
J&B SAND COMPANY	INACTIVE	CONSTRUCTION/DEMOLITION DEBRIS
GULF COAST PAVING & GRADING, INC	ACTIVE	CONSTRUCTION/DEMOLITION DEBRIS
RON POOLE C&D PIT - COMPOSTING	INACTIVE	YARD TRASH COMPOSTING W/RECYCLING (17-709)
OKALOOSA COUNTY TRANSFER STATION - WT COLLECTION	ACTIVE	WASTE TIRE COLLECTION CENTER
C J TIRE RECYCLING	ACTIVE	WASTE TIRE PROCESSING FACILITY
WRH CRESTVIEW, LLC	ACTIVE	CONSTRUCTION/DEMOLITION DEBRIS
CAMPTON LANDFILL	ACTIVITY NOT PERMITED	CLASS I LANDFILL
C.J. TIRE RECYCLING	ACTIVE	TIRE DISPOSAL
ALLIED SERVICES, LLC FT. WALTON TRANSFER STATION	ACTIVE	YARD TRASH PROCESSING (REGISTERED/UNDER PERMIT)
ALLIED SERVICES, LLC FT. WALTON TRANSFER STATION	ACTIVE	OTHER DISPOSAL FACILITY
COYOTE CRESTVIEW LANDFILL	ACTIVE	CONSTRUCTION/DEMOLITION DEBRIS

Walton County

Residential Solid Waste

Entity	Pickup	Transfer Station	Transport to Disposal	Disposal	Notes
Freeport	**Dayco Disposal**	County owned transfer & recycle station near the prison	**Waste Management**	Springhill Landfill, Jackson County, FL Owned & operated by **Waste Management**	Class II MSW landfill has been permitted - reserved as a contingency
DeFuniak Springs	City of DeFuniak Springs personnel & equipment				
Paxton	**Dayco Disposal**				
Walton Co.- unincorporated	**Waste Management**				

Walton County

Recycle

Entity	Pickup	Transfer Station	Transport to Disposal	Disposal	Notes
Freeport	Recycle trailers spotted around County	County transfer & recycle sta. Bundled & stored for sale	Contractor pickup	Sold to various vendors - market driven	County prisoners do sorting
DeFuniak Springs	Recycle trailers spotted around County				
Paxton	"Blue Bag" keeps separate from garbage Recycle trailers				
Walton Co.- unincorporated	"Blue Bag" keeps separate from garbage Recycle trailers				

Walton County

Walton County

Cost Per Household/mo

ENTITY	COST PER HOUSEHOLD PER MO	Est # OF HOUSEHOLDS	Exported to Jackson County landfill	Tons placed in own Class-III landfill
Freeport	Paid with tax revenue		2005 - 46,226 tons 2006 – 40, 815 tons 2007 – 33-811 tons	2005 - 26,000 tons 2006 – 24,000 tons 2007 - 21,000 tons
DeFuniak Springs				
Paxton				
Walton County Total including Unincorporated				

Walton County Landfills

Facility ID	Facility Name	County	District	Facility Status	Class Type
00095157	EMI #1	WALTON	NW	NOT YET DETERMINED	330
00014745	BLUE MOUNTAIN DUMP	WALTON	NWD	INACTIVE	520
00014747	FREEPORT DUMP	WALTON	NWD	CLOSED, NO GW MONITORING	520
00014748	MOSSY HEAD DUMP	WALTON	NWD	CLOSED, NO GW MONITORING	520
00014749	NEW HARMONY DUMP	WALTON	NWD	CLOSED, NO GW MONITORING	520
00014750	PAXTON DUMP	WALTON	NWD	CLOSED, NO GW MONITORING	520
00014751	RED BAY DUMP	WALTON	NWD	CLOSED, WITH GW MONITORING	521
00014752	ARGYLE DUMP	WALTON	NWD	CLOSED, NO GW MONITORING	521
00014753	WALTON BRIDGE DUMP	WALTON	NWD	CLOSED, NO GW MONITORING	520
00014754	WEST RED BAY DUMP	WALTON	NWD	CLOSED, NO GW MONITORING	520
00014755	WALTON COUNTY CENTRAL LANDFILL	WALTON	NWD	ACTIVE	100
00014756	WALTON COUNTY CENTRAL LANDFILL	WALTON	NWD	ACTIVE	300
00014757	NORTH C+2 SLF	WALTON	NWD	CLOSED, NO GW MONITORING	530
00014827	FREEPORT CLASS III LF	WALTON	NWD	CLOSED, NO GW MONITORING	300
00014836	PAXTON SLF	WALTON	NWD	CLOSED, NO GW MONITORING	200
00015091	DEFUNIAK SPRINGS DUMP	WALTON	NWD	CLOSED, NO GW MONITORING	520
00015091	WRH FREEPORT LLC	WALTON	NWD	ACTIVE	310
00015091	WRH FREEPORT LLC	WALTON	NWD	ACTIVE	540
00015133	HACKNEY C & D DEBRIS DISPOSAL	WALTON	NWD	CLOSED, NO GW MONITORING	540
00015144	COYOTE LAND CO. C&D (EAST)	WALTON	NWD	ACTIVE	540
00015145	RONALD HAUN / BAY SEPTIC SRV. C & D	WALTON	NWD	CLOSED, NO GW MONITORING	540
00015167	BUCK SCONIERS C & D FACIL.	WALTON	NWD	CLOSED, NO GW MONITORING	540
00015203	DIAMOND SAND CO. C & D FACILITY	WALTON	NWD	CLOSED, NO GW MONITORING	540
00015295	SANTA ROSA BCH EXCAV & PILING CO	WALTON	NWD	CLOSED, NO GW MONITORING	540
00015303	GULF COAST PAVING & GRADING, INC	WALTON	NWD	CLOSED, NO GW MONITORING	540
00015306	ROBERT P. GOLDSBY	WALTON	NWD	CLOSED, NO GW MONITORING	540
00015342	M&G ENTERPRISES	WALTON	NWD	INACTIVE	540
00015344	WALTON DEVELOPMENT, INC	WALTON	NWD	INACTIVE	540
00015449	COYOTE WEST LANDFILL C&D	WALTON	NWD	ACTIVE	540
00015562	CRAWFORD SUGAR PROPERTIES, INC	WALTON	NWD	ACTIVE	310
00016053	TIPTON LAND CLEARING DISPOSAL SITE	WALTON	NWD	INACTIVE	540
00084957	JD MILLER ROAD LANDFILL	WALTON	NWD	CLOSED, WITH GW MONITORING	300
00084958	NETTLES LAND CLEARING DEBRIS DISPOSA	WALTON	NWD	INACTIVE	310
00085496	NETTLES LAND CLEARING DEBRIS DISPOSA	WALTON	NWD	ACTIVE	310
00088359	COYOTE LAND CO.,LLC (WEST)	WALTON	NWD	ACTIVE	310
00089666	BLACK CREEK CENTER	WALTON	NWD	ACTIVE	310
00094008	ROCK HILL RD AKA WASTE RECYCLERS OF	WALTON	NWD	ACTIVE	310
00095039	FOWLER LAND CLEARING DEBRIS SITE	WALTON	NWD	PROPOSED	310
00095354	B.E. FAULKNER PROPERTY (BEN KING)	WALTON	NWD	PROPOSED	330
00095409	ROCK HILL ROAD BORROW PIT	WALTON	NWD	PROPOSED	330
00095436	HINOTE PIT	WALTON	NWD	PROPOSED	330
	PEACH CREEK	WALTON	NWD	PROPOSED	330

H. Critical Observations:

1. There is no regional planning for MSW management as for other utilities such as water, sewer, electric and other utilities.

a. Local governments act separately without any regional approach to maximize economy-of-scale.

b. MSW seems to be passively managed with little long range planning.

2. A significant transportation premium is paid to ship solid waste long distances to landfills in other counties.

a. Large MSW vendors in our region are transporting waste not to the closest available landfill, but to the one they own/operate.

b. Future cost increases will be heavily influenced by the cost of fuel.

3. Recycling in this region is woefully inadequate.

a. Far below national and Florida averages while both are increasing.

b. Fundamentals for improvement are not in place.

c. Public is ambivalent.

4. Only certain transfer stations collect fees for monitoring and remediating our region's 50 – 70 year old closed "dumps".

a. Special fee collected on SW tipped only at two County Transfer Stations.

5. Almost all government entities that contract for SW services use 5 year contracts with no provision for fuel cost adjustments.

a. Contracts typically include commercial franchise along with residential service.

6. Initiatives to reduce the quantity of waste going into landfills are few and far between.

a. Waste Management's single stream recycling "experiment".

(1) Single stream recycling-materials sorted in Pensacola by day workers.

(2) 100 tons/day minimum required to make single stream sorting in an automated MRF profitable.

7. Walton County's existing Transfer Station will be available for recycle only after the MSW Transfer Station is operational.

I. Recommendations for the enhancement of MSW management in our region:

1. Raise public awareness of how far behind most of the nation we are in recycling.

a. Initiate a public information program on the benefits of recycling.

b. Go to single stream recycling with large containers.

c. Go to mandatory recycling with the full participation of all residences/businesses. Have incentives to make it a financial success

2. Use once a week pickup of recyclables, residential and yard waste.

3. Establish a mechanism for regional long range planning for Municipal Solid Waste management.

a. Create a framework for government cooperation for the common good.

b. Take on recycling as the first regional issue.

4. Conduct a feasibility study for a MSW landfill in Okaloosa County.

a. There a need for long range contingency planning.

b. Research the future asset value of MSW as fuel for alternative energy generator systems. (bio-gas, combustion, plasma arc gasification)

5. Work for legislation to ban plastic bags.

6. Make the disposal of Hazardous Waste more convenient for the public.

J. A comparison of St Lucie County with our region:

l. St Lucie County:

a. Population 259,315 with 419,460 tons of MSW in landfills in 2006.

2. Okaloosa County:

a. Population 192,672 with 293,998 tons of MSW in landfills in 2006.

3. Walton County:

a. Population 55,786 with 135,102 tons of MSW in landfills in 2006.

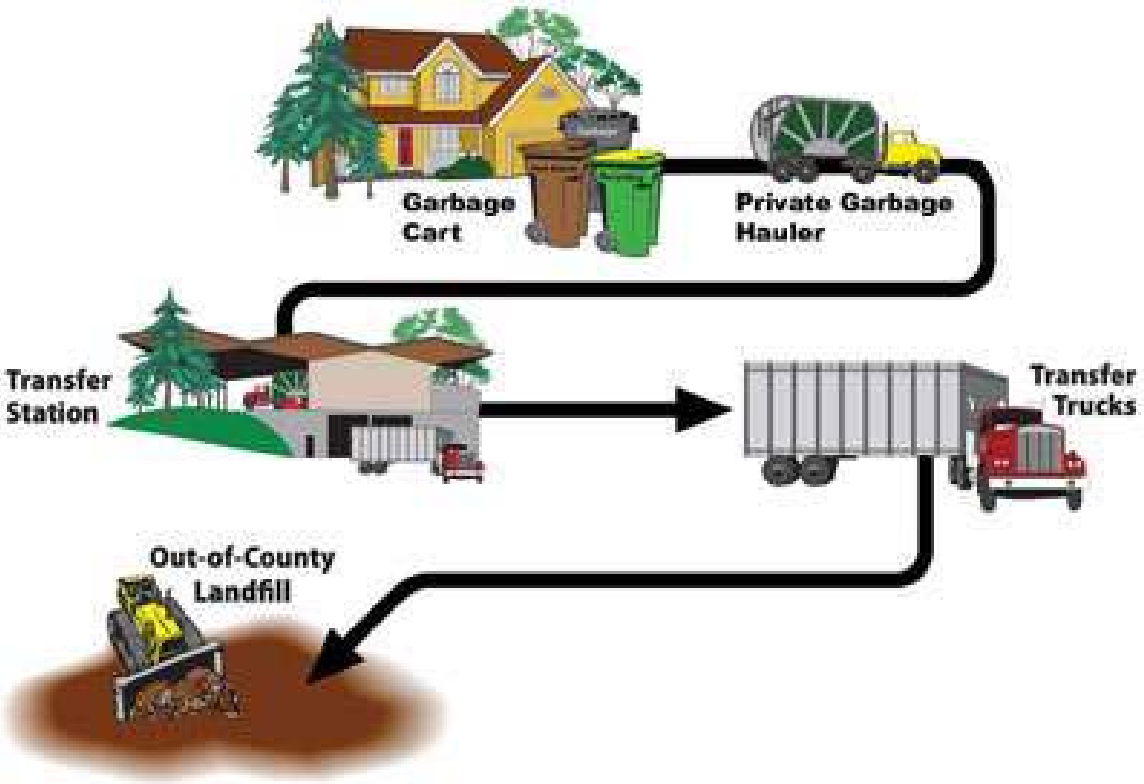
4. Significant differences:

a. St. Lucie operates a single Transfer Station, recycle and landfill that serves the entire county.

b. St. Lucie pursues SWM as a government owned and operated profit center. A capital improvements fund has provided upgrades since it was initiated in 1996 and has enhanced profits while keeping costs competitive with the Southeast Region.

K. Miscellaneous Information

Normal Collection/Disposal Cycle



Transfer Station Operation

Tipping floor

In a typical tipping floor operation the collection vehicles dump their loads and front end loaders move it to recycling conveyors, baling conveyors or into long haul trucks for delivery to the landfill.

Loading long haul trucks:

Transfer Station

Long Haul Truck & Collection Truck Departing

Landfill Operation

After waste is dumped in a class I or II landfill it must be covered within 24 hours to hold down odors and proliferation of the waste around the area by winds, birds or animals. Huge compactor dozers move the waste around and compress it as much as possible before a cover is applied.

Methane Gas Collection at Capped Landfill

Methane gas is vacuum extracted from pipes centered in 36 inch diameter wells bored from the cap to the bottom of the closed landfill. This gas is collected from several such wells in the landfill, ganged into one collection pipe and sent through a central drying/filtering operation from which it can be used as fuel for diesel engines driving electrical generators such as those shown below.

Methane gas is also used as fuel for boilers that generate steam to drive steam turbine electrical generators**.**

Diesel engines operating on methane gas extracted from the Springhill Landfill in Jackson County. This facility is owned and operated by Waste Management, INC.

L. A Look at St. Lucie County:

1. History:

In 1996 the St. Lucie Public Works Department and County commissioners established an escrow account to collect funds for landfill expansion and capital improvements in solid waste management. By establishing a municipal solid waste management system that was nearly completely county owned and operated, they were able to put approximately $1M per normal year into the fund. In December, 2006, after spending $10M on a new Baling and Recycling Facility they had $5M left in the fund. In the hurricane recovery year, 2006, revenues were approximately $14M with $3M net profit; $5M from C & D @ $19 p/ton, $2M from yard waste @ $20 p/ton (County pays a contractor (Theilan) $18.79 p/ton to process the yard waste) and residential garbage @ $32 p/ton. Some revenue is also realized from the sale of methane gas to the nearby Tropicana Plant.

2. Established tipping fees:

Residential Garbage----------$32 p/ton
Construction and Demolition----$19 p/ton
Yard Waste----------$20 p/ton

3. Baling and Recycling Facility Operation:

Contractor collection vehicles dump their loads onto the tipping floor. From the tipping floor residential, commercial and industrial waste is pushed onto two large conveyor belts at floor level and any C & D wood, cardboard, metal or hazardous material is pulled from the garbage stream manually before it enters the balers. After baling, the waste is hauled to the close proximity landfill where it is neatly stacked. The County has mandatory curbside pickup contracted for household garbage, yard waste, recycling, and white goods/bulk materials. The county assessment for this service is collected in the tax bill. The recycling contractor uses their own equipment and facilities for the recycling operation and none of their recycled materials are run through the county Baling and Recycling Facility. The recycled material the county pulls from the single stream operation in the Baling and Recycling Facility (C & D wood is mulched for sale as fuel and cardboard is baled) is sold to vendors who haul it off site.

4. Landfill operation:

After the solid waste is baled it is placed in the landfill by forklifts that stack it in neat rows. Not only does this produce a denser garbage pack, it is a much cleaner operation than the loose waste landfill operation where the waste must be moved around by dozers and compacted.

All leachate from the Baling Facility and Landfill is collected and piped to the Fort Pierce Utilities Authority via a force main. EPA monitoring wells surround the site.

Methane gas is vacuum collected from the landfill, compressed and piped to the nearby Tropicana Plant where it is used to fire boilers.

5. **Future Plans:**

The County is contracting with the Geo Plasma Corp. in Atlanta to build a Plasma-Arc-Gasification plant on their 331 acre landfill site to turn 3000 tons of waste daily into syngas and inert residue. The syngas will create steam to drive electrical generators that will sustain plant operation and provide excess energy to the local electrical grid. The new plant is to be completely turnkey with all construction expense borne by Geo Plasma. The County must lease the plant site to Geo Plasma. The contracts, permits and lease agreements are being negotiated now with an expectation of having construction started some time in 2009. Geo Plasma will make its money from tipping fees and the sale of electrical power. The County will not only get rid of its landfill and the need for future landfill expansions but make a profit on the difference in tipping fees charged and those paid to Geo Plasma.

The $450M, 100,000 Sq. ft. plant is expected to vaporize 3000 tons of waste daily and county officials estimate their entire landfill with 4.3 M tons collected since 1978 will be gone in 18 years.

(Late Developments in contract negotiations) Geo Plasma has notified St. Lucie County they want to build a smaller 200 ton per day plant as a model with the ability to build the larger plant at a later date. St. Lucie County is trying to get them to build at least a 400 ton per day plant now. As of 11 January, 2009 the size of model plant to be built immediately has not been settled.

St. Lucie County Solid Waste Baling and Recycling Facility
CURRENT OPERATION

April 8, 2002

Facility Construction

- **Construction began in July 2000 and completed in August 2001**
- **$10 million total cost**
- **First municipal solid waste baling and recycling facility in Florida**

Baling Facility Equipment/Features

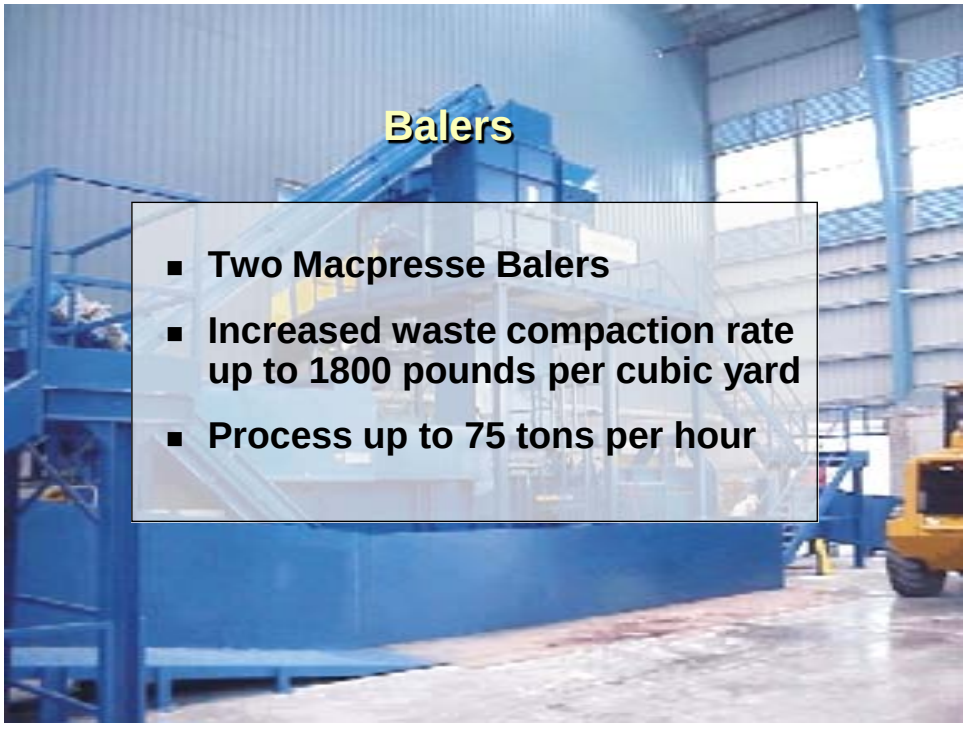
- Tipping Floor
- Two Infeed Conveyors
- Two Macpresse Balers
- Dust Collectors
- Debris Conveyor
- Emergency Generator

Tipping Floor

- Tipping floor is 275 feet by 200 feet (55,000 square feet)
- Anvil top, 1.5 inch thick metallic coating, abrasion resistant, concrete floor in the tipping area
- Recyclable/bulky materials are sorted

Infeed Conveyors

- Dual 50’ long x 5’10” wide conveyors
- Conveyors carry garbage from the tipping floor to the baling equipment
- Conveyors are recessed in the tipping floor
- Recyclables/bulky materials are removed



Dust Collector

- Two, twelve-cartridge dust collectors
- Air surge capability
- Pneumatic pulse jet filter cleaning system
- Mounted at top of baler feed hopper on each unit

Debris Conveyors

- Debris conveyors recycle fallout from the extrusion chamber back into the waste hopper
- Liquid is captured in trench drain system and flows to the on-site lift station
- Leachate pumped to local wastewater plant

Emergency Generator

- Emergency standby generator to power facility in the event of power failure or catastrophic events (hurricanes, tornadoes, etc.)
- Diesel Fueled

Additional Features

- Resident Drop-off Area
- Roof fans facilitate air changes of 22,000 cubic feet per minute
- Fire sprinkler system
- Air conditioned Motor Control Center
- Wire storage room
- Closed – circuit television system
- Adjacent Administration Building

Resident Drop-Off Area

- Isolated drop-off area provides a safe, economical solid waste disposal method for residential customers
- Roll-off containers available for various recyclables

Motor Control Center (MCC)

- Air conditioned MCC located along side the twin balers
- Viewing window to baling floor
- Situated on the baling floor level, 13 feet below the tipping floor

Wire Storage Room

- Storage room located off baling floor, adjacent to MCC room
- Reserve wire rolls stored on wheeled carts for ease of transportation to wire tying area on baling equipment
- Wire feeds into needles on balers
- Each baler requires 10 rolls of wire

Closed-circuit Television System

- Television cameras allow administrative personnel to view tipping floor and baling floor from the administration building

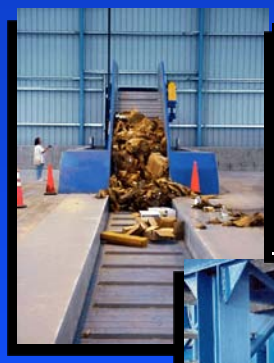
Administration Building

- Three-story facility
- Houses solid waste operators and administrative personnel
- Viewing areas overlook the tipping and baling floors

The Baling and Recycling Facility is Unique and Innovative

- First of its kind in Florida
- Enhanced recycling program
- Extended landfill capacity by 20+ years
- Reduced daily cover requirements
- Reduced operational costs

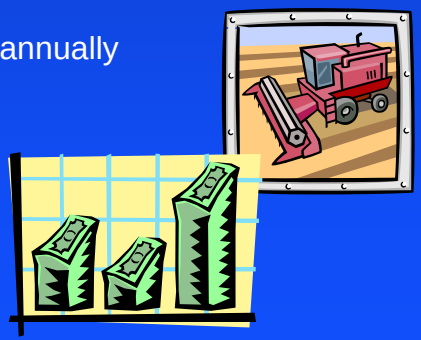
Recycling Recovery Rates have Risen in the Past Six Months



Material	Recovery Rate Increase (tons per quarter)		Total Value Attributed to Increased Recovered Material
	From	To	(Annual $)
Metal	200	500	$446,000
Cardboard	33	156	$182,528
Wood Pallets	0	100	$119,040
Plastics	0	85	$79,360
TOTAL	**233**	**841**	**$826,928**

Reduced Daily Cover Requirements

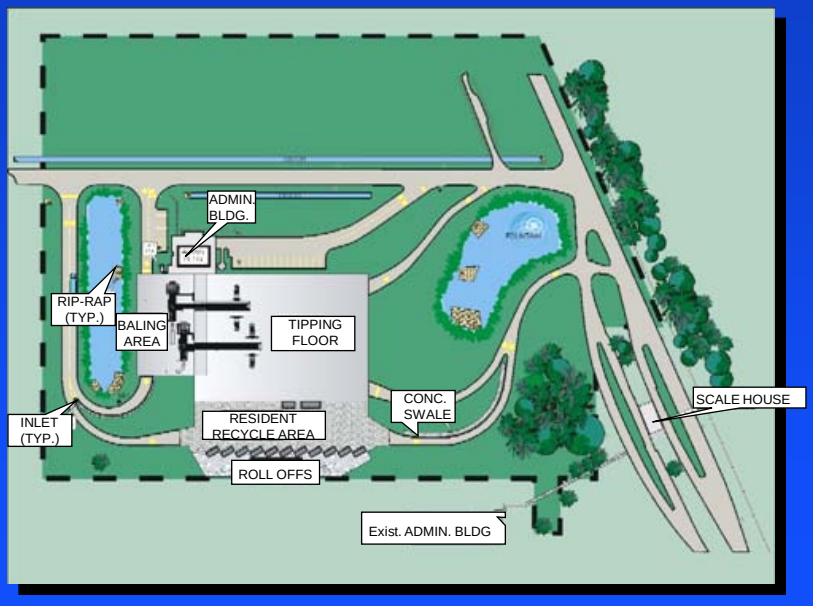
- Prior to Baling Facility Construction: 220 cubic yards per day
- Since facility implementation: 31 cubic yards per day
- Result: $175,170 savings annually on daily cover material
- Reduction results in 58,590 cubic yards per year of airspace saved in the landfill



Reduced Operational Costs

- Currently operating plant 5 days per week vs. 6 days per week prior to Baling Facility Construction
- Fuel consumption has decreased by 3,000 gal per month
- No additional staff was required

Facility Traffic



Their More Revolutionary Initiative

- Plasma-arc gasification initiative (not combustion)
  - Plasma-arc processing of solid waste heats everything to temperatures similar to the surface of the sun
    - Solids break into compounds - Compounds break into atoms - Atoms lose some electrons - Recombination results in benign gasses and small amount of inert glass-like residue
    - Syngas cleaned and used to generate power
    - Inert residue used for construction
- Proposed demonstration facility would zap 200-400 tons per day with the possibility of additional capacity later
  - Phase I commercial facility would likely cost about $60 - $120 million depending on its final size
  - GeoPlasma is paying for the entire project
  - GeoPlasma benefits from tipping fee, sale of syngas and inert residue
- The demo will validate
  - Cost effectiveness for disposal of MSW
  - Environmental compliance
  - Readiness of the technology for wider use

APPENDIX

Okaloosa County
Municipal Solid Waste Planning Issues for 2011