DISPOSAL ELEMENT

Landfill Options

The landfill represents the ultimate disposal method in use today. Even after waste has been recycled, composted or incinerated, there is still residue or by-products requiring disposal. Disposal means landfilling. More and more, however, we are discovering there is no “away”, for even though waste may be disposed of in a landfill, it is still with us, only concealed, stored.

Because landfills represent potentially the highest economic investment that will be made in a waste management system, it behooves us to make sure they last as long as possible. This may be done by the reduction efforts explained earlier or by management techniques at the landfill itself.

Waste Densities

Waste densities entering the landfill will differ depending upon the collection equipment used and the climactic conditions (moisture content). The moisture content of waste is typically 25 percent. Typical densities of incoming wastes are as follows:

1. Uncompacted, loose refuse equals 175 to 250 pounds/cubic yard.
2. Compacted refuse in a packer truck exceeds 500 pounds/cubic yard.
3. Compacted, in-place in a landfill should be at least 1,000 pounds/cubic yard after reasonable effort.

Densities of refuse at exceptional depths and additional compactive effort during placement may achieve greater densities. Seldom can in-place densities be expected to exceed 1,500 to 1,600 pounds/cubic yard.

Baling

Waste may be densified by baling before being placed in a landfill. Such a landfill is called a balefill. In theory, less space will be used and the landfill will last longer. However, unbaled waste eventually densifies to a similar volume under the pressure of

compactors, cover material and additional placement of refuse. Balers which process mixed MSW are exposed to high wear conditions.

Shredding

Shredding involves mechanical processing of wastes with low speed, high torque rotating shears or augers. Through such mechanical processing of hard to compact or bulky wastes, it may be possible to achieve higher landfill waste densities.

Shredders which process mixed MSW are exposed to a myriad of materials and high wear conditions that are difficult to predict. There have been cases of shredders exploding volatile materials. Any shredder being used to shred MSW must be equipped with means of protecting against such explosions.

Shredders capable of shredding MSW in the volumes generated by the planning region represent a considerable capital investment. Due to the wear from exposure to MSW, down time should be planned and adequate funds budgeted for operation and maintenance. Shredders add to the expense of a landfill operation and the return in space savings on most materials likely follows the same scenario as baling. In addition, some materials present in MSW should not be shredded, such as potentially explosive items and batteries. Shredding materials can quickly liberate hazardous constituents.

Shredders could be better utilized processing more homogeneous, hard to compact wastes such as tires, stumps, limbs, pallets and other bulky wood wastes. So doing may also open up other uses, such as mulch, boiler fuel or bulking agent for composting.

Compacting

Compacting is the usual method for densifying waste in landfills. The primary workhorse used for compacting waste in-place is called a compactor--a steel wheeled, heavy-duty tractor-type machine. Bulldozers may also be used at the working face to assist in the spreading of waste.

Equipment is important in determining compaction efficiency, but operational technique also plays a large role. Waste should be spread in layers that are no more than two feet thick for peak compaction efficiency. In general, waste should be deposited at the bottom of the working face and spread up the slope. Studies have shown that slope (working face) and number of passes with the compactor also influence efficiency.

Analysis of various types of daily cover

Preservation of valuable landfill space is of nationwide concern to private and public operators alike. This concern is economically driven due to the increased costs of Subtitle D requirements. Landfill space is conserved and total revenues over the life of the facility are maximized by replacement of the space that would be consumed by daily cover (soil) with waste. Facility revenues are generated by waste deposited in the landfill not by soil.

Tarp

The Hall County Candler Road Landfill currently uses a tarp as an alternate daily cover. By using this tarp, we drastically cut down on the amount of soil used, and therefore conserve landfill space. The tarp currently used by the facility measures 100 feet by 100 feet. The tarp takes approximately 20 minutes to deploy. The cost of the tarp is approximately $1,800, and the tarp lasts approximately 4 months.

Advantages: Easy deployment, space saving, relatively inexpensive.

Disadvantages: Not as effective at odor control as soil, not a big deterrent to vermin, short lifespan.

The yearly economic analysis of the tarp is as follows (100 ft. by 100 ft. daily working face):

Capital costs: $1,800 per tarp*3 tarps per year = $5,400

Labor costs: 1/3 hour per day*$25 per hour*312 operational days per year = $2600

Total yearly tarp cost = $8,000

Foam

Hall County has not employed the use of foams, but foam does have some reported advantages over tarps. Companies producing the foam products claim the foam can cut down on odor concerns and vermin. However, the high level of rainfall experienced in Georgia could be a hindrance in the use of foams as rain can wash the foams away.

Advantages: Possible vermin and odor deterrent.

Disadvantages: High labor requirement (1 hour per day), high cost.

The yearly economic analysis of the foam is as follows (100 ft. by 100 ft. daily working face):

Capital and labor cost: 0.05/square foot*10,000 square feet/operational day*312 operational days per year = $156,000 per year.

Soil

Soil is the most widely used daily cover. EPD regulations require that 6" of soil daily cover is used and 12" of intermediate cover. The major disadvantage of soil over the alternate daily cover methods listed above is that the soil uses valuable landfill space. Another consideration with soil needs to be the amount of soil available on site. In future planning, it is critical that enough soil be available for intermediate cover and closure of the landfill. If soil calculations indicate that the site might be deficient in soil to complete these tasks, a greater priority could be placed on alternate daily covers in order to prevent future costly off-site soil hauling operations. Candler Road Landfill soil calculations indicate that enough soil is present on the site for cover and closure operations.

Advantages: Good vermin deterrent, odor deterrent, economic if available.

Disadvantages: Wasting landfill space.

The yearly economic analysis soil daily cover is as follows (100 ft. by 100 ft. daily working face):

Cost per cubic yard of fill (including labor and equipment): $1.15/per cubic yard.

Capital and labor cost: 10,000 square feet*0.5 = 5,000 cubic feet/27 cubic feet per yard = 185 yards per day*$1.15 per yard*312 operational days per year = $66,378 per year.

Cost of landfill space: 185 yards per day*312 operational days per year*1000#/yard*0.5tons/1000# = 28,860 tons per year*34.50 per ton = $995,670 per year.

Recommendations

Based on the economic analysis and space saving advantages, Hall County should continue to use synthetic tarps as a means of daily cover. Soil will still need to be utilized for intermediate and final cover.

Owner/Operator Options

Contract Private

There are practically limitless possibilities when contracting for professional landfill management services. An example of a potential option at one extreme would be the owner (government) maintaining title to the land and all equipment and being responsible for providing labor for landfill operations. The owner would pay all payroll, benefits and taxes. The contracted management firm would handle employee supervision, environmental monitoring, reporting requirements and other management functions. The owner is allowed complete control.

On the other end of the spectrum, a contract option might be such that the owner (government) owns title to the land and that is where the involvement ends. A landfill management firm would lease the land and assume all responsibilities for operations, engineering, design, permitting, etc. Such services are available regardless of size and budget.

Areas of responsibility to consider when contracting for landfill services include:

Communication/Supervision of Employees;
Contract Length;
Compensation Method;
Environmental Monitoring and Testing;
Regulatory Reporting;

Regulatory Violations/Fines;
Procurement;
Billing, Collections and Financial Management;
Engineering; and
Equipment.

Municipalities may also contract with private firms for disposal services at private landfills. Such an arrangement should not be entered into lightly. Entities having control of disposal facilities, for the most part, also exercise control over the waste management system. If the local government cannot exercise some control by ownership or other means explained above, the amount of control a local government has is dependent totally on the contract language. As a result, any contracts for such services must be closely scrutinized by legal counsel having experience in solid waste matters.

When considering whether to enter into a contract with a private firm for disposal, one needs to ask some basic questions such as:

What level of involvement and control do we want?
Can our budget support our own staff?
How efficiently is our landfill being operated and managed?
Can we remain in compliance with the regulations without professional management?
Have our inspection reports been favorable?
Do we have adequate equipment for operation?
Are there adequate vendors available to provide this service?

Neighboring Gwinnett County contracts with private companies for disposal and could provide information gained from experience.

Single Jurisdiction

Alternatively, the planning region or individual units of it could contract with another municipality (presumably outside the planning region) for landfill disposal. This has been done in other areas and has worked. Many of the considerations explained above still apply. However, such an arrangement would probably tend to be looked upon more

favorably by the general population.

Intra-County

This option provides local government with the most control but also the most exposure to risk as well. Currently, Gainesville, Lula, Oakwood, and unincorporated Hall County dispose of solid wastes at the Candler Road Landfill, owned and operated by Hall County. There are no formal agreements between the County and the municipalities outlining use of this facility.

Multi-jurisdictional Intergovernmental Contract

As mentioned above, there are no intergovernmental agreements known to be in existence regarding shared use of the County's Candler Road Landfill.

Regional Authority

As the regulations and requirements for solid waste management become more daunting to local governments, there has not only been an increasing tendency for entering into contracts with private waste management firms, but also a tendency for governments to band together to solve mutual problems. Such regional authorities have arisen in Georgia and nationwide.

Regional authorities, also sometimes known as solid waste management districts, involve two or more governments that are joined pursuant to some type of formation agreement to cooperate on solid waste management matters. This cooperation may include only cooperation on disposal, but it is likely to include all facets of solid waste management. Such formation agreements may have to be ratified by state legislature.

Regional authorities allow solid waste management costs to be borne by a larger population base. A larger population will require larger facilities, but these larger facilities will lower per unit costs due to economies of scale. Economics and increased efficiency are the major factors influencing such regionalization. Facilities such as the lined landfills required by Subtitle D are too expensive for many smaller communities to bear.

Hall County Facility Mix

Allen Creek Landfill

Hall County's Allen Creek Landfill stopped accepting waste in July 1997. It was closed to the public at that point. The County does not yet have a closure certificate from the Georgia Environmental Protection Division (EPD).

However, closure work has been completed. All slopes were brought to a state-required 3:1 maximum slope. Hall County actually made slopes 4:1 to make them easier to mow.

Monitoring wells have been installed, amounting to 56 groundwater wells and 15 methane. The entire landfill surface was covered with a geosynthetic clay liner (GCL) to prohibit water from passing into the waste. This will eventually dry the landfill out and help the contaminated groundwater problem. A total of 169 methane vents were installed in the cap to help alleviate methane from leaching into the groundwater. After the cap, vents, and topsoil was placed, permanent vegetation was planted.

The Allen Creek Landfill has been placed on the state's hazardous site inventory (HSI), due to groundwater contamination issues. The County has submitted an assessment of corrective measures (ACM) to the state.

Groundwater is monitored and sampled twice per year; methane four times annually. The landfill is mowed twice per year.

Hall has also recently closed out the inert waste area at the landfill per EPD standards. This is now complete. A closure report will be submitted on this area as well. This closure report will need to be approved in addition to the one already submitted to the EPD. The state will then do a final inspection and Hall could then possibly receive a closure certificate.

Hall should examine potential beneficial use of methane generated by the Allen Creek landfill.

Hall County Candler Road Landfill

As recommended, Hall County sited and constructed it's own Subtitle D municipal solid waste landfill. Named the Candler Road Landfill, the facility began accepting waste on July 22, 1997. The landfill is located two miles southeast from I-985, Exit 20 off Oakbrook Industrial Park, 1700 Oakbrook Drive, Gainesville.

The landfill was originally operated as a balefill. The balers were designed to achieve 1,200 to 1,400 pounds per cubic yard density. However, actual field-testing proved the density of the bales produced to be under 1,000.

It was found that once the bales were placed into the landfill, the overall density was actually lower due to voids between bales (the bales are not perfectly square). The in place density was determined to be under 900 pounds per cubic yard. This density would have significantly lowered the landfill life by five years or more. Hall County went into litigation over the issue with the baler contractor and settled. The balers were removed. The landfill then converted to a more conventional mode using a landfill compactor weighing over 100,000 pounds. With this machine, in place densities of over 1,000 pounds per cubic yard are achieved.

This facility is limited to the acceptance of waste originating from within Hall County. It is a permitted municipal solid waste landfill. As such, it can accept any non-hazardous solid wastes such as that generated by households, industries, commercial businesses, and construction and demolition activities. Acceptable wastes include construction and demolition wastes, as well as inert wastes, other than yard trimmings. Prohibited wastes include liquids, regulated quantities of hazardous wastes, lead acid batteries, tires and yard trimmings. It is the intention of the Hall County Commission to favor retaining public ownership of this facility.

The landfill is projected to reach capacity in the year 2035, thus far exceeding the required assurance of ten-year disposal capacity. This estimate takes into account a 2.5%

per year increase in the amount of tonnage. Thus far, the estimate is on track. As of 2004, the daily average is 230 tons per day.

The leachate treatment system is a Rochem reverse osmosis system. It can treat 14 gallons per minute of leachate, treating it to very high standards. The system basically separates the clean water from the dirty leachate.

The clean water is used on site for dust control and irrigation, saving on the amount of public water the County has to use. The dirty water, known as "concentrate" is sent back into the landfill for recirculation. This helps break down the waste by utilizing the cell as an anaerobic digester.

This system was installed in 1999. Prior to this system, the County was paying 11 cents per gallon to haul and treat the leachate. The current cost is approximately 1.5 cents per gallon including operator costs and equipment.

Some statistics on the Candler Road Landfill include:

· Entire site comprising 255 acres;

· Permitted area comprising 94.2 acres;

· Waste capacity of 300 tons per day initially, increasing at 2.5% per year to 700 tons per day in 38 years;

· Total capacity of 9,291,000 cubic yards;

· Life expectancy of 38 years;

· Former baler building offering an all-weather tipping area of 125' x 200';

· 29 Groundwater monitoring wells; and

· 11 surface water monitoring points and 26 methane monitoring wells.

Disposal

Leachate Management:

· Two leachate tanks of 154,000 gallons each;

· Average volume of 5,124,974 gallons per year; and

· Daily average of 14,031 gallons.

Reliable Tire Service (RTS) Landfill

The RTS Landfill is located off Monroe Drive in Gainesville. It is a permitted construction and demolition debris (C and D) landfill, which is operated as a private commercial landfill by Waste Management. This facility was not operational when the original solid waste planning effort was done. This facility can accept a more limited array of waste types, which would include C and D wastes as well as inert wastes (see below). C and D wastes include waste building materials resulting from various construction and demolition activities. It includes items such as wood, bricks, metals, concrete, wallboard, paper, cardboard, yard trimmings (leaves, limbs, brush, grass clippings, shrub and tree prunings) and inert wastes.

RTS Landfill received EPD approval for a horizontal and vertical expansion giving the facility an estimated fill date of 2022, thus it will have capacity remaining well past the ten year planning period. If it were to fill more quickly than projected, capacity would exist at the Candler Road Landfill. All local governments in Hall County have used this facility.

Recently, Waste Management, owners of the RTS facility, proposed converting a portion of the existing site to a transfer station facility. While this is still in the preliminary stages, it is important to note for this report. However, mention here is not meant to endorse this facility. It would still be necessary for this facility to be reviewed for plan consistency.

Crystal Creek Landfill

This facility is also located on Monroe Drive. It was also not operational during the original solid waste planning effort. This inert waste facility is the most limited as to acceptable items for disposal. Acceptable items include earth and earth-like products,

concrete, cured asphalt, rock, bricks, yard trimmings (leaves, limbs, brush, grass clippings, shrub and tree prunings) and stumps. No projected fill date is known for this facility.

Gainesville Construction / Demolition Landfill

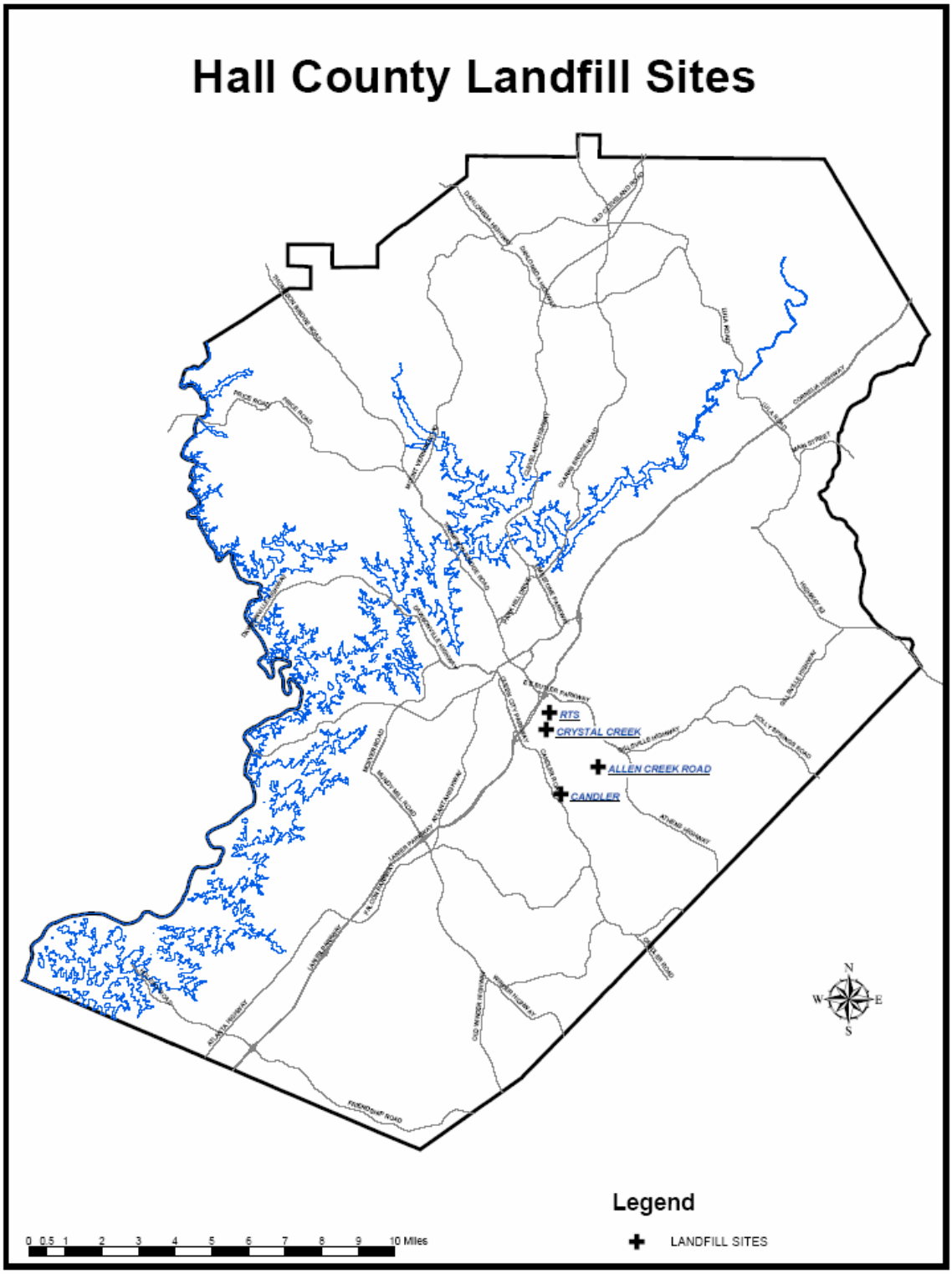
There are approximately 100 acres south of U.S. Hwy 129 and east of Monroe Drive in Hall County that were formerly operated as a sanitary landfill for the benefit of Hall County and the City of Gainesville. This area was permitted as 069-007D by the Georgia Environmental Protection Division. While the prior landfill was closed many years ago, redevelopment of this area for C and D waste disposal, as well as inert waste disposal, has been proposed by Recovery Services, Inc. d/b/a Gainesville Salvage. The redeveloped site would be known as the Gainesville Construction / Demolition Landfill and would consist of the vertical expansion of prior sanitary landfill. The owners have received zoning approval from the Hall County Board of Commissioners and are in the process of obtaining the necessary permitting. The projected life of this proposed facility would be approximately 20 years.

It is apparent the active management of this site as a C and D landfill by private parties would fill the need for the long term disposal of solid waste in suitable areas of the County as well as providing active monitoring of any historic ground water contamination and assure that such solid waste management activities were in a drainage basin away from Lake Lanier and the Chattahoochee River. Accordingly, this site is hereby incorporated into the Hall County Solid Waste Management Plan.

It is important to note that this proposed facility would also be required to be reviewed for plan consistency as part of the permitting process.

Disposal

Figure 5 Landfills Located in Hall County



Out of County Facilities Used by the Planning Area

There are two known out of county disposal facilities used by local governments in the planning area for disposal. Clermont delivers its waste to the White County Transfer Station, which is operated for White County under contract by Waste Management. Waste is processed at this facility and then ultimately disposed at Chambers R and B Landfill Site #2, which is located in Banks County. This facility is a private commercial MSW landfill owed and operated by Waste Management as well. The estimated fill date is May 21, 2040. Gillsville's waste is also disposed there.

The other facility used by the planning area is the BFI-Richland Creek Road Landfill. This facility is used by Flowery Branch's private waste hauling contractor. The estimated fill date for this private commercial MSW landfill is January 29, 2021. It is located in Gwinnett County.

Incineration

Waste-to-energy is the combustion of solid waste to create steam or electricity. Currently in the U. S. there are approximately 140 plants converting solid waste to energy. These plants supply enough energy to meet the needs of over one million homes. It is estimated that nearly 75% by weight of the waste stream is combustible, and that combustion can reduce the volume of processed solid waste by up to 90%. Waste-to-energy incineration is more widely used in other countries. Switzerland, Denmark, and Japan incinerate 80%, 60% and 72% of their solid waste respectively. Some countries, however, have issued moratoriums on additional incinerators. Some states, notably Massachusetts, have followed suit.

There are four basic technologies for solid waste incineration. They are:

Mass Burn
Refuse Derived Fuel
Fluidized Bed
Pyrolysis

Mass Burn

Mass Burn systems incinerate municipal waste without any pre-processing other than removal of items too large to be fed into the unit. These facilities can be constructed at the landfill facility and have waterwall combustion chambers designed for energy recovery. Smaller modular mass burn units can be fabricated at a factory and transported to the facility site. These units can also be prepared with energy recovery systems.

Refuse Derived Fuel

Refuse Derived Fuel (RDF) is pre-processed solid waste. The solid waste is first separated into burnable from the non-burnable components (glass, metals, etc.). The burnable components are shredded and densified into pelletized fuel and then incinerated along with other fuels typically in an energy recovery system.

Several different types of RDF can be produced depending upon the amount of pre-processing. They are listed below in the order of the least processed to the most processed:

Coarse - Materials shredded enough to pass through a six inch screen.
Prepared - Coarse RDF further processed by removing ferrous metals, fine materials, glass, ceramics, sand and grit.
Recovery Prepared - Similar to Prepared RDF except that a larger portion of the metallic components are removed (aluminum, zinc, copper, brass, ferrous metals) as are larger glass components.
Fluff - Materials shredded to the point where 95% by weight will pass through a two-inch screen.
Densified - Compaction of fluff RDF into cubes, pellets, briquettes, buttons or similar forms.

Fluidized Bed

Fluidized Bed technology burns processed solid waste in a heated bed of sand in temperatures ranging from 1400˚F to 1600˚F. The sand is fluidized by blowing air through the bed so that the sand is in constant motion. The RDF combusts in the sand bed, leaving the noncombustible materials in the bed. This type of system can be used in

conjunction with an energy recovery system to generate steam or electricity from the flue gases.

Pyrolysis

Pyrolysis refers to the thermal decomposition of material in the absence of air, or destructive distillation, particularly when applied to wood and other agricultural materials. Some of the advantages of pyrolysis are:

1) Almost all the systems are "net" fuel producers.
2) A spectrum of products can be produced including charcoal and/or activated carbon, liquid fuels and low to medium BTU gas.
3) Efficient systems can be built for both small and large-scale operations.
4) The systems can operate on a variety of feedstocks.

Wood waste, including pallets, crates, land clearing waste, etc. are typical feedstocks. The feedstock can be expanded to include paper, cardboard and similar materials, provided they can be extracted economically in a clean form.

Three technical concerns to be considered when planning for incineration are:

Compatibility with Recycling
Air Emissions
Ash Disposal

Compatibility with Recycling

Recycling programs and waste-to-energy incineration tend to complement each other in that recycling removes the non-combustible materials (glass, metals, etc.) from the waste stream, thus increasing the combustion efficiency. Also, the more non-combustible materials removed by recycling before incineration means that less ash disposal would be required.

There is, however, the possibility of recycling (waste reduction) being in competition with incineration. This happens as a result of incinerators being designed to operate at set

waste volumes. Operating at less than the design volumes compromises the incinerator's operating efficiency.

Air Emissions

Water vapor and carbon dioxide are the primary emissions from waste-to-energy incinerators. However, carbon monoxide, sulfur dioxide, dioxins, and particles containing heavy metals (lead, cadmium, mercury) are also emitted. Pollutants are removed from emissions generally in one of a combination of the following ways:

Electrostatic Precipitators: With this method incoming fine ash is subjected to a high voltage to cause a negative charge on the ash, which is then collected on positively charged plates. Electrostatic Precipitators have been documented as removing 99% of particulate matter, including heavy metals.

Dry Scrubbers: By injecting lime slurry into a reaction chamber through which gases and particulate matter flow gases and particulate matter are removed. A dry powder containing salt is produced and collected with the fly ash in an Electrostatic Precipitator.

Wet Scrubbers: Inject an aqueous solution of sodium hydroxide into a reaction chamber, neutralizing acid gases and removing most particulate matter.

Fabric Filter: These are heat resistant bags suspended in an enclosed housing. The bags filter particles from the gas stream removing as much as 99% of the particulate matter.

Ash Management

Waste-to-energy incineration reduces solid waste that is processed by up to 90% in volume. All waste is not processable, therefore, the overall volume reduction would be less than 90%. The remaining 10% is transformed into ash. There are two types of ash: bottom ash and fly ash. Bottom ash is the large unburnable matter left over after the waste has passed through the combustion chamber. Fly ash is the powdery material suspended in the gas stream and collected in the pollution control equipment.

Disposal

The greatest concern with ash is proper disposal to avoid release of harmful substances into the surface and ground waters. There are uncertainties of ash relative to impacts on water pollution. These stem from the uncertainties in regulating ash, and whether it is to be considered and regulated as a hazardous material. The more effective the pollution control equipment becomes at removing pollutants from emissions, the greater the possibility of ash being classified as a hazardous material. If regulations should require ash be managed as a hazardous material, the cost of proper management would skyrocket.

Studies are being conducted to find alternative and safe uses for ash. These include mixing with concrete for road pavement, blocks for retaining walls and other structures, to name a few.

From an environmental standpoint, incineration tends to have a negative public opinion, especially in the areas of air and water pollution. In 1986, EPA issued guidance on control technology for new and modified municipal waste incinerators. This guidance notified operators of EPA's intent to regulate incinerators under paragraphs 111(b) and 111(d) of the Clean Air Act. Under these guidelines new and modified municipal waste incinerators must be constructed with prescribed pollution control devices and existing facilities must be retrofitted with pollution control devices to meet the Clean Air Act standards.

Facilities Costs

Facilities cost vary from different areas across the country. Factors which need to be taken into consideration for an incineration system are:

1) Size (tons/day)
2) Technology
3) Location (labor and construction costs can vary from location to location)
4) Type of financing
5) Ownership
6) Pollution control technology
7) Cost of ash disposal

Estimates made by the National League of Cities in 1988 for the construction of modular units (less than 400 tons/day) have capital cost ranging from $80,000 to $90,000 per ton of rated capacity. Larger facilities will range in cost from $90,000 to $100,000 per ton of rated capacity. Also, from a time standpoint, it is estimated to take between five to eight years to bring a system on-line from its earliest planning stages.

Operation and maintenance costs will also vary due to size, location, and technology used. Labor costs are among the highest operation and maintenance cost. Total operation and maintenance costs have been estimated by the National League of Cities in 1988 to be about $20 per ton on an annual basis.

A study done for the State of Vermont indicates that an economy of scale exists for waste-to-energy facilities. This study concluded that facility costs decrease as daily capacity of the facility increases. This would indicate the necessity for consideration of a regional facility. The more tonnage that can be disposed of by incineration would reduce the costs to the owner. The costs could be distributed throughout the region on a ratio of tonnage contributed to the system basis.

Ownership - Public / Private

County or public ownership of a waste-to-energy utility system is not as common as ownership of a system providing water, sewer, waste disposal, etc. Public ownership of waste-to-energy system can be justified if it can contribute to the community economically by providing jobs and attracting other industry to the area. A public entity is not required to make a profit on invested capital in the conventional sense, as opposed to private enterprise. Public entities can justify certain investments with marginal profitability if they contribute to the public's interest. If deemed a contribution, this type of system can be such an investment.

Public ownership of a waste-to-energy system exempts that facility from the rate setting powers of the Georgia Public Service Commission. This leaves the pricing and sale of energy derived from the system the responsibility of the local community.

An obvious advantage to the public for private ownership is that the private companies will have to provide the capital for the construction and operation of the system. Some companies who are in the business of owning and operating such systems may be interested in acquiring the entire system or certain portions or components of the system's central plant or distribution system. Desiring to own only a portion of the system would be based on an expected rate of return on their invested capital. This would also be reflected in the prices charged to customers. The National Solid Waste Management Association in 1988 did a survey to determine tipping fees for existing waste-to-energy systems. The findings of the survey indicates the average tipping fee at that time was $39.86, with some fees being as high as $65.

The addition of the owner's profit in the rate structure may be more than balanced by the specialized knowledge and abilities that an experienced private company would have. This could result in maximizing the efficiency and potential of the system.

Privately owned systems would fall under the supervision of the Georgia Public Service Commission. This removes some local control from the rate setting process.

Special Management Items

Paint and Other Free Liquids Disposal

Waste Management's Live Oak Landfill has State approval to accept and solidify for disposal free liquids at their landfill. Waste Management is a private company providing various solid waste management services.

Waste Management can provide transportation, solidification and approved disposal of qualifying liquids, including paints. Other similar services may be offered in the area by others but were not known as of 2004.

The Dalton/Whitfield Solid Waste Management Authority is known to have implemented a paint solidification operation that they operate in-house. Such an operation could also

provide an option for Hall County to investigate. Paints and related products are known to comprise the vast majority, upwards of 80%, of household hazardous wastes.

Agricultural Chemicals, Pesticides Waste

The Georgia Dept. of Agriculture has a Pesticide Division that has 2 to 3 clean up days per year for agricultural related chemicals, pesticides, fertilizers and such.

Materials are accepted from residents. They may even go to a resident's house to pick up the material if it is especially hazardous (such as DDT). There is no charge.

Adequacy of Existing Disposal Facilities

Necessary disposal facilities exist to ensure uninterrupted disposal capacity for Hall County and its municipalities during the ten-year planning period (see Appendix D).

Ten Year Forecast of Disposal Practices

Facilities

During the planning period, the planning region will rely on landfill disposal. Existing disposal facilities used by the planning area each have greater than a ten year life expectancy, making them more than adequate.

Cost Projections

Projected costs for future landfill operations can be seen in the Implementation Schedule.

Disposal in Times of Disasters

For discussion of disposal in times of disasters see "Solid Waste Management In Times of Disasters" within the Education and Public Involvement Element.

Needs/Goals

1. Continue public ownership and operation of the MSW landfill facility.
2. Continue use of alternative daily cover.
3. Examine need for alternative means of managing special management items and household hazardous wastes.
4. Incineration is not recommended by this plan.

Disposal

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