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The Newsletter of the SWANA Florida Sunshine Chapter

Spring 2020

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Uncertain Times... Tough Decisions for Solid Waste Agencies

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Issues

- Significant new and ongoing regulatory issues
- Higher labor, energy, fuel, equipment, and insurance costs
- Uncertain and changing market for recyclables
- Political pressure to do more with less
- Perception that private sector can provide better service at reduced cost and with less governmental risk
- Increasingly-engaged public calling for more recycling and implementation of zero waste goals



Challenges

- Numerous competing priorities
- Effective change requires comprehensive evaluation of current organizational, financial, and operational activities
- Public and elected officials may lack knowledge of costs, risks, or sustainability of implementing new programs
- Well-intentioned new activities can have unintended consequences upon existing systems and finances

No matter what pressures your organization is facing, becoming more efficient in every facet of your operation - from collection routing, solid waste and recyclables collection, manpower allocation, vehicle maintenance, billing, to better use of municipal resources - improves operational and financial performance.

How Can Geosyntec Help?

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- Public Outreach, Engagement, and Education Programs
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For More
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Letter from the President

March 2020

So I'm probably not the only person who woke up late. The clocks sprung ahead, but the brain is still catching up. With this change it reminds us of times to come, spring is in the air and the spring activities are about to come to a close. From MLB spring training to college spring breaks, solid waste and recycling systems stand poised to respond keeping communities healthy and safe. What this also means is that our break from hurricane season will be coming to a close. For those in the south, the dry windy days will soon be replaced with the sounds of thunderstorms. But before I spring too far ahead, let's enjoy the lull that we get between these events.



A lot has happened over the past few months – the story of recycling isn't getting better. Programs suspended, materials removed (and added back in), and costs increasing. The paradigm that has served our industry for decades has changed. Communities are rethinking the how and why of their programs. This was at the forefront at the recent SWANA/RFT symposium last January. The positive is that the industry is talking and looking for collaborative solutions.

I'm sure everyone has COVID-19 on the brain as this has dominated the news cycles. In the waste industry, we have historically had good hygiene habits as our jobs depended on it. Working around waste and recyclables necessitates washing hands, proper PPE use and other habits that are a positive in the realm of disease transmission. While I have not heard any specific industry related guidance related to this issue, solid waste professionals have dealt with the after effects of other biological concerns and this should be similar. Beyond that, look to the World Health Organization (WHO) and the Centers for Disease Control (CDC) for any specific guidance and information. Stay safe, use common sense, and of course wash those hands (happy birthday to you, happy birthday....).

Looking forward, we have the Road-E-O on April 17-18 in Ft. Myers. This is always a great event for the folks that get things done on the streets and at our facilities. If you haven't been, think about volunteering as a judge. We had two individuals win at the national level, so our local competition is fierce. SWANApalooza will be in Atlanta, GA, at the end of the month March 23-26. As these SWANA events evolve, this conference is becoming the lead technical conference at the national level. Lastly, our Summer Conference is planned for August 2-4 in Naples, FL, at the Naples Grand Beach Resort. We hope to see you there!

Sincerely,

A handwritten signature in black ink, appearing to read 'Keith Howard'. The signature is stylized with a large, sweeping 'K' and a cursive 'H'.

Keith Howard
SWANA FL President

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Landfill Operations Safety

Stephanie McDannold, Kessler Consulting, Inc. and SWANA Florida Health & Safety Committee

The solid waste and recycling industry has always had elevated injury rates. A great deal of safety training material is focused on solid waste collections, and rightly so. Collections has the highest percentage of workers when compared with landfill, transfer station, composting and MRF operations. That, coupled with the nature of the work, presents greater risks. In fact, the 2018 Bureau of Labor Statistics data shows solid waste and recycling collection workers had the fifth-highest fatality rate of any occupation.

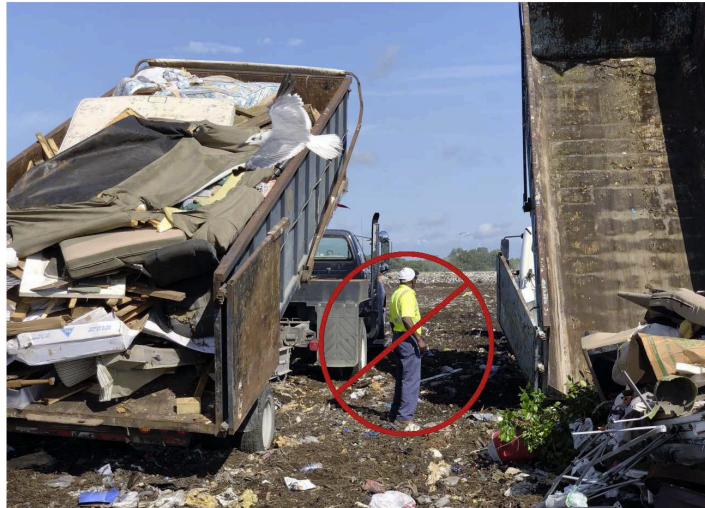
Landfill operations safety is spoken about far less frequently, but elevated risks obviously exist at landfills as well. One of the top things to remember is: LANDFILLS ARE ACTIVE CONSTRUCTION ZONES. Heavy equipment, high truck traffic, uneven and unstable surfaces, noise, odors and vectors are all hazards inherent to landfills. A solid safety plan including specific rules that are communicated to employees and customers is a vital tool to avoid injuries or fatalities.

Some landfill safety plan basics include:

- Ensure adequate directional, traffic and speed limit signs are posted.
- At a minimum, require high-visibility safety vests or reflective clothing for all employees and customers who are expected to exit their vehicles at the working

face or other designated unloading areas. Steel-toe boots and safety glasses should also be required for employees, and municipal, county or private haulers.

- Customer vehicles should keep a minimum distance of 10 feet from



This tipping pad was not stable and the dump trailer listed significantly toward the spotter at full height creating risk of injury or death.

each other and a minimum of 15 feet from heavy equipment.

- Prohibit the use of cell phones except in case of emergency.
- Prohibit scavenging by both the public and employees.
- Prohibit smoking except in designated areas.
- Landfill spotters must not stand between two vehicles during unloading.
- Prohibit the tying-off of waste and driving off to unload.
- Avoid added congestion at the tipping pad/area by limiting the covering and uncovering of loads and truck clean out to designated areas.
- If a customer vehicle gets stuck, landfill operators must NOT attempt to push it out with a piece of heavy equipment. Pull it out with a strap or chain.

First and foremost, make sure your facility has a safety plan and if not, make it a priority to develop a comprehensive one. Secondly, a safety plan that sits on a shelf is worthless. Safety plans should be reviewed and updated regularly and

must be communicated to both employees and customers to be effective. Employees should receive annual training as well as periodic reminders through tailgates and other meetings. Communicating safety rules to customers can be more challenging, and is primarily accomplished through safety handouts, signs and interaction with landfill spotters.

Clearly, safety is of the utmost importance to everyone. We should all expect to get home uninjured each day. A

great slogan that a county solid waste director shared with me is "Safety is Not an Option." Every organization is encouraged to have a slogan that reinforces a safety-focused mindset.

Stephanie Hinson McDannold operated landfills for 14 years in Florida and Arizona and is now a Senior Consultant of Kessler Consulting, Inc. She can be reached at smcdannold@kesconsult.com.

Effectiveness of Communication Strategies to Improve the Quality of Recycling

Digna Rivera and Courtney McCoy

In an effort to improve the quality of recycling in Orlando, the City carried out a Residential Recycling Contamination Study. The

main objectives of this study were twofold: 1) to test two distinct styles of recycling cart labels in order to identify their effectiveness as a

communication tool, and 2) contrast different types of communication strategies for addressing contamination. Additionally, a survey was distributed to residents collecting feedback regarding their understanding of the general recycling process.

To test the main objectives of this study, the research team selected a section of the Engelwood neighborhood (382 residences, 10 streets). The team inspected curbside

recycling carts to collect pre-labeling baseline data using a third-party mobile application. Baseline data was calculated within an analytical framework developed by the research team, which included two in-house created categories: recycling quality index (RQI) and recycling contamination index (RCI). The research team then selected a stratified random sample of 150 residences

(39%), each of which had a minimum of three pre-labeling inspections. The team then randomly applied two different styles of labels on 100 recycling carts (Experimental group):



City of Orlando designed labels on 50 carts, private company designed labels on 50 carts, and 50 without labels as the Control group. Post-labeling inspections were then conducted

and calculated against the RQI and RCI frameworks. After the post-labeling inspections were completed and analyzed, the team followed-up with door-to-door education and surveying of all households included in the sample area. Door hangers were left for residences where no one was home at the time of the visit.

Finally, the team conducted post-education inspections of the recycling carts and calculated those results against the RQI and RCI.



The results

showed that 84% of residents preferred the City designed label over the private company label, stating that this was mainly due to the graphic content. Also, 50% of the residents that had received the City label on their carts increased the quality of the recycling in contrast with 33% that had the other label. After door-to-door education (door hanger or personal communication), 46% of residents

increased their recycling quality. When comparing both types of door-to-door education, 48% of the residences with door hangers increased their recycling quality in contrast with 43% of the residences that had personal communication with the team. Also, door-to-door education decreased textiles by 23%, food waste by 21% and plastic bags by 10%.

In conclusion, door-to-door education had the effect of reducing the amount of all categories of contamination, except for the paper/cardboard and yard waste categories. A closer look at the effectiveness by type of door-to-door education, personal communication with residents showed to be the more effective method for reducing the quantity of plastic bags and Styrofoam when compared to placing door hangers. However, door hangers proved to be more effective than personal communication at reducing contamination with food waste and textiles.

For more detailed information about this study, e-mail digna.rivera@cityoforlando.net.

Key Benefits of Drying Biogas Used in Cogeneration Engines to a Low Dew Point

Ramon Rivera

Biogas is a renewable source of energy extracted from organic matter such as animal waste and plant material, referred to as biomass. There is a vast range of biomass available that can be used as a fuel source in biogas projects, including animal waste, landfill waste, energy crops, agricultural residue, paper/pulp residue, forest residue, urban wood-based waste such as garden waste and building waste.

Biogas, which consists primarily of methane and carbon dioxide together with smaller levels of ammonia and hydrogen sulphide and trace levels of gases such as carbon monoxide, hydrogen and nitrogen, for example, is formed when organic matter is decomposed by anaerobic bacteria in an oxygen-free environment—a process known as anaerobic digestion. Biogas typically has high levels of water vapor present in the mixture and may also be contaminated with particles of dirt and/or dust.

Biogas has similar properties to natural gas, with the methane concentration determining the overall energy content. Biogas used as a fuel to power engines needs to have the impurities removed, as these contaminants can corrode parts or result in deposits that can wreck mechanical equipment. The gases that typically need to be reduced or removed, together with water vapor, include carbon dioxide, hydrogen sulphide, siloxanes, halogen compounds such as chlorides and fluorides and volatile organic compounds (VOCs).

It is widely accepted that reducing the water vapor content from biogas will benefit cogeneration or combined heat and power (CHP) generation systems. But low dew points cannot be achieved using conventional methods, such as underground pipes

and condensate traps, which limits the benefits of eliminating water from the biogas. In order for underground pipes to be effective in terms of their cooling ability, the pipe network needs to be extensive, which in turn translates into expensive, and not very feasible to service or maintain.

Chillers commonly used in air conditioning units are sometimes used to cool biogas, but because they were not designed to produce water with low temperatures, the end result is either gas with a higher dew point or cooling units that operate beyond their design capabilities, resulting in them requiring excessive amounts of energy to run and a reduced lifespan.

Consequently, it is extremely important to employ a cooling system that has been specially designed to produce water condensate at low dew points while being able to operate efficiently in the harsh environmental conditions associated with biogas production.

Primary Benefits of Drying Biogas to a Low Dew Point

- Improves engine efficiency and performance
- Prevents corrosion of pipes and engine components
- Partially removes water soluble gases such as ammonia, hydrogen sulphide and siloxanes
- Reduces engine oil contamination
- Extends the lifespan of activated carbon
- Compliance with technical specifications required by major suppliers of gas engines

These key benefits are outlined in more detail below.

Improves Engine Efficiency and Performance

When biogas leaves the digester it typically has a high-water vapor content, making up 4% to 8% of the total biogas composition. This reduces



Biogas plant.

Credit: GeraldK/Pixabay.

the energy content of the biogas, and by extension, the power produced by the engine. If the biogas is dried to a dew point of 5°C, the water vapor content is reduced to 1%, which, in turn, increases the methane content by 5%, resulting in a 5% increase in power output and revenue generated. This is significant if one considers that for a 1 MWe biogas engine, a 5% increase in energy output can equate to an increase in revenue generated of \$100,000 dollars or more.

Prevents Corrosion of Pipes, Engine Components and Equipment

A lowering of the ambient temperature causes the gas to cool down, resulting in water vapor condensing in the gas pipeline. This condensate can combine with gases such as hydrogen sulphide or carbon dioxide to form acidic compounds that are highly corrosive to pipelines, holding vessels, machinery, gas scrubbers, sensors, gauges, and other instruments. When water combines with hydrogen sulphide, for example, it forms sulphuric acid. Water that combines with carbon

dioxide results in the formation of carbonic acid. Both acids are highly corrosive and will also cause engine oil to become less alkaline. Drying the biogas to a low dew point prevents the water vapor from condensing, and consequently prevents these corrosive acidic compounds from forming.

Partially Removes Water Soluble Gases (Ammonia, Hydrogen Sulphide and Siloxanes)

Because impurities in biogas are either corrosive, oxidizing or incombustible by nature, even though they are only present in small amounts (typically parts per million), they need to be removed in order to attain optimal engine efficiency and performance.

By using an efficient cooling system to implement the dehumidification process, where the dew point is around 5°C, one can remove the water vapor from the biogas while also reducing undesirable gases such as ammonia, hydrogen sulphide, siloxanes and halogen—compounds that may be present in the biogas mixture. Reducing or eliminating these impurities will extend the life of engine oil and reduce the amount of silicon dioxide that accumulates on hot surfaces of combustion engine components such as valves, cylinders and engines in heads of cogeneration combustion engines. It will also reduce emissions of mono-nitrogen oxides and the corrosion associated with water vapor combining with hydrogen sulphide and/or carbon dioxide. Partially or completely removing these impurities results in improved efficiency across the entire plant, together with a significant reduction in downtime and associated maintenance costs.

Reduce Engine Oil Contamination

While biogas consists mostly of methane, which is the sought-after combustible component, the impurities taint the gas, shortening the service life of the lubricating engine oil. Better quality biogas extends the service life of engine oil.

Biogas that is very acidic (possessing excessive amounts of hydrogen sulphide) causes engine oil to age rapidly, as the acid component in the lubricant increases it becomes more acidic and less effective as a lubricant, requiring more frequent oil changes to prevent excessive stress on engine components.

For example, an engine that generates 1MWe of power holds around 600 liters of oil, which only needs to be changed every 1,600 hours if



CHP (Combined heat and power) engine to generate electricity and heat from biogas.

Credit: Sustainable Sanitation Alliance.

contaminant-free biogas is used. In the case of biogas that had not been sufficiently treated/dried, the service life of the lubricating oil would be halved, requiring an oil change after approximately 800 hours. If one takes into account the losses incurred as a result of maintenance downtime, the costs associated with using inferior quality biogas can run into the thousands annually.

As the majority of the impurities found in biogas are water soluble, many can be removed through dehumidification to a low dew point. The end result is cleaner biogas that is less likely to contaminate engine oil, which in turn increases the service life of the oil and reduces maintenance downtime and its associated costs as well as the costs of oil replacement.

Extends the Lifespan of Activated Carbon

As mentioned earlier, because destructive biogas impurities such as

ammonia and hydrogen sulphide are soluble in water, they can be partially or fully removed by drying biogas to a low dew point as they partially dissolve in the condensate that forms, which facilitates their removal. Removing these contaminants in the treatment process results in significant cost savings in terms of activated carbon filtration systems (OPEX or CAPEX) typically used to remove these damaging contaminants when poor quality biogas is used in engines, which for a biogas flow of 700 Nm³/hour can save tens of thousands of dollars annually.

Compliance with Technical Specifications Outlined by Major Suppliers of Gas Engines

Unlike liquid petroleum-based fuels (petrol and diesel), quality compliance for gas fuels is far more lenient. Consequently, suppliers of CHP engines provide technical operating guidelines to ensure the quality of the biogas used is sufficiently high enough to prevent it from having a negative impact on the performance and service life of engines. All of the major engine suppliers stipulate that it is unacceptable to have water condensate within the gas fuel pipes or the engine. Incorporating a cooling system that dries the biogas to a low dew point prevents water vapor from condensing in the gas fuel pipes and, therefore, meets the technical specification guidelines outlined by major gas engine manufacturers.

Summary

These six benefits of drying biogas to a low dew point all have a significant impact on a biogas plant's operating costs and/or revenue. Installing a cooling system can therefore improve efficiency of a biogas plant, reducing costs and increasing revenue.

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Landfill Gas Header: Location and Benefits

*Ali Khatami, Ph.D., P.E., SCS
Engineers*

Lessons learned from previously constructed gas collection and control systems teach solid waste professionals valuable lessons about designing for long-term survivability and reducing the maintenance cost of



*Figure 1
Construction of gas header, gas
condensate sump, condensate force
main, and compressed air lines in
landfill perimeter berm.*

gas system components. The location impacts operating and maintenance costs for various components of gas collection and control systems such as condensate force main, condensate sumps, force main for well liquids, air lines to pumps in gas wells, and gas headers long into the future. As often as possible, design the gas header in the landfill perimeter berm along with

the condensate sumps. Landfill perimeter berms constructed in an engineered manner with well-compacted soils and a well-defined geometry provide a long-term cost-effective alternative to earlier designs outside the berm.

For many years, gas headers were designed and constructed outside of the landfill perimeter berm, on the landfill surface. Of course, landfill surface changes as waste elevation increases over time, resulting in many gas headers that now may be 30 feet or more below the current waste surface. Deeply buried gas headers are unreliable at best, and the operator loses access to them as soon as 20 feet of waste covers the header.

Collapsed gas headers buried deep in waste are an expensive challenge when operating a large number of gas wells connected to the gas header and could cause serious compliance issues. Upon discovery of a collapsed buried gas header, installing a new header is a lengthy process with significant costs, not to mention the hurdles the operator will have to jump addressing noncompliance with their state agency.

The benefits of placing gas headers in the landfill perimeter are:

- Constructing gas headers once without the need to be re-constructed again at a high cost;



*Figure 2
Gas condensate sump at completion of
perimeter berm.*

- Constructing condensate sumps in line with the gas header in the landfill perimeter berm, provide technicians quick access for maintenance;
- Avoiding ground settlement around condensate sumps;
- Avoiding sagging of the gas header over time due to settlement;
- The slope of the gas header toward the condensate sumps in perimeter berms is much less than those on the landfill slope;
- There is little surcharge loading on the gas header, thereby no crushing of the pipe; and
- The gas header is accessible for any additional connections if required in the future.

Since the condensate force main follows the gas header in the perimeter berm to flow to a tank or discharge point, there are additional maintenance benefits:

- Electrical lines to electric pumps or compressed air lines to air

pumps in condensate sumps are located in the landfill perimeter berm;

- Cleanouts to the condensate force main are built along the perimeter berm and accessible for maintenance;
- Flow meters, air release valves, and sampling points on the condensate force main are constructed at necessary spots along the landfill perimeter berm and easily accessible to technicians;
- Stub outs on the gas header are constructed at locations specified in the design plans along the landfill perimeter berm for connecting the gas header to vacuum lines extending up the landfill slope; and
- Compressed air lines to air pumps in gas wells are constructed in the landfill perimeter berm with stub outs for extensions on to the landfill slopes and to the wells.

By continuing to design gas header construction on landfill slopes, all of

the components end up on the landfill slope as well. You can imagine what type of complications the landfill operator will face since all of these components are in areas vulnerable to erosion, settlement, future filling, or future construction. Additionally, any maintenance requiring digging and re-piping necessitates placing equipment on the landfill slope and disturbing the landfill slope surface for an extended period.

Ali Khatami, Ph.D., P.E. is Vice President of SCS Engineers and a National Expert for Landfill Design, Elevated Temperature Landfills, and Construction Quality Assurance. He can be reached at akhatami@scsengineers.com.

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The Florida Waste-To-Energy Project That Almost Never Was Built: Part 1

Lessons learned from the project implementation team for the Hillsborough Resource Recovery Facility.

Marc J. Rogoff and Warren N. Smith

It is commonplace to say that waste-to-energy (WTE) projects are one of the more difficult public works projects to be built by a local solid waste agency. They are capital intensive, engender a significant amount of public opposition, and require a champion who is willing to implement the project over the long term. The Hillsborough County WTE project included all of those implementation hurdles, but it was also a project that had a series of public administration difficulties that almost scuttled the project many times. There is currently an increasing interest in expanding WTE facilities and developing Greenfield Projects due to the reduction of landfill capacities in certain locales and the impact of the recent Chinese recyclables ban on waste reduction goals.

This article is designed to provide lessons learned by the project implementation team for the Hillsborough Resource Recovery Facility for those considering planning their own WTE projects. Let's start from the beginning.

Joint City of Tampa and Hillsborough County WTE Project
Hillsborough County's (County) journey into WTE as its primary means of solid waste disposal was not an easy or short one. There were many "twists and turns" along the way,

and to continue the analogy, several very challenging "hills to climb". This (ultimately) successful journey was fueled and guided by the many issues that the County and its three



*Hillsborough County Resource Recovery Facility.
Photo courtesy of Marc Rogoff, Photographer, 2020.*

cities (Tampa, Temple Terrace and Plant City) were experiencing with the management of their landfills.

Prior to the late-1970s, at which time the idea of WTE began to get serious traction, the County depended almost entirely on landfilling for solid waste disposal, except for the city of Tampa which disposed of a large portion of its solid waste by an incinerator built in the early-1960s. With environmental awareness and regulations increasing, these older facilities were being ordered closed by the federal Environmental Protection Agency (EPA) and the state of Florida's Department of Environmental Regulation (DER). Plant City's landfill was ordered closed by October 1, 1979, Tampa's incinerator was ordered

closed by December 31, 1979, and Hillsborough County's Northwest Landfill that received operation permit extensions until August 1980, finally closed on April 1, 1981. Even the one remaining landfill, Hillsborough Heights, was ordered closed by October 1, 1984.

As a result, by mid-1981, the entire community became dependent upon only one solid waste disposal facility, the Taylor Road (and subsequently named Hillsborough Heights) Landfill. But the Taylor Road Landfill, with its adjacent Hillsborough Heights expansion, were very strongly opposed by its resident neighbors, the newly formed Taylor Road Civic Association (TRCA). The TRCA was so opposed to the landfill

that several times in 1979, as the County was considering its expansion, they staged protests which included blocking garbage trucks from entering the site and padlocking the entry gate. The TRCA also attended every Hillsborough County Commission meeting from 1979 until the landfill closed in October 1984 to protest the landfill's existence and to promote and support alternative solid waste disposal technologies.

It is this background that caused Hillsborough County and the city of Tampa (City) to join forces (if only briefly) to plan and develop a long-term, county-wide solid waste management plan that would (ultimately) include mass-burn WTE technology as its centerpiece.

The City had operated the McKay Bay Incinerator (Incinerator) from the early 1960s until ordered closed on December 31, 1979 to dispose of most of the City's solid waste. It used a rotary kiln technology and had wet scrubbers for air pollution control. At best, the Incinerator provided some volume reduction, albeit poorly, with air pollution impacting residents, businesses and nearby industries with periodic smoke and a fine layer of white soot. With the implementation of the Clean Air Act Amendments of 1977, the Incinerator had to close since it was no longer able to meet the more stringent air emission limits.

Since the City did not operate its own landfill, the City wanted to rehab the Incinerator and make it into a WTE facility. With the support of the Florida Department of Environmental Protection (FDEP), many urban counties across the state were encouraged to study the feasibility of WTE. Both the City of Tampa and Hillsborough County were part of this WTE wave in Florida and formed an Interlocal Committee to study WTE feasibility.

Brown and Caldwell (B and C), a nationally known engineering firm, was hired to help lead this study. After a year's worth of efforts and several countywide public hearings, B and C reported its findings and recommendations. It was recommended that the McKay Bay Incinerator be retrofitted to be a WTE plant, with a second WTE to be sited in northern Hillsborough County, as well as modular units for Plant City, Tampa Industrial Park, and the University of South Florida. The City and County initially agreed that the County would manage this joint effort, serving as the "lead agency" for the project, even providing two staff persons (Joe Murdoch and Nancy

McCann) to work from the County's Solid Waste Department offices. This joint WTE staff managed the B and C work effort, provided public relations assistance by making public presentations and producing a project newsletter, and served as staff to a newly created Resource Recovery Management Committee (a group of eight senior staff representing the County and its three cities), all to provide technical information and recommendations to the politicians to make sound long-term project decisions.

voted to recommend that the project lead be returned to the City. Initially, the County Board voted 3-2 for this change, but within just two months, one of the "yes" votes changed his mind and the Board eventually voted to reestablish "lead agency" status. The City, not wanting this change, decided to move forward with the WTE project itself, offering the County a long-term contract to be a "customer", but with all the financial and risk obligations for the second WTE. To complicate matters, the inevitable landfill would have to be in the County.

These changes caused waves of disagreement within the County Commission and over a series of months, a consensus evolved on withdrawing from the Joint Committee and moving independently on a County-only WTE project in 1982.

County-Only WTE Project

On its own now, County staff within the Department of Solid Waste had to reconstitute a fully functioning WTE project team. A new project implementation

engineer had to be engaged since HDR Engineering had decided to stay with the City of Tampa on its WTE project. The County then selected Camp Dresser and McKee (CDM) as the implementation engineer. A team of bond underwriters, led by William R. Hough and Company was also added along with Bond Counsel, Bryant, Miller and Oliver, David Fischer as financial advisor, and permitting attorney, Carlton Fields.¹

Continued on page 12



*Newspaper articles leading up to the plant's implementation.
Image courtesy of Geosyntec Consultants, 2020.*

The City and County "Divorce"

To assist the County with actual project implementation, the consulting/engineering firm of Henningson, Durham and Richardson (HDR) was hired. Their evaluation led initially to the recommendation for one, new large WTE facility on the Tampa site. But, with the City wanting to retain perceived value of retrofitting their old incinerator, a two-plant alternative on City property was developed, which then caused the City to argue for their assumption of the "lead agency" role. So, in May 1981, after only a few months of County control, the Resource Recovery Management Committee

Continued from page 11

An internal project team was constructed with staff from several county departments (County Administrator, Solid Waste Utilities, Fiscal Services, County Attorney, Purchasing), as well as from the Clerk of the Circuit Court. These staff became the working group and sounding board for recommendations to the BOCC. A Resource Recovery Program Administrator (Marc Rogoff) was soon added to provide day-to-day management of the WTE program.

The project team began a detailed siting selection study of some 35 sites in the unincorporated County. This ended with a recommendation of the preferred site for the WTE and adjacent wastewater treatment plant on Faulkenburg Road, near Interstate 75 and State Road 60, almost the centroid of solid waste generation in the County. The property owner, CSX Railroad, initially rejected the County's request to purchase only 50 acres for the WTE plant and a sub-regional waste water treatment plant, but later privately contacted the County Administrator to offer to make a deal if the County would purchase the entire 353-acre parcel for \$10.6 million. The County soon agreed to this purchase, realizing that this prime industrial zoned property could be used for future county facilities.²

Since the property needed to be properly rezoned light industrial/public

utilities land use, a public hearing was scheduled for the rezoning. Lasting more than 11-hours with 35 witnesses for the County and for the opposing NIMBY groups, this was a controversial public meeting perhaps like no other. Citizens where the new landfill was to be located (the Balm/Picnic area of South Hillsborough County), argued for the WTE plant since it would reduce the number of trash trucks going down their roads. The local Chamber of Commerce (Brandon) prophesized that if the WTE were to be sited, then the long-awaited light-industrial development planned for the I-75 corridor would be eliminated. Ultimately, after the 11th hour concluded, the BOCC voted 3-2 to approve the rezoning.

In Part Two, we will discuss more about our efforts to move the project forward.

***Marc Rogoff** was the Resource Recovery Administrator for Hillsborough County, FL. Marc is now a Senior Consultant with Geosyntec Consultants with their Solid Waste Advisory Practice. Marc can be reached at (813) 810-5547.*

***Warren Smith** was the County's Solid Waste Director. Warren is now retired after having served as Director of Pinellas County's Solid Waste Operations Department and Solid Waste Manager for HDR Engineering, Inc. He can be reached at (727)515-0006.*

Notes

1. There was an interesting cast of characters on the Hillsborough County WTE Team. Paul Stoller (now retired) was CDM's Project Manager; and Bob Hauser (also retired), served as CDM's Assistant Project Manager; while a young environmental attorney, David Dee, assisted in permitting of the WTE facility and the Southeast County Landfill. Paul's experience included authoring the 1979 EPA Resource Recovery Management Model, and Bob later served as Director of Pinellas County Solid Waste Operations. David is a partner in the Tallahassee law firm of Gardner, Bist, Bowden, Bush, Dee, LaVia & Wright, P.A.
2. Later in 2005, the County acquired another 200 acres for \$11.7 million. The County has since constructed buildings for Jail, Animal Shelter, Tax Collector, Public Utilities, Survey and Mapping, and Supervisor of Elections, thereby realizing the original dream of an East County Government Center.

Creating a Recycling Right Campaign: Tips from an Environmental Marketing Group

Sandra Hungate, VERDE Outreach

As marketing professionals focusing on environmental outreach, we want to share the basics of a campaign strategy for a “recycle right” campaign.

Here is a snapshot of how we create cities’ and haulers’ campaigns to change residential behavior through marketing—specifically social media marketing.

#1: Measure

Before you develop your campaign, obtain data about the current problem; determine the level of contamination and pinpoint areas of concern. What are the main contaminants? Is it city-wide or area-specific? This will help you focus your campaign and measure your results.

#2: Goal

Don’t try to change the world all at once but focus instead on one behavior change you’d like to see. For example, reducing the number of single-use bags in recycling bins.

#3: Target Audience

Before communicating, you need to determine your target audience so you’ll know where you can reach them. For example, find out why residents are still using plastic bags in the first place.

#4: Involve Your Audience; Make it a Community Project

What better way to make a change than by having your audience participate in the campaign? People want to do the right thing and they want to help, so let them help and listen to what they say. All communication should be two-way, which forms the basis for project collaboration.

#5: Industry Best Practices

Learn from other cities and haulers (successes and failures).

#6: Project Stakeholders

We’ve seen cities where the hauler, city, and county each communicate different recycling messages to residents, making obtaining clean recycling virtually impossible. Consistency in messages is crucial, so be sure to talk to all stakeholders.

#7: Resources

Your stakeholders, residents, and workforce are resources, but don’t discount outside resources. A trusted environmental marketing and outreach company can help you navigate the steps and may even carry the entire project burden for you.

#8: Message and Plan

Write your campaign content and be sure to tell your target audience what’s in it for them! Behavior change happens with self-interest. Form your strategy: where it will run, how long/often, etc. Include 1-1 outreach, such as presentations, events, etc.

#9: Results

“The only way to manage a program is through data,” says Bill Dempsey, VERDE Outreach President. Survey and audit, looking at results that can be compared to the pre-campaign baseline.

#10: Communicate Campaign Results

No matter the results, share your work with residents and with other cities/haulers. Residents love to know what you’re working on and to see that you care about making the world greener.

#11: Close the Loop

Even in marketing, it’s important to close the loop! By this, we mean that campaigns shouldn’t end. With your results, you can begin fine-tuning your campaign to make the next round even more successful.

Sandra Hungate is VERDE Outreach Vice President. VERDE Outreach is not your average marketing or consulting firm. They are marketing, environmental, data, and program development professionals who are passionate about the environment and creating a greener world for us all. They create environmental campaigns that can be managed internally or campaigns that VERDE manages every step of the way handling every detail. Sandra can be reached at shungate@verdeoutreach.com. For more information, visit www.verdeoutreach.com.

The Operational Transition of Marion County Solid Waste's Disposal Department

George W. White, Operations Manager, Solid Waste, Marion County Board of County Commissioners

Since 2009, when the Marion County Board of County Commissioners implemented a moratorium on the construction of any new Class I landfills within the county, Marion County Solid Waste (Solid Waste) faced the challenge of acquiring the capacity or airspace needed for the disposable waste created by the citizens and businesses within the county. Several disposal options were explored and the County's policy makers ultimately decided to purchase 2.5 million tons of air space in the newly permitted Heart of Florida Landfill (HOF), providing the county with disposal airspace for approximately 16 years based on the projected populations and demands on solid waste collections.

Once the operating landfill was filled, waste would be then be transferred to the HOF through a transfer station that had been constructed at the Baseline Facility in the early 2000s. To keep our customers safe, Solid Waste separated commercial customers and all other customers that use self-dumping vehicles from customers that unload by hand. This new system would require the construction of a new Citizens Convenience Center (CCC) that would be located north of the existing transfer station.

In October 2016, Solid Waste selected the S2Li project team to complete the design and provide construction engineering services for the completion of the CCC. S2Li provided Solid Waste with six different conceptual designs. In the end, Solid Waste selected a design that would allow the customers to unload their waste into one of the six 40 cubic yard containers from



an elevated slab. The customers would be protected from the grade differential between the containers and the unloading platform by a 42-inch reinforced concrete wall armored with 3/8-inch steel plates. The steel plates would allow staff to use the wall to push and collect materials in the event that the customers are not able to get their waste into the containers. The CCC project also included new metal storage pad and modifications to the existing metal storage pad to accommodate a waste tire storage area.

Construction of the CCC began on June 15, 2019 and was completed

and put into operation on Dec. 5, 2019. During that time, commercial customers were routed to the working face of the landfill, and the transfer station was used as a temporary hand unload disposal area. June 15, 2019 also marked the day that Solid Waste and its hauling partner Merrell Brothers Inc. started hauling waste to the HOF. The early implementation of the hauling allowed staff an

opportunity to fine-tune the loading processes and evaluate efficient processes to support the furniture collections at the CCC as well as the six of the recycling centers. On December 5, 2019, when the CCC was placed into operation, staff noted that all of the sites' self-dumping customers were routed into the transfer station and all of the hand unloading customers were routed to the CCC.

There were several challenges that Solid Waste faced during this transition from a landfill to a transfer operation. The new collection process came with a need to educate our customers. Our department worked with the Marion County Public Relations Department to create a public education campaign to educate our customers on the materials that would no longer be accepted at the facility. Previously accepted items such as boats, RVs, and concrete slabs would be directed to one of the county's three privately owned construction and demolition debris

disposal sites. Special wastes such as creosote poles and boards, pressure treated poles and boards, euthanized animals, grit, sludge and items that must be direct buried or are hard to handle in the transfer station would be hauled directly to HOF.

Another challenge came with directing customers that hand unload their waste in the new location while ensuring that all of their load was deposited into containers behind the wall instead of on to the floor of the transfer station. Initially, customers were disgruntled about these changes, but staff notes that customers seem to have accepted the operational changes during the initial three months. Staff continues to implement slight changes to assist customers such as providing assistance to citizens who have problems with placing materials over the walls. Since the start of operations at the CCC, approximately 150 customers use the site daily. Staff is pulling between 18 to 24 roll off containers equating to approximately 40 tons per day.

There will continue to be operational challenges that Marion County Solid Waste will face throughout the transition and during the permanent closure of Cell III at the Baseline Landfill Facility, but we strive to face the challenges in the same safe and efficient manner that has allowed us to protect our citizens and the environment for more than 30 years.

George W. White is Operations Manager, Solid Waste for the Marion County Board of County Commissioners. He can be reached at (352) 671-8465 or e-mail george.white@marioncountyfl.org.

SWANA FL Scholarship Program

Every year SWANA FL awards up to two scholarships, each valued at \$2,000 per student, per school year. The application is now open for 2020 scholarships, and deadline is May 1, 2020.

Information about the student scholarship and application guidelines can be found here:

www.swanafl.org/page-1134605

Three Additional Scholarships Are Available

In addition to the Florida SWANA student scholarships, three additional scholarships are available through [SWANA International](http://www.swanafl.org/page-1134605).



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Member News

Miami-Dade's "Nothing Goes to Waste" Campaign Joins the National Football League's "Zero Waste to Landfill" Super Bowl Effort for the Win

Michael Fernandez

"Nothing Goes to Waste" is the Miami-Dade County Department of Solid Waste Management's (DSWM) campaign to educate Miami-Dade residents about what happens to their waste once it's picked up from the curb. The slogan can be seen throughout Miami-Dade County, mainly on the DSWM's waste collection trucks.



A Miami-Dade waste collection truck wrapped with the "Nothing Goes to Waste" campaign graphic.



Aerial view of Miami-Dade County's Resources Recovery Facility. The facility makes enough energy from waste to power itself and provide electricity to an additional 40,000 homes.

While many Miami-Dade residents believe their waste goes to a landfill, chances are good it's not going there. Most of the waste in Miami-Dade County goes to the DSWM's Resources Recovery Facility (RRF), a waste-to-energy plant, where it is incinerated to reduce the volume of material that needs to be deposited in a landfill. The reduction of volume is significant—for every 10 truckloads of waste that enter the plant, one truckload of ash leaves.

A side benefit of this process is that the RRF produces enough electrical energy to power the facility itself plus an additional 40,000 homes in southern Miami-Dade County.

The "Nothing Goes to Waste" campaign dovetails nicely with the National Football League's (NFL) "Zero Waste to Landfill" efforts for its annual Super Bowl, which was played in Miami-Dade County this year in February.

Much of the post-recycling material or waste that could not be recycled from the big game and its related events was taken to the RRF where it was converted into electricity. This included the Super Bowl Live Fan Fest event at Bayfront Park in Downtown Miami, the NFL Experience hosted in the Miami Beach Convention Center, and, of course, Super Bowl LIV at Hard Rock Stadium.

Past estimates show approximately 40 tons of waste can be produced at a Super Bowl. At the DSWM Resources Recovery Facility, this could be converted into approximately 15 megawatts of electrical energy—enough to power about 11,000 homes!

With apologies to the fans of the Kansas City Chiefs and the San Francisco 49ers, the big winner this year was Miami-Dade County's environment!

For more information on the DSWM's waste-to-energy efforts visit miamidade.gov/energyfromwaste.

Michael Fernandez is Director of the Miami-Dade County Department of Solid Waste Management. He can be reached at (305) 514-6626 or e-mail mfern@miamidade.gov.

Expanding Food Waste Recycling Options for Residents

The City of Orlando currently hosts two public food waste collection locations at farmer's markets that allow residents to drop off their food waste. The food scraps collected are diverted to a nearby anaerobic digestion facility, operated by a third-party processor, where they are recycled into electricity and fertilizer, rather than heading to the landfill. Over the last year, this program has received a tremendous amount of attention from our residents. Among the main requests the City has received has been to expand availability and access. Almost half of the City of Orlando's residents live in multifamily housing and don't have the available space or conditions to accommodate participation in the City residential backyard composting program. The public food waste drop off program fills a critical gap in the area's overall waste stream while at the same time further supporting the City's ambitious goal of zero waste by 2040.

As a method for addressing the resident requests regarding the expansion of availability and access, the City is currently piloting an unmonitored drop-off location for residential food waste. The location was determined based on a few different factors, including co-location with public recycling containers and a centralization of location in the City. The pilot is being tested from the beginning of January 2020 through March 2020. City staff will be auditing the volume of contamination and amount of participation with the intent of assessing the viability of the unmonitored drop-off model of collection. If the pilot proves to be beneficial, this example could increase the opportunity for residents to recycle their food waste while at the same time substantially reducing the amount of resources required for the City to operate the program. The Solid Waste office is closely managing the growth of this pilot in order to help control the use of the space. Information about the pilot has mainly relied on word-of-mouth at the pre-existing market locations and the use of the City's food waste email list, compiled from e-mails gathered at the farmers market to advertise the program.



To date, the City has collected 2,700 lbs. of food waste at our farmers market locations. Since the beginning of the year, the City has collected 210 lbs. of food waste at our single unmonitored drop off location. Contrary to what was initially anticipated, there have not been many instances of contamination.

For more information, contact Brittany McPeak, Sustainability Project Coordinator, City of Orlando, Office of Sustainability & Resilience, SWANA Student Member. She can be reached at (407) 246-4138 or e-mail brittany.mcpeak@orlando.gov.

Industry News

New Florida Waste-to-Energy Resource

HDR is excited to announce a new Waste-to-Energy (WTE) resource in Florida—Josh Miller, PE. Josh has approximately 14 years of experience in a wide variety of WTE projects, facility design, power generation, district cooling systems and data center design. Josh is a registered Mechanical Engineer in the states of Nebraska and Florida. His experience includes design and construction of data centers, institutional retrofits/condition assessments, coal and gas-fired power plants, transfer station and WTE projects. His vast national WTE experience includes projects at the Lee County Resource Recovery Facility (FL), Hennepin Energy Recovery Center (MN), and Durham York Energy Centre (CAN). Josh even spent over a year on an assignment working on the City and County of Honolulu's H-Power's new mass burn WTE Facility. He recently relocated to Tampa in January 2020. Join us in welcoming Josh to Florida.



For more information, contact Keith Howard, HDR, Florida Solid Waste Section Manager, at (941) 321-8205 or e-mail Keith.Howard@hdrinc.com.

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Upcoming Events

2020 SWANA FL Chapter Road-E-O

April 17-18, 2020
Holiday Inn Fort Myers Airport
@ Town Center
Fort Myers, FL

2020 SWANA FL Summer Conference

August 2-4, 2020
Naples Grande Beach Resort
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