

Talking... **TRASH**

The Newsletter of the SWANA Florida Sunshine Chapter

Summer 2015



Photo - Solid Waste Authority of Palm Beach County



**Offering the best equipment
for a better environment.**

Landtec GEM5000 Complete Package

The GEM 5000 is designed specifically for use on landfills to monitor Landfill Gas (LFG) collection and control systems. The GEMTM 5000 samples and analyzes the methane, carbon dioxide and oxygen content of landfill gas with options for additional analysis.



Solar Spark Vent Flare

Solar Spark® Vent Flares are widely used for odor and emission control at passive outlets, such as cap vents, leachate stations, or from gas outbreaks at the surface of active or closed landfill cells.

These units are ruggedly constructed for long life and feature solar-powered continuous ignition with very low maintenance requirements. Mounting hardware can be provided to adapt to any situation.



ACCU-FLO Meter

With an innovative edge, the LANDTEC ACCU-FLO Meter highlights a distinctive feature: A Zero Calibration User Check. The User Check allows the operator to verify that their LANDTEC ACCU-FLO Meter has not shifted, drifted or deviated from its original NIST-traceable Factory Calibration value. This ability makes the ACCU-FLO Meter unique, extremely useful on Gas-to-Energy projects, environmental compliance and essential for the carbon credit market.

Accu-Flo Meter Standard configuration includes: a display integral with the meter head, diameter probe and isolation valve assembly with MNPT mounting connection.

ACCU-FLO Wellheads

Optimize LFG Control, Accuracy & Dependability with Accu-Flo Wellheads

ACCU-FLO Wellheads can help prevent LFG Migration, LFG Emissions and Subsurface Fires. Landfill owners and operators will appreciate the ACCU-FLO proven design that meets the special requirements of landfill gas (LFG) recovery for environmental compliance and energy production. *ACCU-FLO Wellhead Accessories & Spare Parts Available*



Infrared H2S Sensor

Model: OI-6000 & OI-6000K

I-6000-EC-H2S-X-X-0
(H2S sensor 0-25 PPM range, 4-20 & RS-485 output)

The OI-6000 Sensor Assembly is an innovative wired or wireless gas detection system designed to monitor gas in hostile environments without the use of wires or conduit from the controller to the sensor. The OI-6000 features 4-20mA (3-wire) or RS-485 Modbus output, and can be customized to offer relay and radio (900MHz or 2.4GHz) options.

OI-6000K-EC-H2S-AC-X-X (H2S sensor 0-25 PPM range, 4-20 & RS-485 output - requires AC power has 2 relays that activate Light & horn)

The Otis Instruments, Inc. Model OI-6000K Gen II ambient air gas sensor assembly is a 2-relay wired (Notis) sensor assembly that uses a Catalytic Bead, Electro-Chemical, PID, or Infrared sensor element to detect a variety of gases.



VP Pump



The VP range is a cost effective, ATEX certified, reliable, automatic and long lasting solution to leachate, condensate and contaminated water control problems.

VP pumps are fully automatic, self-regulating and require no external form of control. The VP range has a pump to suit most requirements: from the standard VP4 bottom entry to a top loading version, a narrow VP3, to the short pattern VP4 for those situations where you are trying to achieve as low a depth as possible.

321-223-7500 | www.DiamondSci.com | info@diamondsci.com

Letter from the President

August 2015

Thank you!

Although it seems like yesterday – it was four years ago I was honored to be elected as our Chapter President and reelected two years later. It has been a privilege to serve the Chapter and I am most thankful for member and boards support and confidence to lead our Chapter these past four years.

Being a results and measurement kind of guy – I reviewed the goals and commitments I made in my “Letters from the President” in August 2011 and 2013 and want to take this opportunity to update you all on where we stand.



Goals

Chapter Results

- | | |
|------------------------------------|--|
| Grow Membership | <ul style="list-style-type: none">• Membership has grown over 10%• Our Chapter is SWANA's largest• In 2015 we won the national award for largest membership increase |
| Energize & Attract Younger Members | <ul style="list-style-type: none">• Implemented student poster session at our annual conference• Provided complimentary conference registration for students• Increased scholarships amount to \$2,000 for two students• Tripled student membership |
| Wisely Invest Excess Funds | <ul style="list-style-type: none">• Lowered conference rates to increase members able to attend• Purchased and utilized 50 SWANA educational webinars• Recently purchased 200 additional educational webinars for member use |

And now for the shortfalls - even though I made some progress in investing excess Chapter funds, I failed to spend/invest enough and we currently have \$30,000 more than when I took office. As my last act, I will issue an executive order for incoming President to increase spending on all membership services in her first year.

It is a fantastic opportunity for the Sunshine Chapter to be hosting WASTECON this year in Orlando August 25-27. Tammy Hayes, the conference committee chair and our incoming President has done a remarkable job of leading a hard working committee which has demonstrated why we are the #1 Chapter. A big thank you to the committee and particularly to Tammy! Details about WASTECON can be found on page 24. Hope to see you all in Orlando.

A sincere thank you for giving me the opportunity and honor of serving as your President for two terms. Hopefully I am leaving the organization in just a little better shape than when my term began.

Mitch Kessler
President, SWANA FL

PS – a personal thank you to our Chapter Administrator Crystal Bruce for all she has done to support me and keep us going day in and day out.

North Port Using Latest Technology to Gather Garbage

Written by Michael Fear, City of North Port Public Works Department

The North Port Public Works Department, Solid Waste Division, recently launched a state of the art mobile work order system. Employees are now using mobile tablets designed to improve response time and increase efficiency.

As North Port grows, Solid Waste must innovate to continue providing quality service to residents. The tablets have replaced paper reports for the drivers who pick up hundreds of bulk items each week. Bulk items include household appliances, couches, furniture and other waste too large for the normal garbage tote.

Using only their tablet, bulk drivers can access a list of the day's work requests and find driving instructions to their next location. The mobile work order system also allows drivers to add new work requests into their existing route in an efficient manner, saving time, fuel and paper.

"Everything I need to pick up is right on the tablet," says Menelik Roberts, one of the City's Solid Waste Equipment Operators. "Before we had tablets, I had to call Customer Service every hour to find out if there were any new work requests."

The City plans to expand



the mobile work order system to drivers who collect from commercial establishments. The cost for each Samsung Galaxy Tab 4 tablet is approximately \$229. Lucity, the work order software Public Works uses, is approximately \$1000 for each device.

Solid Waste has also been incorporating Zonar's tablet version, a GPS software that allows Solid

Administrator for Public Works, says, "Mobile tablets are improving the way we work in Public Works by increasing productivity and collaboration between field staff, office staff, management and our customers."

To learn more, visit: <http://www.cityofnorthport.com/index.aspx?recordid=5369&page=28>



Waste supervisors to track the history and location of each truck. Daniel Waldron, the Operations Support

Assessment of Occupational and Environmental Health and Safety Risks in Solid Waste Systems

Written by Mehrad Bastani, and Nurcin Celik, Department of Industrial Engineering, University of Miami

Waste management is one of the most dangerous industries to work for where its workers are continuously exposed to various health and safety risks ranging from musculoskeletal to dermal, to psychological. While the occupational risks that the solid waste workers are exposed to goes unnoticed by the managers and decision makers within the industry as well as the public and governmental agencies, there is not much safety measures out in place due to the lack of recommendations based on scientific studies. The State of Florida is amongst the states that have the highest injury rates among solid waste workers. In this study, we propose to assess the occupational health and safety risks for the solid waste workers in Floridian counties and the whole state. The necessary data for the assessment including the worker's compensation, total population of workers, and injury rates were obtained as permit requests from several governmental sources along with their public websites.

In this project, we first identify the specific hazards that the Floridian

SW workers face, among which we further isolate the injury types with the highest incident rates. We then apply a predictive Bayesian analysis method for the statistical assessment of major hazards for SW workers by considering this latest collected data in the State of Florida. In order to investigate the major health hazards incidence rates in the desired

Investigation of injuries in Floridian counties has shown that musculoskeletal and dermal injuries are the major hazards for solid waste (SW) workers. Furthermore, the quantitative assessment highlights the need to conduct new occupational safety initiatives in Floridian Counties to reduce the preponderance of these types of injuries in those counties.

To this end, Floridian Counties are categorized in four categories based on the risk rates as shown in Figure 1. Counties with higher injury rates than 10 injuries per thousand workers are considered as red zones. Similarly, the remaining counties are grouped in orange, yellow, and green zone. After this categorization, recommendations are provided using these area zones as a base.

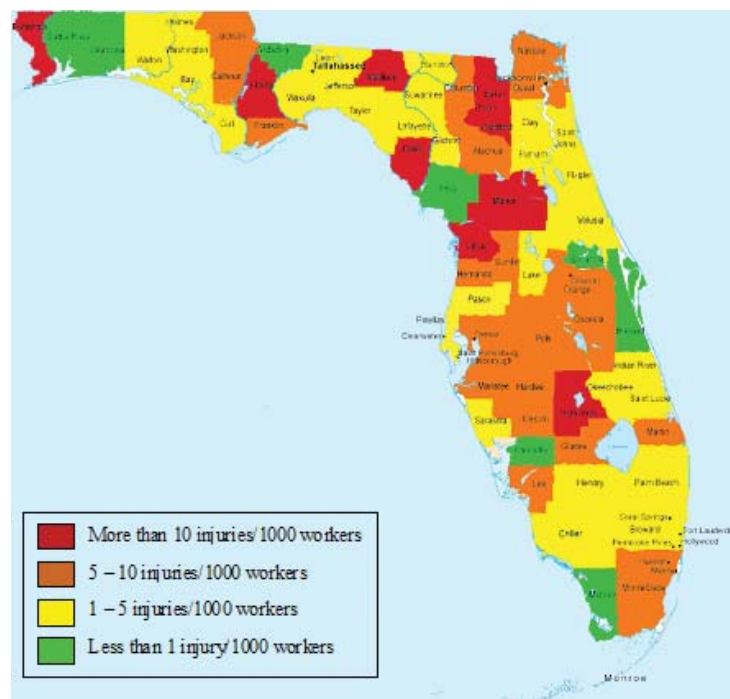


Figure 1: Risk Map of Floridian Counties

counties' SWM systems, this study develops a posterior distribution for injury distributions in each county, and provided recommendations for reducing injuries and deaths among solid waste workers for different counties.

Waste Collection Vehicle Routing

Written by Aristotelis E. Thanos,
Mehrad Bastani, and Nurcin Celik,
Department of Industrial Engineering,
University of Miami

Due to continuous growth of urbanization and industrialization, management of Municipal Solid Waste (MSW), including waste collection, sorting, treatment, and disposal, has become a demanding challenge. A key component of solid waste management is the collection of waste. As part of this work, we present a genetic optimization algorithm embedding a Voronoi diagram to address the vehicle routing problem (VRP) in waste collection. Our approach seeks to determine a set of delivery routes for the waste collection vehicles starting from the origin (the hauler's service center), leading to the generation nodes, picking up and transferring wastes to the treatment or disposal facilities, and finally, returning to the origin in a way which would minimize the total distance covered by the entire fleet. The VRP is an NP-hard problem in practice where near optimal solutions for large inputs can only be obtained by employing heuristic

algorithms.

In our approach, the generation units are clustered into groups, for an easier and more convenient routing design of collection vehicles. Once a collection vehicle crosses an intersection of roads, it is obliged to continue and collect from the generation units it encounters until the next intersection. This fact gives the opportunity for clustering all the generation units of the same street between two consecutive intersections. In order to assign all generation units to different clusters in the most efficient manner, a Voronoi diagram is utilized to divide the space into a number of regions. After the clustering has been performed, an efficient combination of variables is determined through an embedded genetic optimization mechanism which starts with the initial population of candidate solutions subject to the overall time, capacity, and operational constraints. GIS spatial and network analysis algorithms have been utilized to calculate travel distances and provide the geographically optimal routing for any given trip. These algorithms are interconnected with the optimization

mechanism, which alters linkages between generation clusters and haulers in order to achieve an optimum under the considered objective and considered constraints. Figure 1 exhibits a few feasible solutions for the extended VRP problem, in which, 0 denotes the hauler service area, 1-15 represent the customers (i.e. waste generation nodes), A, B are material recovery facilities, C is the waste to energy facility (WTE), and D and E are two landfills, respectively.

For verification purposes of the real-world implications of the designed algorithm, our optimization scheme is utilized in Alachua County, Florida to illustrate the proposed algorithm in adherence to a real environment. We found a near optimal solution of distance traveled in Alachua County, FL in just 10 seconds on a normal laboratory computer with 3.40GHz CPU and 8GB of RAM. This approach may be an initiative to better optimize waste collection truck routes throughout the country at an exceptionally low computational cost!

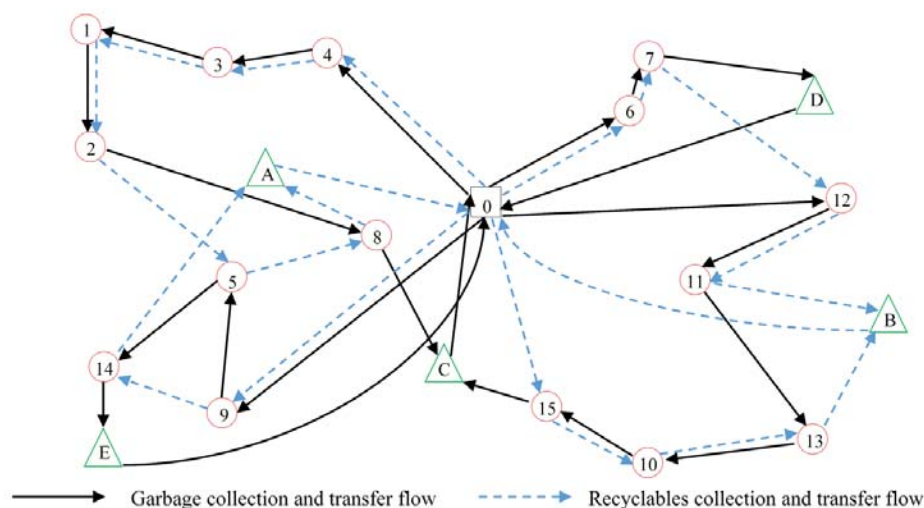


Figure 1: A feasible solution to an extended vehicle routing problem

Hillsborough County Celebrates the Expansion of the Northwest Transfer Station

*Written by Megan J. Miller, P.E.,
Operations Manager, Hillsborough
County Public Works Department,
Solid Waste Management Division*

On June 23, 2015, the Hillsborough County Public Works Department, Solid Waste Management Division celebrated the expansion of the Northwest Transfer Station, located in Tampa. The original transfer station opened in 1984 and had undergone minor expansions in the past. Based on the volume of waste generated by this densely-populated region of Hillsborough County, a more significant expansion was necessary. When the economic downturn meant that funding was not available to construct an entirely new building elsewhere on the property, the design team of King Engineering and CH2M Hill developed a design to construct a new pre-engineered metal building around the existing transfer station and then demolish the old building from the inside out, all while maintaining facility operations.

The design was developed along with a detailed construction sequence that simultaneously addressed construction, demolition, maintaining operations, and safety. Construction began in July 2013 with J. Kokolakis

Contracting as the prime firm. The new transfer station building was constructed structurally independent of the existing building so that its main structural features could be constructed without disturbing the existing building. Since the facility is on a closed landfill, this entailed driving over 135 concrete piles around the existing building and constructing the footings for the new building on those piles.

For safety reasons, all of the above was done while alternating the active side of the tipping floor from east to west, along with the corresponding switch in the tunnels below. Critical lifts of roof beams and roof sections were done during non-working hours to further safeguard operating staff and customers. The early construction of a new north access road allowed incoming garbage trucks to access the west side of

the tipping floor without crossing construction on the east side of the building, helping to facilitate the completion of the new building without interrupting operations.

The 600 ton per day transfer station has an expanded tipping floor that is capable of handling a larger volume of waste projected over the next twenty years. Important features



Aerial view of the expanded Northwest Transfer Station

of the new building include:

- New potable water booster pump and fire suppression system for customer and employee safety;
- 500 kw emergency generator with a 2,900 gallon diesel tank for continuity of operations during a power outage;
- Separate entrance and exit doors on the tipping floor for more efficient customer traffic flow;
- Increased number of eye wash stations and safety showers for employee and customer safety;
- New ventilation and lighting systems for enhanced working conditions;
- New knuckleboom cranes and a centrally-located crane operator booth with enhanced visibility for compacting waste in the transfer trailers; and
- Resurfaced tipping floor and loading tunnels to improve operating conditions in high-traffic areas.

Constant coordination and communication between the contractors and the operating staff helped to ensure a smooth completion to this project, which will serve the residents of Hillsborough County well for many years to come.



Chief Administrator Lucia Garsys, Department Director John Lyons, County Commissioner Sandra Murman, Division Director Kimberly Byer, Operations Manager Megan Miller, and Project Manager Michael Strully, June 23, 2015

Assessment of Advanced Thermal Solid Waste Management Technologies

Written by Duygu Yasar and Nurcin Celik, Department of Industrial Engineering, University of Miami

The State of Florida has established an ambitious 75% recycling goal to be achieved by 2020. Advanced thermal SWM technologies such as gasification, plasma arc gasification, and pyrolysis, present potential for achieving this goal while reducing the greenhouse gas emissions and increasing the diversion rate of waste which otherwise is discarded into landfills. In this work, we perform an assessment study to select the most suitable technology for different Floridian counties based on their preferences. Here, evaluation of gasification, plasma arc gasification, and pyrolysis are conducted using Analytical Hierarchy Process (AHP) which is a multi-criteria decision making tool. AHP model for a given problem consists of alternatives, a set

of criteria and a goal to be achieved (see Fig 1.).

To this end, three SWM technologies area evaluated based on 13 different criteria, namely, revenue, tipping fee, capital cost, operation cost, development period, flexibility of process, land requirement, net conversion efficiency, ease of permitting, marketability, environmental impact, public acceptability, and number of facilities in U.S. The set of criteria are chosen based on the potential beneficiaries of these technologies such as county solid waste managements, public, and environmental regulators. Subject matter experts from various Floridian counties are contacted to obtain their preferences on the defined set of criteria. Criteria weights are then calculated based on the aforementioned prioritization. This study is designed to evaluate the technologies for different county

categories, where the categorization is conducted based on the least recycled waste type and annual waste generation of each county. A total of eight groups were formed, and the necessary data is collected from related facilities in the U.S. and publicly available studies.

Overall, the results have shown than the gasification is the most suitable technology for all of the groups despite the differences in county group preferences on the set of criteria. Due to very high capital cost associated with the plasma arc gasification, the counties with limited investment budgets are not suggested to implement this technology. For the counties that place higher emphasis on a technology's applicability, gasification technology seems to be better choice. The evaluation framework established in this study can be used for other states using the provided procedure.

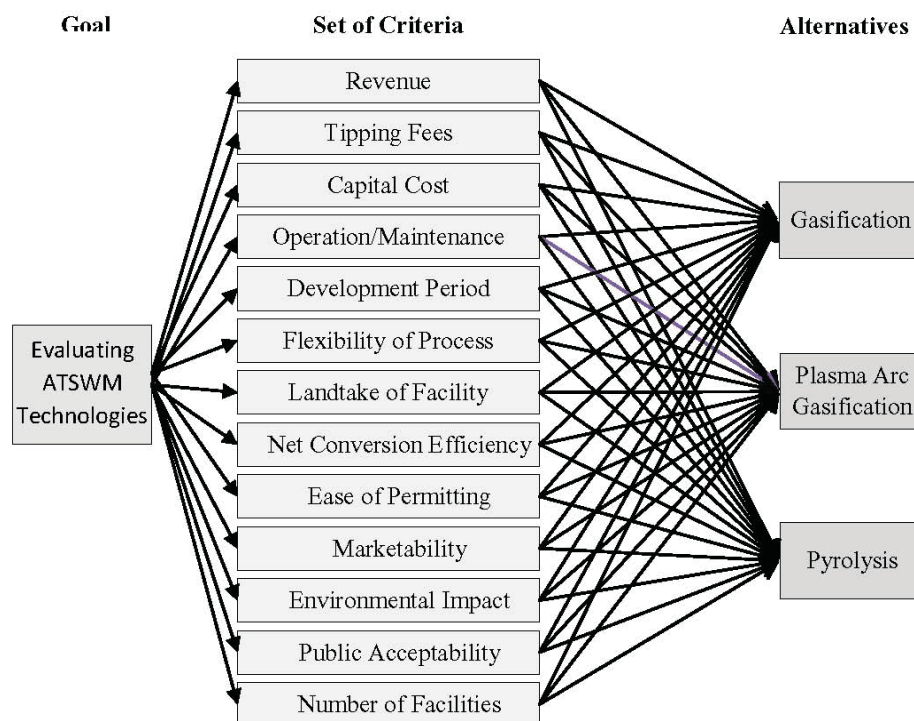


Figure 1: Hierarchical AHP Model for Evaluation of ATSWM Technologies

Largo Recycling Brings Home the Gold

Mixed Recycling Wins 2015 SWANA Gold Excellence Awareness Campaign Award

Written by Marissa Segundo, City of Largo

The City of Largo's Mixed Recycling Campaign earned the 2015 Solid Waste Association of North America (SWANA) Gold Excellence Award in the Awareness Campaign category. SWANA's Excellence Awards Program recognizes outstanding solid waste operational programs, diversion programs and outreach campaigns across North America.

"The success of the City of Largo's mixed recycling program can be attributed to effective operational planning and a strategic awareness campaign," said Marissa Segundo, Largo's Recycling Coordinator and SWANA member. "Residents responded positively to the program with 92% recycling participation in the first year," said Segundo. In the first year, the awareness campaign proved effective with the City of Largo recycling 6,800 tons, an increase of 60 percent over the previous year. Diverting this waste saved the City \$250,000 in disposal fees.

"A lot of work went into this campaign," commented one SWANA

judge. "The execution of incorporating the new tagline was done very well. It projects that something is new without reinventing an entire new brand."

The Excellence Award will be presented at SWANA's international conference on Tuesday, August 25, 2015 in Orlando, Florida. This marks the third award for Largo's Mixed Recycling program. In 2014, Largo was the recipient of a statewide Radiance Award in the category of Community Relations Programs from the Public Relations Society of America (PRSA) Sunshine District. The Radiance Awards recognize best practices in strategic public relations programs in both private and public sectors. Last year, *LarGoing Green: Largo Recycles More*, a paid publication produced in conjunction with the *Tampa Bay Times* Newspapers in Education Department, won a National City-County Communications and Marketing Association (3CMA) Silver Circle Award.

For more information on Largo's Mixed Recycling campaign log on to LargoRecyclesMORE.com or call (727)586-7424.

Advertising Opportunities Available

It's not too late too reserve a space in the Fall/Winter issue of Talking Trash.

Job Openings

Post an employment notice on the SWANA FL website for just \$100!

Email
info@swanafl.org
or visit
www.swanafl.org
for more
information.



kessler consulting inc.
innovative waste solutions

Recycling, Composting & Solid Waste Planning

- Program Planning, Design & Implementation
- RFP Preparation and Evaluation
- Greening & Sustainability Design
- Optimization Studies • Privatization Analyses
- Waste Composition Studies • Facility Audits
- Technology Evaluations • Feasibility Studies

Tel: 813-971-8333

www.kesconsult.com

Cleaning Leachate Collection Pipes Using High Pressure Jets

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

Chapter 62-701 of the Florida Administrative Code requires leachate collection pipes to be either cleaned using a high pressure jetting system or video-taped to demonstrate that the pipes are clear and flow of leachate takes place inside the pipes with no obstructions. Rule 62-701.500(8)(h) of the Florida Administrative Code sets the minimum frequency of the above activity every five years, but the rule does not clarify or require any specific conditions during which the jetting of the pipe should be carried out. It has been observed that some landfill operators perform jetting of the pipes while the pipe may be partially or fully submerged in leachate above the liner. Jetting under water may drastically reduce effectiveness of the pressurized jet, and the cleaning that is intended by the rule may not occur. This becomes even more important when the jetting is anticipated to remove some, if not entirely all, of the biological growth taking place on the pipe walls and in the perforation openings. Since video-taping after jetting the pipe is not required, the landfill operator would not know whether the jetting was fully effective to clean the pipe. In the case of repeating this process several times over a period of 20 years or so, the leachate collection pipe could potentially be adversely impacted by severe biological growth and buildup of gunk in the pipe perforation openings to a point that liquid can no longer enter the pipe.

Another shortcoming of the above rule is that the rule does not specifically require the riser pipes

within which submersible pumps are located to be cleaned using pressurized jet systems or be video-taped. Therefore, due to the cost of cleaning, some landfill operators may not clean the riser pipes as part of the five-year cleaning activity or delay such cleanings for an extended period of time. The delay or lack of cleaning can have serious implications for flow of leachate into the riser with the direct consequence of not being able to remove leachate from the sump.

Aside from the requirement of the above rule, pressurized jet cleaning procedures do not necessarily push solids separated from the pipe wall out of the pipe inlet opening through which the cleaning nozzle entered the pipe. As a result, the solids end up flowing out of the pipe and into the gravel bedding on the outside of the pipe. This can potentially clog the void within the gravel pack around the pipe or in the sump. Clogging the sump gravel can mean reduced flow capacity from the leachate collection pipe to the riser pipe and the submersible pumps.

In light of the above issues, the following suggestions are provided for consideration by landfill operators to ensure that the life of the leachate collection pipes are extended as much as possible and the riser pipes are maintained in operating conditions:

- Prior to inserting the pressured jet cleaning nozzle inside the pipe, remove leachate from the leachate collection pipe and the sump as much as possible.
- Clean the leachate collection pipes and riser pipes during the same event.
- Have a vacuum truck available to

remove liquids that reach the lowest point of the leachate collection pipe or riser pipes during jetting.

- Perform video-taping after jetting every 10 years at the minimum (or shorter time intervals) to ensure that perforations in the leachate collection pipe and riser pipes are cleaned properly.
- Repeat jetting if there are indications that additional cleaning is needed, because leaving the pipe uncleaned will create an even more severe condition inside the pipe five years later.

Implementation of these recommendations clearly has additional cost implications, but the benefits of following these recommendations definitely overrides the complications that the landfill operator may have to address some number of years down the road.

Sustainability is More Than a Slogan

- Sustainable materials management
- Biogas to energy
- Comprehensive landfill and landfill gas services
- Waste management system evaluation and financial services
- Landfill/contaminated site redevelopment

Environmental Consultants and Contractors

Southeast Region Offices in Florida and Georgia

800.569.9702

45 YEARS
1970-2015

offices nationwide

www.scsengineers.com

Member News

Travis Barnes joins Hillsborough County Florida as Recycling Coordinator

The Hillsborough County Solid Waste Management Division (SWMD) is pleased to announce that Travis Barnes, MPA LEED AP, has joined our team as the County's Recycling Coordinator. Mr. Barnes comes to the County from the City of Tampa, Florida, Department of Solid Waste and Environmental Program Management where he worked as a Recycling Specialist for three years. While at the City of Tampa, he conducted research and implemented best practices for managing municipal solid waste, improved inefficiencies, and developed and executed public education/outreach campaigns about waste reduction that resulted in increased recycling participation by commercial and residential customers. He was part of the team that drafted the City of Tampa's new solid waste

contract. Mr. Barnes also helped develop the implementation plan for the City of Tampa's transition from manual to automated curbside residential recycling. This transition increased household recycling participation by over 127%, while also increasing the tonnage of recovered materials over 65%. It reduced collection costs, improved customer convenience, and increased driver safety. The implementation plan for this program was awarded the Bronze award under the public communications category by the Solid Waste Association of North America in 2014. Mr. Barnes duties with Hillsborough County will be to develop policies and procedures for recycling operations, promoting waste reduction and recycling programs,

managing the recycling materials and scrap metals contracts, making public presentations, reviewing

and monitoring state and federal grant programs and the general oversight of the County's commercial and residential recycling program.

"Travis brings a wealth of recycling knowledge and enthusiasm to the County. He is passionate about

the environment and eager to lead Hillsborough County's residential and commercial recycling programs to the next level. We believe he will make an immediate impact to the Solid Waste team", said Kimberly Byer, Director of the County's Solid Waste Management Division.



Compatibility of Recycling Goals and the Continued Development and Operation of Integrated Waste Management Facilities, Including Landfills

By Marc J. Rogoff, Ph.D., with contributions from SCS' Solid Waste Consultants

In view of recent media coverage about the costs of recycling, perhaps it is time to take a “fresh look” at the compatibility of waste diversion and ultimate waste management, i.e., landfilling. Whereas some suggest that Zero Waste enthusiasts and Landfill Management professionals have counterproductive goals, through our recent experience with integrated waste management systems we have a newfound appreciation of the common ground of the two groups.

Zero Waste proponents espouse many important goals such as behavioral changes in consumers (e.g., reducing the generation of waste, minimizing the use of products that contain toxins, reducing energy consumption, etc.). Others, in the “No Burn/No Bury” ZW camp, suggest setting a goal at zero waste of resources achieved through measures such as: bans on disposal of materials that can be beneficially used, mandatory recycling programs to address hard-to-reach constituents, separate collection of food scraps, extended producer responsibility of hard-to-handle materials, etc. Some ZW enthusiasts have stated, “We put a man on the moon, so surely we can achieve ZW”.

On the other hand, many solid waste management professionals realize that landfills represent an important component of integrated solid waste systems and that other waste management options that are sometimes viewed as alternatives to landfills (e.g., material recovery facilities, composting operations, household hazardous waste collection

programs, waste conversion and waste-to-energy plants, etc.) are more properly considered as complementary waste management tools. Further, most solid waste managers understand that landfills will continue to be required for residuals from other components of integrated waste management systems for decades to come.



While recognizing that recycling is presently common and an important component of modern waste management systems, particularly in large metropolitan areas, two questions remain:

- To what extent should our society make an investment in recycling in this era of overstretched public-sector budgets?
- Who pays for recycling?

Whereas in some areas, recycling can be a break-even proposition, in most areas, implementing recycling can cost from \$0.50 to \$3 per household, per month. One might ask with public school budgets being reduced, the nation's infrastructure needing extensive improvements, and forecasted water shortages warranting major water resource projects, what is the most appropriate method for determining how the costs of recycling should be born?

Perhaps the answers lie in addressing recycling goals in a manner that makes economic sense depending

on the conditions of each community or, more appropriately, each waste-shed. When viewing the magnitude of the investment in a modern-day municipal solid waste landfill, one can gain a greater appreciation for the need for properly managing and amortizing such investments. Like any investment in infrastructure, the public's investment in disposal capacity should be valued and optimized in the interest of taxpayers. For instance, in areas with limited remaining disposal capacity and limitations for developing additional disposal capacity, investing in a more aggressive recycling program may be much more desirable and cost-effective than for areas with over 20 years of disposal capacity.

As prudent taxpayers, we need to work together to assure that the assets of waste management systems are optimized in a manner that protects the environment. This, of course, includes thoughtful consideration of recycling goals, which can contribute to a more cost-effective utilization of the available landfill capacity. As recycling enthusiasts provide an ongoing impetus for further waste reduction and enhanced recycling, optimization of waste diversion will continue to evolve. This evolution will be site-specific consistent with the variable impact of evolving waste management technologies and changes in the markets for recovered products. Given that the dynamics of each waste-shed can vary dramatically, many cities will benefit from a review of waste management alternatives. Based on my experience, it has been shown that such a review can not only result in an optimization of current assets, but also a plan for continued cost-effective solid waste service for many years in the future.

The Hinkley Center for Solid and Hazardous Waste Management announces 2015-16 Research Projects

Written by Sijun Li, The Hinkley Center for Solid Waste & Hazardous Waste Management

The Hinkley Center for Solid and Hazardous Waste Management was created by the Florida Legislature in 1988; since then, the Center has sponsored annual in-depth research projects conducted by faculty members at Florida's accredited universities.

The Hinkley Center's sponsored projects are conducted by a number of talented and knowledgeable professors who educate and provide hands-on experience to undergraduate and graduate researchers. A few notable accomplishments from Hinkley Center-sponsored faculty and students include:

- **Dr. Tim Townsend at the University of Florida** was inducted recently inducted into the Construction & Demolition Recycling Association

(CDRA)'s 2015 C&D Recycling Hall of Fame for his long-term research on the C&D and the waste industries.

- **Dr. Daniel Meeroff at Florida Atlantic University** was named 2014 Distinguished Teacher of the Year, the highest recognition of teaching at the university. Dr. Meeroff was nominated and selected by student on the basis of scholarship, research and publications, classroom teaching and involvement with students.

- **Dr. Nurcin Celik at the University of Miami** received the UM Faculty Mentor of the Year Award in April 2015 and the Eliahu I. Jury Early Career Research Award in December 2014. In addition, two of Dr. Celik's Ph.D. students, Mehrad Bastani and Aristotelis Thanos, and undergraduate student Gregory Collins, received the Best Paper Award at the Institute of Industrial Engineers (IIE)'s 2015 Industrial and Systems Engineering Research Conference (ISERC).

- **Dr. Tarek Abichou at Florida**

State University was promoted to a Full Professor position at FSU in February 2014. He was selected because of his commitment to excellence in teaching, as well as his notable ability and achievements in various research projects.

- **Dr. Sarina Ergas at the University of South Florida's** two students were recognized respectively for their research efforts: Ariane Rosario received first prize in the USF Undergraduate Research and Arts Colloquium at USF, for her poster entitled *Enhanced Methane Production from Lignocellulosic Waste in Solid-State Anaerobic Digestion through Bioaugmentation*. Greg Hinds was awarded the Richard Ian Stessel Memorial Fellowship. The fellowship provides support to outstanding USF graduate students, with special consideration to students working on a solid waste project.

This year, the Hinkley Center received 27 project proposals for funding consideration. The Center's Research Selection Committee (comprising of FDEP representatives, county solid waste managers and private consultants) analyzed each project for its relevance and potential for improving current solid waste management issues. After a 6-month selection process, the Hinkley Center is proud to sponsor the following projects for the 2015-16:

Industry professionals are encouraged to participate in Technical Awareness Group (TAG) meetings for each respective project to provide insight and guidance during the research project. Please contact center@hinkleycenter.org to get involved.

PI Last Name	Univ,	Title
Dr. Debra Reinhart	UCF	Fate Leachate Organic Matter Discharged to Wastewater Treatment Plants (Year 2)
Dr. Timothy Townsend	UF	Use of Solid Wastes in Asphalt and Concrete in Florida
Dr. Tarek Abichou	FAMU-FSU	Long Term Properties of Geosynthetics, Clayey Soils, and Gravel from 10-Years-Old Landfill Covers
Dr. Gang Chen	FAMU-FSU	Suspended Fiber Biofiltration for the Treatment of Landfill Leachate - Incorporation of Advanced Oxidation and Phosphorous Removal in a Single Unit - (Year 2)
Dr. Daniel Meeroff	FAU	Investigation of Effective Odor Control Strategies
Dr. Nurcin Celik	UM	Assessment of the Impact of Single Stream Recycling on Paper Contamination in Recovery Facilities and Paper Mills in Florida
Dr. Helena Solo-Gabriele	UM	Impacts of CCA-Treated Wood in Florida Disposal Sector
Dr. Lena Ma	UF	Background Concentrations of Polycyclic Aromatic Hydrocarbons in Florida Urban Soils
Dr. Gang Chen	FAMU-FSU	Multifunctional Energy and Space-Saving Reactor for the Treatment of Landfill Leachate - Incorporation of Electrocoagulation - (Year 2)
Dr. John Kuhn	USF	Development and Evaluation of Contaminant Removal Technologies for Landfill Gas Processing

The Future of Landfill Closures: Exposed Geomembrane Covers

Written by Mark Hadlock, PE, Joel Woolsey, Steve Laux, PE, and Dennis Davis, PE, Jones Edmunds & Associates, Inc.

For nearly 20 years exposed geomembrane has been used in a variety of solid waste applications ranging from rain tarps, alternate daily cover, and interim closures to name a few. However, these have all been classified as “temporary” installations in that they do not meet the requirements for Final Closure. After extensive development, advances by resin manufacturers, testing by researchers, refining of design details by engineers and use of test site applications, the use of an Exposed Geomembrane Cover (EGC) for Final Closure has been approved in Florida, with some important stipulations.

Numerous locations in Florida and around the Country have been experimenting with Exposed Geomembranes to various extents and uses. A common goal for many of these trials was to develop sufficient data to support regulatory approval for use as a Final Cover. Regulators have been supportive of the concept but correctly hesitant to make the leap to approve an EGC for Final Cover. Through a combined industry effort, supported by advances in geomembrane UV stability, testing, and analysis, sufficient data has been accumulated to tip the regulatory scales in favor of

approving an EGC for Final Cover.

Use of an EGC provides numerous technical, construction, and economic advantages over traditional Final Cover systems. A major benefit is the initial capital construction cost savings of an EGC which could be as much as 50% less than a traditional Final Cover system. For a typical 100 acre closure this could amount to \$7 million in initial construction savings. In addition the Long term Care (LTC) costs can be dramatically reduced which could amount to \$100,000 per year or \$3 million over the 30 LTC

of landfill closures. Use of an EGC will require refining design criteria standards, long-term care standards, changes to FACE requirements and regulatory post-closure expectations.

This approval is on a site specific basis and includes design and permitting considerations that may not be directly applicable to other sites. Future use of an EGC closure will require site specific evaluation on a case by case basis to determine if it is the best closure solution for that site. A major stipulation for approval was the developing of new long term

financial assurance requirements for maintaining a compliant closure system beyond the typical 30 year period. Currently landfills require 30 years of post-closure care before they can be considered for non-regulated status. There are provisions in the regulations that can extend this time if the site is not fully stabilized at the end of the LTC period. For the first time DEP has vocalized how the 30



Mark Hadlock, PE, Jones Edmunds Solid Waste Department Manager, onsite at the New River Solid Waste Association Landfill standing in front of the Exposed Geomembrane Cover Liner

period.

Through the Alternate Procedures process the use of an EGC has been approved by FDEP as Final Cover at the New River Regional Landfill, located in Raiford Florida. This approval was based on the cumulative efforts of many people and organizations in the solid waste field, including the FDEP as a critical partner in the evaluation and approval process. This approval marks a significant milestone in the design

year LTC relates to an EGC.

When the 30 year LTC is complete for a traditional cover, it is reasonable to expect that routine maintenance (mowing and erosion repair) will be sufficient to keep the cover system stable and the geomembrane protected. However this is not currently an official regulatory requirement. In the case of an EGC at the end of 30 years it is reasonable to expect that some portion of the EGC will require replacement in the

future creating an arguably unstable condition. The anticipated useful life of the geomembrane material has been well researched and has been predicted to range from 80 to 100 years in Florida.

In the case of the first approval for an EGC for Final Cover an agreement with Florida DEP was reached where funding for a soil cover will be available before the end of the 30-year LTC. This way the owner has funding should the EGC fail or if the owner decides to place the soil cover over the EGC and walk away. The soil cover account funding would start at the time of permitting and would be funded annually to reach the 30-year funding period.

Using EGCs as Final Cover is a major innovation in how landfills are closed. However it comes with constraints that may outweigh the advantages and may not prove to be the best closure option at some sites. This first approved use is not universal to all sites and many details remain to be resolved before construction at New River proceeds. This approval presents New River both the opportunity and challenge to complete this innovative project to an exemplary level that can serve as the full scale measure for future egc closures.



View of Stormwater Pond with EGC in the Foreground, New River Landfill, Raiford, Florida



New River Landfill, Raiford, Florida

New GREEN Leachate Disposal Technology Making Headway in Florida Phyto-Utilization Systems

Written by Brad Granley, P.E.,
Leachate Management Specialists

The challenges associated with leachate disposal continue to grow on multiple fronts for landfill owners. The industry is experiencing tighter discharge limits from POTWs, costs and liability continue to rise, and the increased use of UV disinfection at WWTPs is causing some leachate streams to be cut off all together.

In response to these and other challenges, environmental professionals have developed a newer, specialized technology called 'Phyto-Utilization.' The approach has already taken root across other parts of the country and is now being considered by multiple landfills in Florida as an alternate option to dispose leachate on site in lieu of other traditional methods. A technical meeting with FDEP in Tallahassee in 2014 and the subsequent permitting activities for a Central Florida landfill have opened the door to the specialized approach in the Sunshine State, where the climate could not be any better.

The key distinguishing feature of the GREEN approach is that the plant-based system leverages the natural ability of specially-selected plants to consume leachate through the evaporative process, thereby eliminating the need to haul (or otherwise dispose) leachate. The approach has resulted in a zero-discharge scenario at multiple

sites across the country. It is not a 'flow-through' wetland or treat-and-discharge system; there are no membranes, concentrates or by-products to handle; and there is no

in leachate act as micro and macro nutrients which in turn fuel fast plant growth. The technology is not a fit for every site, but where found to be a match can be applied on both open and closed landfills, and either on or off of the landfill footprint using patent-protected technology that is protective of groundwater and the environment.

Additional landfills in Florida are also currently considering the technology due to the multiple benefits that result including, but not limited to: cost reduction by 25-50%, reduced carbon footprint due both to significant carbon sequestration by the plants and taking diesel-burning tanker trucks off the road, reduced liability, and reduced truck traffic through communities. Additional uses of the specialized plant include leachate seep mitigation, robust vegetative cover where other plants will not grow, slope stabilization, and erosion control. The approach, which has won multiple national engineering-excellence awards and saved millions of dollars to date, allows landfill owners to extricate themselves from control by POTWs which can change limits, costs, or cut landfills off completely at their sole discretion.

As solid waste professionals continue to seek new ways to be more protective of the environment and to reduce leachate management costs, proven phyto-utilization systems are now available as an alternate approach that is a win for landfill owners, a win for the community, and a win for the environment.



*Full-Scale Phyto-Utilization Leachate Consumption System
in Gulf Coast Region*

microbial population to maintain to degrade nutrients. Rather, specially-selected, highly-tolerant plants with a high water and nutrient demand are installed at a landfill and actually utilize the leachate as a resource. Leachate provides moisture to satisfy the high water demand of the plants, and contaminants typically found

Money 4 Mercury Program

*Written by Andrea Stermer,
Hillsborough County Solid Waste
Management Division*

The Hillsborough County Solid Waste Management Division (SWMD) was provided a \$5,000 grant through the Environmental Protection Commission of Hillsborough County Pollution Recovery Fund in partnership with Covanta Hillsborough, Inc. to educate and safely manage mercury containing items. The goal of this project was to reduce mercury from entering the solid waste stream. When a device is broken and is disposed of in a solid waste landfill or incinerators, the mercury can contaminate the air, surface water and ground water. The amount of mercury in these devices

is relatively large, so residents were encouraged to properly recycle these devices.

To accomplish this “Money 4 Mercury” events were scheduled that coincided with the SWMD Household Hazardous Waste (HHW) collection events and educational materials were developed to include flyers, website information and a video to educate residents and provide information on safe disposal on mercury-containing devices.

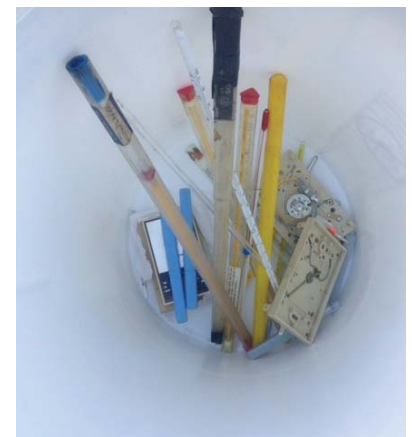
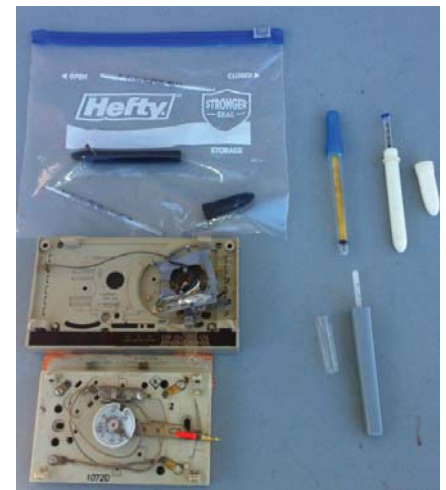
Residents received a \$5 grocery gift card that brought an eligible mercury-containing device. Examples of devices that were eligible for the gift card included mercury thermometers, thermostats and switches. Residents could also bring other mercury-containing items such

as fluorescent lamps, but they were not eligible for a gift card.

From April 2014 to June 2015, the SWMD had twenty-four Money 4 Mercury Events in which eighty-three customers brought in mercury-containing devices that received a grocery gift card.

This program was a great success in encouraging residents to remove potentially harmful mercury-containing items from the home that could impact their home, the environment or the solid waste system. The program also demonstrated a more cost effective approach to remove this material from the waste stream rather than chemical treatments that would be used to treat mercury in the SWMD waste-to-energy plant.

Type of Mercury-Containing Item	Total # Collected
Thermometers	96
Thermostats	47
Sphygmomanometers (Blood Pressure Cuffs)	5
Jars of Free Mercury	3
Floats	57
Vials	26
Switches	7
Total Number of Items Collected	241



Solid-State Anaerobic Digestion: An environmentally *and* economically favorable approach to OFMSW management?

Written by Gregory R. Hinds, EI,
Lensey Casimir, Matthew Dawley,
Daniel Yeh, P.E., PhD., Sarina J.
Ergas, P.E., PhD., Department of
Civil & Environmental Engineering,
University of South Florida

This article reports on novel research being carried out at the University of South Florida to increase the biogas production rate of lignocellulosic materials during solid-state anaerobic digestion (SS-AD). Anaerobic digestion for production of electricity, heat, and compressed natural gas and recovery of nutrients is considered the most environmentally friendly strategy for processing the organic fraction of municipal solid waste (OFMSW), such as yard waste and food waste. SS-AD has been shown to yield additional environmental and economic benefits when compared with wet AD (e.g. reduced water use and parasitic energy losses). These findings have

resulted in the rapid advancement of SS-AD technologies in Europe, and more recently in the US. States like California have followed in the path of the EU by banning landfilling of OFMSW and as a result, over a dozen SS-AD projects are underway in the US.

In addition to legislative efforts, researchers are actively exploring strategies for improving the economics of SS-AD. A particularly active area of research is enhancement of biogas yield from yard wastes and other lignocellulosic wastes. These wastes are abundant in many locations, source separated, aid in balancing carbon-to-nitrogen ratio, and improve the porosity of the waste mixture, making them valuable to the SS-AD process. However, they have low biodegradability and therefore, contribute little to biogas generation. Improving the biodegradability of these feedstocks has potential to significantly enhance

net energy recovery in SS-AD of OFMSW, thereby boosting revenue and improving the economic competitiveness of the technology.

Various studies have demonstrated the effectiveness of physical, chemical, and biological pre-treatment of the lignocellulosic wastes. However, each process incurs additional environmental and economic costs. A novel alternative to enhancing biodegradation of lignocellulosic wastes, which could eliminate the need for pretreatment, is bioaugmentation with pulp and paper mill anaerobic sludge. Sludge generated in the pulp and paper mill industry contains microbial populations that are acclimated to lignin-containing waste material. *Clostridium cellulovorans*, for example, originate in wood chips and produce enzymes which aid in delignification. At the University of South Florida, research aiming to test the effectiveness of this strategy is

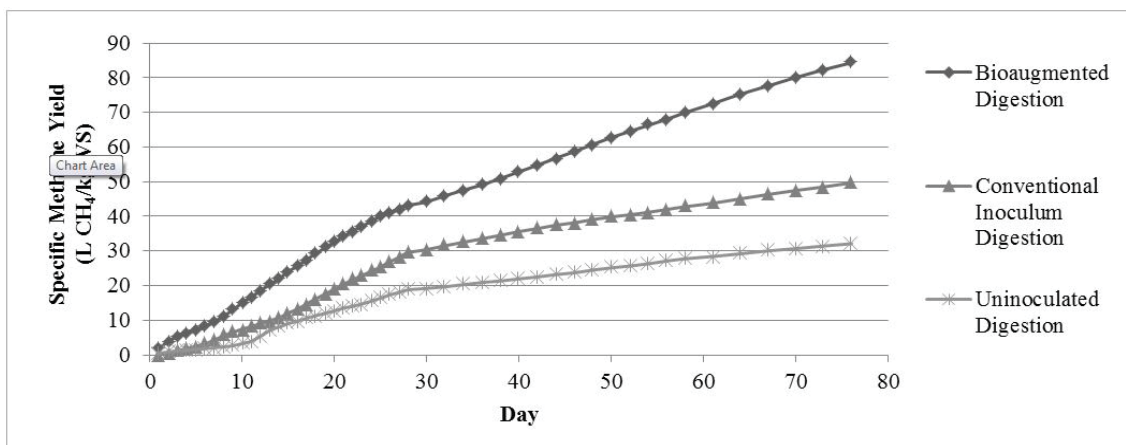


Figure 2: Specific methane yields achieved in bench-scale experimental digesters through 76 days of digestion in bench-scale experiments.

well underway.

Experimental digesters (250 mL) containing yard waste inoculated with pulp and paper mill anaerobic sludge were set up and monitored daily alongside control digesters containing yard waste inoculated with wastewater anaerobic sludge (conventional inoculum), digesters containing uninoculated yard waste, and 'blanks' containing only inoculum (Figure 1).

Cumulative specific methane yields for the three digestion configurations over the course of 76 days are shown in Figure 2. An enhancement of total methane generation of 70% has been achieved thus far and values are comparable to those reported in studies of SS-AD of yard waste after various pretreatments. A second experiment, which utilized digestate from this experiment as the source of

inoculum for yard waste digestion, suggests that the enhancement can be sustained through digestate or leachate recirculation in subsequent digesters. Larger pilot-scale experiments are underway, which will aid in determining scaling factors and assessing the feasibility of this strategy in full-scale applications (Figure 3).

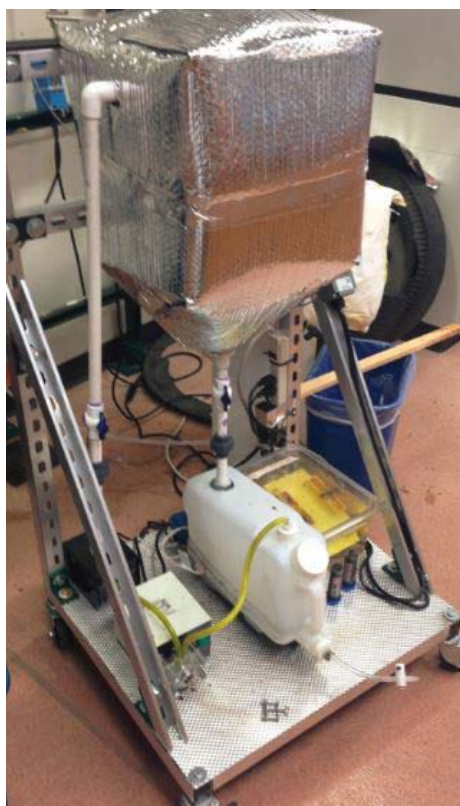


Figure 3: Pilot-scale solid-state anaerobic digester with leachate recirculation.



Figure 1: Bench-scale experimental digesters assembled to quantify the effectiveness of bioaugmentation using pulp and paper mill anaerobic sludge on enhancing methane yields from yard waste.

Trash to Ash

*Written by Becky Haltermon,
Education Specialist, The Solid Waste
Authority of Palm Beach County*

The Solid Waste Authority of Palm Beach County (SWA) is celebrating 40 years of service this year by unveiling Renewable Energy Facility 2 (REF 2), the cleanest and greenest waste-to-energy power plant in North America.

The \$670 million mass burn facility is a sister operation to Renewable Energy Facility 1, SWA's flagship waste-to-energy facility that began operation in 1989. However, REF 2 incorporates cutting-edge technology that could not be imagined when the initial plant was constructed.

Advances in the industry have made REF 2 so groundbreaking that, "A NASA engineer could tour this facility and be impressed," said one SWA engineer.

Even so, the basic premise behind REF 2 is simple: Post-recycled municipal solid waste (MSW) is unloaded into "the Pit," a 50-foot-deep area constructed to hold 15,000 tons of MSW, or about a week's worth of Palm Beach County's waste. From there, three 9-ton grapples hoist the MSW into one of three hoppers, each of which feeds a furnace that

incinerates about 1,000 tons of MSW a day. The furnaces create steam that drives a turbine generator, producing 95 megawatts of electricity, or enough to provide power for an estimated 44,000 homes and businesses.

Despite the simple concept, every facet of REF 2 utilizes state-of-the-art technology. Babcock & Wilcox Vølund DynaGrate™ technology

- Carbon powder that removes mercury and volatile organic compounds
- Lime slurry that controls acid gases in Spray Dryer Absorbers
- Baghouses that filter fly ash, lime and carbon powder

REF 2 meets emission permit limits that are the lowest of any renewable energy facility currently combusting MSW in the United States.

In addition, aspects of REF 2's design affirm the SWA's commitment to recycling. The facility will recover 90 percent of ferrous metals and 85 percent of nonferrous metals from the ash after the incineration process. It is expected to recover more an estimated

27,000 tons of steel, aluminum, copper and other metals annually.

Not only that, but REF 2 features a unique rooftop rainwater collection system that spans 14 acres of buildings and includes a 2 million gallon cistern. This system will provide a portion of the process water necessary to operate the facility, conserving resources and saving taxpayer money.

Throughout REF 2, museum-style interpretative exhibits explain the technologies and features of the facility to those who tour it, as



REF 2 as seen at sunset

allows for more complete combustion and greater volume reduction of the MSW. Because of this, it is estimated that REF 2 will reduce the amount of waste going to the landfill by up to 90 percent, significantly extending landfill life.

Its advanced air pollution controls make REF 2 the cleanest waste-to-energy power plant in the country, and the first to reduce nitrogen oxide (NOx) emissions using Selective Catalytic Reduction. Other pollution control measures at REF2 include:

a 500-foot skybridge connects the main operations plant to a LEED® Platinum-designed Education Center. Open to the public for tours year-round, the Education Center will be the centerpiece of the SWA's public outreach activities. It features an interactive touch table upon which visitors may play specially-developed instructional games.

Over the course of its first year, REF 2 is projected to process more than 1 million tons of MSW, a feat made possible by the SWA's consulting engineer partner ARCADIS, along with construction partners KBR, Babcock & Wilcox Power Generation Group, Inc. and CDM Smith.



At the grand opening ribbon-cutting ceremony in June 2015

Supersized Recycling

*Written by Becky Haltermon,
Education Specialist, The Solid Waste
Authority of Palm Beach County*

The Solid Waste Authority of Palm Beach County (SWA) is a government agency that serves 1.4 million residents in its namesake county. The SWA is responsible for disposal of waste and recyclables from throughout the county, processing around 100,000 tons of recyclables each year.

The SWA began its recycling program in the late 1980s and is constantly looking for avenues to improve the program. With the industry trend is toward single stream recycling using larger collection carts, which has proven to collect more material including more contamination, the SWA wanted to test a theory with its dual 18-gallon bin system. Would a larger 25-gallon bin cause residents to recycle more plastics, metals and glass while maintaining a cleaner product. To recycling specialists at the SWA, it seemed clear that residents would

recycle more material if they had access to a larger bin, while maintaining a cleaner product. In addition, the larger recycling bin was taller and cylindrical, making it easier to handle for both the customer and hauler.

“When I first saw the 25 gallon upright container, the light bulb went off,” said Gary King, Recycling Specialist. “The canister bin is so much more ergonomic and would be easier to use for both the homeowner and hauler.”

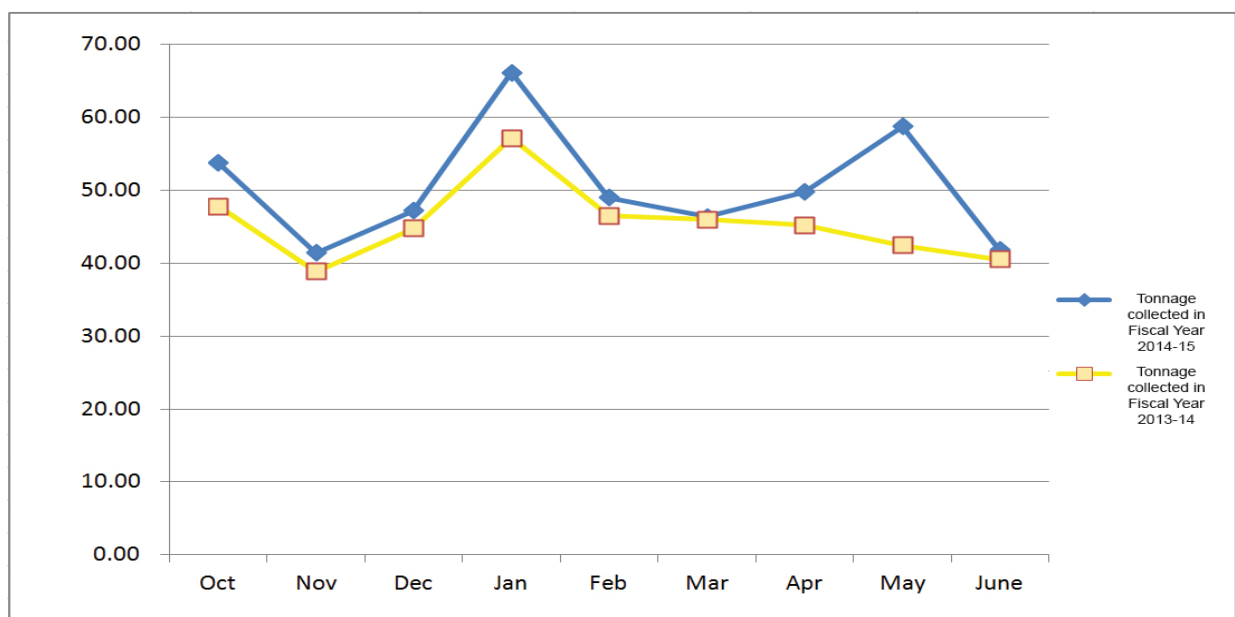
The SWA decided to test the theory that offering residents the larger canister recycling bins would increase the amount of recyclables recovered. The proving ground for this theory would be the Village of North Palm Beach. Located nine miles north of West Palm Beach, this residential community has a population of 12,582. The city self-hauls curbside recycling and was a great partner in the pilot project.

North Palm Beach residents would have their traditional rectangular 18 gallon bins replaced

with 25 gallon canister bins. The SWA purchased 3,600 of the new bins at \$11.94 each. Constructed from HDPE resin with UV stabilizers, these nestable bins have a 5-year warranty. Each bin is imprinted on two sides with a hot stamp that includes the SWA logo, contact information and correct items to place in the bin.

To kick off the pilot program, the SWA and the Village of North Palm Beach began a public outreach campaign that included a local newsletter article, Facebook push and direct mail piece. To help chart the program’s success, a pre-pilot survey was deployed to residents. Of 501 respondents, more than 97 percent said they were already recycling, and almost half said that they had more recyclables than could currently fit in their bin.

The new bins were delivered to the 2,663 homes in the pilot area. The reaction seemed positive, and the SWA sent another survey mid-pilot to chart the successes. Of 242 responses, 65 percent said the larger bin encouraged them to recycle more material and



This figure shows the amount in tons of material collected in the blue recycling bins last fiscal year and this fiscal year. The pilot program began in October 2015.

84 percent said the larger bin made recycling easier. The biggest complaints were that the 25 gallon bin did not fit with their current bin-cart combination and that it had no wheels. The haulers, overall, liked the change. The larger bin was easier to pick up, reducing the time spent at each stop, though they could be heavy if filled with glass containers.

The results of the pilot so far seem to indicate that the larger bin does increase the amount of recycling material that the SWA recovers, while keeping the high quality of recycled product. So far during the pilot project, there has been a monthly average of 8.1 percent more plastics, metals and glass collected. The pilot will continue through September of 2015, as the SWA researches other bin options.

As word of the pilot circulates through the SWA's service area, many are interested. Said one town manager, "Enough testing. Get me the bigger bins now."



A SWA employee examines the 25 gallon recycling bin on set out day



A household sets out several traditional recycling bins with their new canister-style bins



The new 25 gallon bin with SWA imprint



It's Almost Here!

In just a couple of short weeks, solid waste professionals from all over the country will descend upon us at WASTECON 2015. A lot of volunteers have put a lot of effort into making this a successful conference and enjoyable experience for everyone — thanks to all of you!

If you haven't been involved yet, it's not too late. But the time to take action is NOW!

Here's what you can still do:

- Register to attend the conference at www.wastecon.org. Florida professionals can receive CEUs or PDHs, and complimentary show passes are available for Tuesday and Wednesday.
- Register for the golf tournament — this is one of the two WASTECON events being put on by and for the FL Chapter.
- Play for a cause at the Wednesday night fundraiser to benefit Give Kids The World — this is the other FL Chapter event. Tickets are included with a full registration or can be purchased separately in advance or onsite.
- Sponsor one of the FL Chapter events — it's not too late but time is running out to have your organization recognized on event signage.
- Volunteer — people are still needed to help with registration (Sunday training required) and the Wednesday night event.
- Attend the FL Chapter Board and Business Meetings on Wednesday — meet David Biderman, SWANA's new CEO, and lunch is on us!
- Spread the word: Inform your colleagues, business partners, customers, and other industry acquaintances about WASTECON and encourage them to attend!

Don't miss this rare opportunity to attend a national conference right here in Florida!

For more information or to volunteer, contact Tammy Hayes hayest@cdmsmith.com or Crystal Bruce info@swanafl.org.

Thank you to all of our current sponsors —
we couldn't do it without you!

Wednesday Night Exclusive Diamond Sponsor:



WASTECON Golf Tournament Presented By:



And all of our other sponsors:



SANFORD
GOLF DESIGN



Kohl Consulting, Inc.

Webinar Program CONTINUES...

Florida Sunshine Chapter is a member of the SWANA Webinar Program. This allows Chapter members to attend SWANA live webinars with no out-of-pocket cost. The registration fee has already been paid for by your Chapter.

Chapter members can register themselves for SWANA Webinars online at SWANA.org. All you need is to enter the Chapter's **NEW** Debit Card Code at the time of registration.



Visit <http://www.swanafl.org>.
Webinar Program information
is under "Committees/Training."

*Limited number of registrations
available at this time.*

Earn CEU's

All individuals that
attend a webinar can
earn continuing
education units.

empower

SWANA Florida Sunshine Chapter has purchased 50 credits/registrations in the SWANA Webinar Program for member use. To use, members need only:

- Select live webinar from SWANA's offerings.
- Register and enter Florida Chapter code listed below.

Visit

<https://swana.org/Education/eLearning/ChapterWebinarProgram.aspx> for more information.

inspire

To allow as many members to benefit as possible:

- View the webinar in a large room and invite others from your agency to attend.
- Coordinate with other smaller agencies to host a webinar viewing. Dorothy Couch, Bridges BTC, will help with coordination: dcouch@mybridges.org, 321-494-6848.



educate

When a group views a SWANA Webinar through the Chapter Webinar Program, all attendees can receive Continuing Education Units (CEU's). To apply for CEU's:

- Provide a sign-in sheet to certification@swana.org.
- Include the webinar title and date, name of the person who registered to receive the logins, and the name and SWANA ID Number of each of the participants.

SWANA's Training Department will allocate CEU credits for SWANA Certified professionals who attended the webinar and are verified Chapter members.

NEW Florida Chapter Webinar Program

Debit Card Code is: FL150617

Talking Trash Newsletter

Editor in Chief

Kim Byer
Hillsborough County
byerk@hillsboroughcounty.org

Managing Editors

Deb Bush
Pinellas County Solid Waste
DBush@pinellascounty.org
-and-
Kelsi Oswald
Pinellas County Solid Waste
KOswald@pinellascounty.org



SWANA Florida Sunshine Chapter
3724 Johnathon Avenue
Palm Harbor, FL 33685
Phone: (727) 940-3397
Fax: (727) 231-0693
Email: info@swanafl.org
Chapter Administrator: Crystal Bruce

Chapter Officers & Directors

President

Mitch Kessler
(W) 813-971-8333
mk@kesconsult.com
Kessler Consulting

Vice President

Tammy Hayes
(W) 813-281-2900
hayest@cdmsmith.com
CDM Smith

Treasurer

Sam Levin
(W) 407-475-9163
Slevin@S2Li.com
S2Li

Secretary

Deb Bush
(W) 727-464-7803
dbush@pinellascounty.org
Pinellas County Solid
Waste

Immediate Past President

David Deans
(W) 407-806-4104
david.deans@atkinsglobal.com
Atkins North America, Inc.

Director 13-15

Keith Howard
(W) 239-533-8000
khoward@leegov.com
Lee County

Director 13-15

Bob Hyres
(W) 407-869-8800
bhyres@wasteprousa.com
Waste Pro USA

Director 13-15

Michael Gordon
(W) 727-587-6760
migordon@largo.com
City of Largo

Director 13-15

Rick Stevens
(W) 904-825-1049
rstevens@ci.st-augustine.fl.us
City of St. Augustine

Director 14-16

Kim Byer
(W) 813-272-5977 x 43131
byerk@hillsboroughcounty.org
Hillsborough County

Director 14-16

Jim Becker
(W) 407-254-9660
jim.becker@ocfl.net
Orange County

Director 14-16

Monica Bramble
(W) 941-240-8060
mbramble@cityofnorthport.com
City of North Port