

Talking... TRASH

The Newsletter of the SWANA Florida Sunshine Chapter

Spring 2012

Inside:
Technical Articles
Road-E-O Information
Member News



Don't miss the 2012 Chapter Road-E-O!



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Letter from the President

March 2012

I'm happy to report that we started the New Year right – our joint RFT/SWANA FL Winter Meeting was an outstanding success! We achieved a record attendance of just under 200 and received overwhelmingly positive evaluations from our members.

Attendees told us that they “really appreciated SWANA and RFT coming together.” They also reported that it was important to “hear fresh perspectives” from outside Florida. Most importantly, attendees told us the “subject matter of the conference was very relevant and useful, and provided a number of ideas for consideration.” Based on this positive experience, our Board has voted to continue to hold next year's winter meeting jointly with RFT. A big congratulations to all who worked to make the event such a success.

Our next event is the ever popular chapter Road-E-O coming up on April 20 and 21 in Kissimmee. I know all

you collection folks won't want to miss it. The registration form is included in this newsletter. We are still looking for contestants, judges, and sponsors, both public and private, so you haven't missed your chance to actively participate this year.

Finally, strap yourselves in and get ready for the ride - our organization is



planning an exciting lineup of events for 2012. Our Summer Conference will be held June 24-26 at the Sawgrass Marriott in beautiful Ponte Vedra Beach. Planning has begun and additional information will be available on our website in the near future, so be on the lookout. We are

actively seeking papers now. Mark your calendars!

I look forward seeing all of you in the upcoming months.

A handwritten signature in black ink, which appears to read "Mitch Kessler". The signature is stylized and fluid.

Mitch Kessler

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Pinellas County's Gulf Beaches Recycling Program

*Written by Jan Tracy, Pinellas County
Department of Environment & Infrastructure*

Pinellas County residents have the opportunity to recycle by curbside collection, 13 county drop-off centers or a drop-off center sponsored by one of the 24 municipalities. Pinellas County wanted to expand this recycling network to conserve resources, promote public awareness and the county's "green"

message. To develop a new program, the county used an Innovative Waste Reduction and Recycling Grant from the Florida Department of Environmental Protection to conduct a pilot beach recycling program studying the most feasible way to structure the program and survey public opinion. The study indicated that 99% of beach visitors would recycle if given the opportunity.

Pinellas County Division of Solid Waste (DSW) partnered with communities along Pinellas County's Gulf coast and the county's Park and Conservation Resources Dept. to develop a 3-phased Beach Recycling Program. Phase 1 consisted of nine locations that had recycling collection infrastructure in place. Phase 2 is an expansion of Phase 1 to beach

communities requiring a recycling collection contract, and Phase 3 is further expansion into additional public marine facilities and parks.

In June 2011, DSW purchased 32-gallon bright blue plastic recycling receptacles for the initial Phase I distribution. 202 receptacles were placed on the beaches or in county access areas next to trash containers and were marked with stickers describing what should be deposited.

The public immediately started depositing aluminum cans and plastic bottles.

Phase 2 will commence upon implementation of a recycling collection

contract for the expansion locations. 154 containers will be placed in 12 additional locations. The myriad of county and city parks, boat ramps, and other public facilities will also benefit from recycling bottles and cans and are targeted for Phase 3.

DSW Operations provides the bins, publicity and support.

Our goal is for a 50% reduction in waste at these recycling locations. It promotes an eco-friendly message to residents and visitors while providing an easy way to recycle beverage containers beachside. Initial program indications are that beach goers have embraced the program and waste collections have been reduced. Please contact Jan Tracy Pinellas County SWO for more information. jtracy@pinellascounty.org



SITE ASSESSMENT

INTEGRATED WASTE PLANNING

PERMITTING

DESIGN

CONSTRUCTION ADMINISTRATION

PROCUREMENT ASSISTANCE

FINANCIAL PLANNING

Offices Throughout Florida

Integrated Waste Management Services

A large landfill solar energy cover installation. The cover is a large, green, rectangular structure made of solar panels, covering a large area of the landfill. Two workers in hard hats are visible in the foreground, walking on the cover.

Hickory Ridge Landfill Solar Energy Cover, Atlanta, Georgia

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Numeric Nutrient Standards

Written by Ramon (Ray) Rivera, Diamond Systems LLC

Numeric nutrient standards rules were approved for adoption by the State of Florida, Environmental Regulation Commission (ERC) on December 8, 2011. The ERC approved additional amendments to the rule chapters from those that were originally proposed in the Florida Administrative Weekly (FAW) on November 10, 2011. In January 2012, pursuant to section 120.56, F.S., a petition was filed challenging both of the proposed rule chapters.

Whatever the outcome, additional rules governing point source discharges will eventually be enacted. Florida currently uses a narrative nutrient standard to guide the management and protection of its waters. Chapter 62-302.530, Florida Administrative Code (FAC), states that “in no case shall nutrient concentrations of a body of water be altered so as to cause an imbalance in natural populations of flora or fauna.” The narrative criteria also states that (for all waters of the state) “the discharge of nutrients shall continue to be limited as needed to prevent violations of other standards contained in this chapter [Chapter 62-302, FAC]. Man-induced nutrient enrichment (total nitrogen or total phosphorus) shall be considered degradation in relation to the provisions of Sections 62-302.300, 62-302.700, and 62-4.242, F.A.C.”

What is Nitrogen?

Nitrogen is an indispensable element for plant life and a key ingredient in fertilizers. It is present in proteins, vitamins, hormones, chlorophyll, etc. Nitrogen increases the production

of foliage and fruits. An excess of Nitrogen can lead to a decreased resistance to disease.

What is Phosphorus?

Phosphorus contributes to the formation of buds, roots, blooming and lignifications. It is also an important component of plant's DNA and RNA.



Multiparameter Meter

A lack of phosphorus results in slow growth, smaller fruits and a lower expansion of the roots.

Certain indicator parameters are monitored to assess the quality of a water body

What is turbidity and why is it measured?

Turbidity is a measure of the clarity of water and the amount of suspended solid it contains - the cloudier the water, the greater the turbidity. Turbidity is caused by phytoplankton; human activities that disturb land such as construction can also result in high sediment levels. Turbidity is important because high turbidity in drinking water can lead to gastrointestinal diseases. High turbidity in water bodies such as lakes, rivers and reservoirs, can

reduce the amount of light reaching lower depths, which can inhibit growth of submerged aquatic plants and consequently affect species which are dependent on them, such as fish and shellfish.

What is pH?

A pH (potential of Hydrogen) measurement reveals if a solution is acidic or alkaline (also base or basic). If the solution has an equal amount of acidic and alkaline molecules, the pH is considered neutral. Very soft water is commonly acidic, while very hard water is commonly alkaline, though unusual circumstances can result in exceptions.

The pH scale is logarithmic and runs from 0.0 to 14.0 with 7.0 being neutral. Readings less than 7.0 indicate acidic solutions, while higher readings indicate alkaline or base solutions. Some extreme substances can score lower than 0 or greater than 14, but most fall within the scale. High or low pH measurements are indicators of pollution or water quality degradation.

What is a Multi-Parameter Meter?

A multi-parameter meter can monitor up to 13 different water quality parameters (6 measured, 7 calculated) and provide immediate water quality data.

Measurements include pH, pH/mV, ORP, % saturation DO, mg/L DO, EC, absolute EC, resistivity, TDS, salinity, seawater specific gravity, atmospheric pressure and temperature.

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The Power of Monte Carlo Simulations in Projecting Landfill Gas Emissions

Written by Ravi Kadambala and Nathan P. Mayer, CDM Smith

INTRODUCTION

According to the U.S. Environmental Protection Agency (EPA, 2010), currently 33.8 percent of waste generated in United States is recovered and recycled or composted, 11.9 percent is burned at combustion facilities, and the remaining 54.3 percent is disposed of in landfills. Despite advances made in recycling and waste-to-energy (WTE) technology, landfills still remain the primary mode of waste disposal. Once municipal solid waste (MSW) is placed in a landfill, a complex sequence of biologically, chemically, and physically mediated events occur, which results in gaseous and liquid landfill emissions. A significant fraction of the biodegradable portion of the MSW is ultimately converted to gaseous end products during the predominately anaerobic stabilization of solid waste organic fractions (Cooper et al, 1992). LFG is typically 40- to 60-percent methane, with the balance being mostly carbon dioxide. Various trace gases, such as nitrogen, hydrogen sulfide, water vapor, ammonia, and a variety of volatile organic compounds (VOCs), are also found in LFG. Usually, gas production begins within a year of waste placement and may continue for as long as 50 years after landfill closure.

Global warming may be one of the most serious environmental challenges ever faced by mankind. Since landfills emit significant amounts of methane, a key greenhouse gas (GHG), there is now considerable interest to quantify emissions of methane from landfills. A reliable method for estimating landfill emissions is needed to determine any gas collection control system efficiencies, estimate of rates of odorous gas emissions from the landfill,

improve landfill gas management, and comply with state and federal regulations for MSW landfills (Mackie et al, 2009).

LandGEM is an automated tool for estimating emission rates for total LFG, methane, carbon dioxide, nonmethane organic compounds (NMOCs), and individual air pollutants from MSW landfills (Alexander et al, 2005). Landfill owners and operators use LandGEM to determine if a landfill is subject to the control requirements of the federal New Source Performance Standards (NSPS) for new MSW landfills (40 CFR 60 Subpart WWW), the federal Emission Guidelines (EG) for existing MSW landfills (40 CFR Subpart Cc), or the National Emission Standards for Hazardous Air Pollutants (NESHAP) for MSW landfills (40 CFR Subpart AAAA) (Alexander et al, 2005).

The LandGEM computer model requires a series of input parameters, which can be made specific to the facility being modeled. Input data consists of a series of model parameters and annual waste acceptance rates. Model parameters include the methane generation rate (k), potential methane generation capacity (L_o), NMOC concentration, and methane content. If waste acceptance rates for the landfill are not known, they are typically determined using population and waste generation rate projections. Since there are several parameters that significantly affect the emission rates for LFG, results based on one set of assumptions can lead to incorrect LFG projections.

Monte Carlo Simulations, which randomly generate values for uncertain variables over and over to simulate a model, are especially useful in studying systems with a large number of coupled degrees of freedom, especially models with significant uncertainty in inputs.

Predicting LFG emission rates using Monte Carlo Simulations are beneficial over typical spreadsheet models as numerous outcomes can be modeled by randomly selecting values for each input variable.

The following article reviews the results of a typical spreadsheet model to those of a Monte Carlo Simulation used to determine the landfill gas emissions rates of a landfill. As an example, a model was constructed using the LandGEM spreadsheet to determine the landfill gas emission rates for a series of input parameters using Monte Carlo Simulations. To accomplish this, a probability distribution for each input variable was defined within the model.

Three cases are discussed in this article for predicting landfill gas emission rates.

CASE 1: Typical LandGEM spreadsheet model using fixed model parameters.

CASE 2: Monte Carlo Simulation varying LandGEM model parameters.

CASE 3: Monte Carlo Simulation varying LandGEM model parameters and waste acceptance rates.

LANDGEM

LandGEM provides an automated estimation tool for quantifying LFG emissions from MSW landfills. The model was developed by the Control Technology Center (CTC) of the EPA and can be obtained by downloading from the TTNWeb (<http://www.epa.gov/ttn/catc/products.html#software>). It is also available from the National Technical Information Service (NTIS).

LandGEM uses the following first-order decomposition rate equation to estimate annual emissions over a time period specified by the user.

$$Q_{CH_4} = \sum_{i=1}^n \sum_{j=0.1}^1 k L_o \left(\frac{M_i}{10} \right) e^{-kt_{ij}}$$

Where,

Q_{ch4} = annual methane generation in the calculation year ($m^3/year$)

i = 1-year time increment

n = (year of calculation) - (year of initial waste acceptance)

j = 0.1-year time increment

k = methane generation rate ($year^{-1}$)

L_o = potential methane generation capacity (m^3/Mg)

M_i = mass of waste accepted in the i^{th} year (Mg)

t_{ij} = age of the j^{th} section of waste mass

M_i accepted in the i^{th} year (decimal years, e.g., 3.2 years)

LandGEM can be used with site-specific data for all the information needed to generate LFG emission estimates, or it can be used with two different sets of default values, CAA defaults and Inventory defaults.

Up to four gases or air pollutants can be modeled at one time including total LFG, methane, carbon dioxide, NMOCs, and individual air pollutants from MSW landfills. In this article, methane emissions were chosen to describe the results for all three cases.

CASE 1: TYPICAL LANDGEM SPREADSHEET MODEL

The following assumptions were made to develop a typical spreadsheet model to estimate methane emissions:

- Landfill open year: 1990
- Landfill closure year: 2030
- Waste design capacity: 21,000,000 Mg/year

Figure 1 shows the waste accepted from 1990 through 2009 and waste projected through 2030.

The default CAA values for a conventional landfill were chosen as the model input parameters. Table 1 summarizes the input variables used within the LandGEM model.

Based on these assumptions, a Class I landfill would generate a maximum of 61,000 Mg/year of

methane in the year 2031 before starting to gradually decrease as shown in Figure 2. These results do not account for the variability that exists in each of the parameters utilized. For example, if the potential methane generation capacity is changed from 170 (CAA defaults) to 100 m^3/Mg (inventory defaults), the Class I landfill would generate a maximum of 36,000 Mg/year of methane in 2031 before starting to gradually decrease as shown in Figure 2. Simulations can be useful in analyzing models in which the values to be assumed in the model are uncertain (Ragsdale, C. T., 2007).

MONTE CARLO SIMULATIONS

Spreadsheet calculations are highly sensitive to the assumptions and parameters used within them. Obtaining accurate data for all inputs and processes is essential for a representative model.

In most spreadsheet models, the values of various input cells are determined by the person using the spreadsheet. These input cells correspond to a single value, assumed to exactly represent that cell. If one cannot determine the exact value of the input variables in a model, uncertainty exists in the value of the dependant variable(s). Risk is connected to uncertainty, and as uncertainty increases, risk increases and decision-making becomes more difficult.

In real-world situations, exact values are never known. Variables are

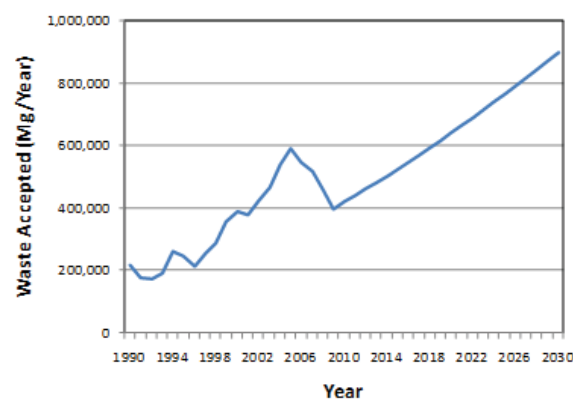


FIGURE 1. WASTE ACCEPTED FROM 1990 THROUGH 2030

Parameters	Units	Average
Methane generation rate, k	$year^{-1}$.05
Potential methane generation capacity, L_o	m^3/Mg	170
NMOC concentration	ppmv	4000
Methane content	(%)	50

TABLE 1. INPUT VARIABLES USED IN SPREADSHEET MODEL

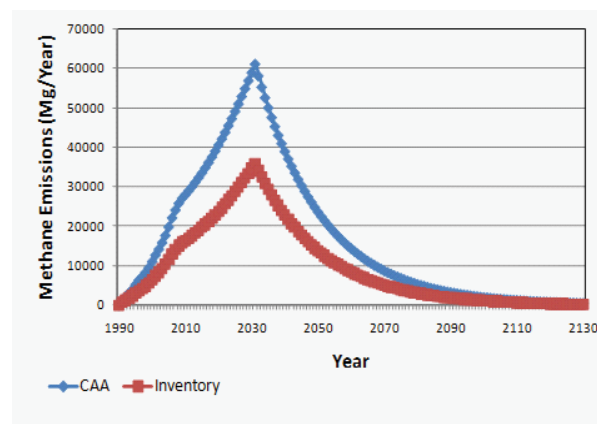


FIGURE 2. METHANE EMISSIONS FROM 1990 THROUGH 2130

represented by data, statistics, and probability distributions. Spreadsheet risk analyses utilize a spreadsheet model combined with simulations to analyze the effect of varying inputs on outputs of a modeled system. One type of spreadsheet simulation is a Monte Carlo Simulation, which randomly generates values for uncertain variables over and over to simulate a model. Monte Carlo Simulations can be used to simulate several probable outcomes using a range of values for each input

Parameters	Units	Min	Max	Average
Methane generation rate, k	year ⁻¹	0.04	0.05	0.045
Potential methane generation capacity, L ₀	m ³ /Mg	100	170	140
NMOC concentration	ppmv	600	4000	2400
Methane content	(%)	45	55	50

TABLE 2. MONTE CARLO INPUT VARIABLE STATISTICS

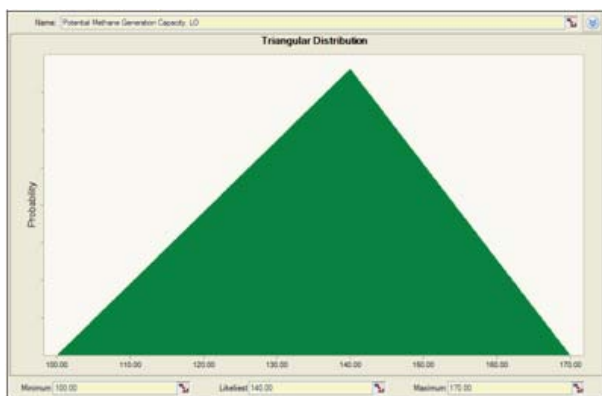


FIGURE 3. TRIANGULAR DISTRIBUTION FOR POTENTIAL METHANE GENERATION CAPACITY (L₀)

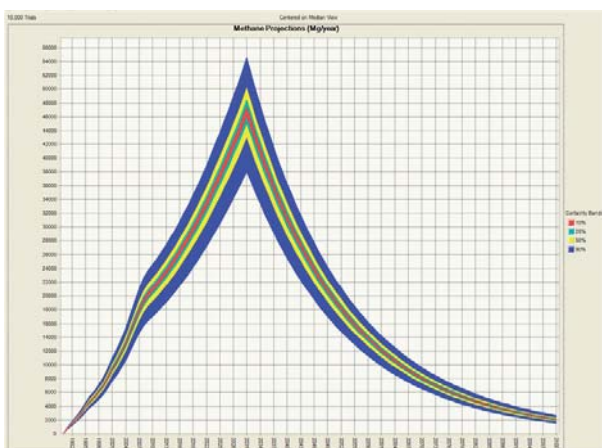


FIGURE 4. METHANE PROJECTIONS USING MONTE CARLO SIMULATION FOR CASE 2

variable. For each uncertain input variable in a model, one can define the range of possible values using a probability distribution. The type of distribution selected depends on the conditions surrounding the variable. Common distributions include normal, triangular and uniform, and may also be either continuous or discrete.

Continuous distributions describe values over a range, assuming an infinite number of values between any two points. Discrete distributions describe distinct values.

A simulation calculates numerous outcomes of a model by repeatedly picking values from the probability distribution of each input variable and remembering the outcome of each iteration. After hundreds or thousands of iterations, a “forecast” is developed, showing the range of possible values and the probability associated with a particular value. From repeated, randomly generated input variables, a frequency distribution can be developed for the dependant variable, which can be used to estimate the probability of a particular solution. The benefit of using Monte Carlo Simulations is the ability to overcome spreadsheet limitations and provide a range of possible values within each uncertain input variable.

CASE 2: MONTE CARLO SIMULATION VARYING LANDGEM MODEL PARAMETERS

Using the LandGEM spreadsheet developed to calculate the landfill gas emissions, a model was constructed. To accomplish this, simple statistics were developed to create a probability distribution for each input variable in the model.

A triangular distribution was chosen for each input variable. This

distribution shows the number of successes when the minimum, maximum, and most likely values are known. This distribution is a continuous probability distribution that shows values near the minimum and maximum are less likely to occur than those near the most likely value. Using the minimum, mean and maximum values shown in Table 2, a triangular distribution was generated for each input variable. The mean values were assumed to be equal to those utilized in Case 1 discussed above. A representation of this distribution can be seen in Figure 3, which shows the probability distribution for the potential methane generation capacity (L₀).

Using a continuous triangular distribution for each input variable, a methane emissions forecast was created. Based on 10,000 iterations, it was predicted, with 90-percent confidence that the methane emissions in 2031 are between 38,000 and 54,000 Mg/year, as shown in Figure 4. The various colors in Figure 4 indicate various confidence intervals, which can be predefined in the output for data interpretation. The output probability distribution for the methane emissions for a particular year such as 2030 appears as a normal distribution. This can be seen in Figure 5. This figure shows that the most likely value for methane emission in 2030 is approximately 47,000 Mg/year. This distribution can also be used to set confidence intervals to indicate the reliability of an estimate (i.e., how likely the gas emissions will fall within a range).

CASE 3: MONTE CARLO SIMULATION VARYING LANDGEM MODEL PARAMETERS AND WASTE ACCEPTANCE RATES

Waste acceptance rates can significantly change the methane emissions rates. Landfilled waste depends upon several factors, such as waste generation rates, population, and

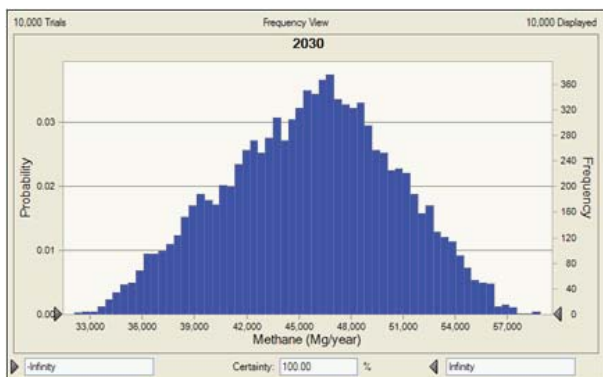


Figure 5. METHANE EMISSIONS FORECAST FOR THE YEAR 2030

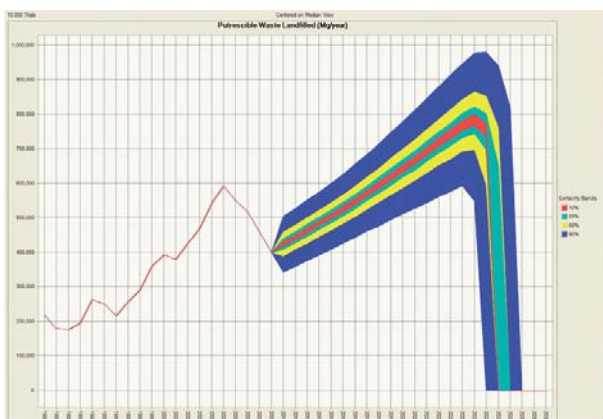


FIGURE 6 MONTE CARLO SIMULATION RESULTS OF WASTE LANDFILLED

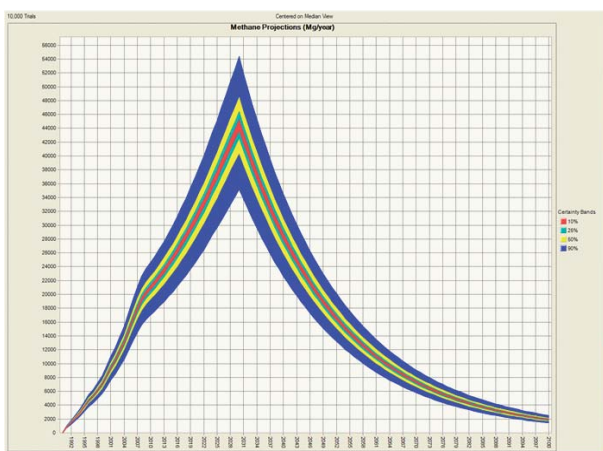


FIGURE 7. METHANE PROJECTIONS USING MONTE CARLO SIMULATION FOR CASE 3

cover content. So, these factors can change the landfill closure year. Monte Carlo Simulations can also be used to determine the variability of waste projections. By varying population projections, waste generation rates,

and recycling rates, the waste projections shown in Figure 6 were developed. Using this information in addition to the probability distributions created for each LandGEM parameter, as discussed in Case 2, it was projected, with 90-percent confidence, that the landfill gas emissions in 2030 is between 35,000 and 54,000 Mg/year, as shown in Figure 7.

CONCLUSION

In CASE 1, a typical LandGEM spreadsheet model with fixed model parameters was used. The model estimated a maximum of 61,000 Mg/year of methane from the Class I landfill in 2030. In CASE 2 and CASE 3, Monte Carlo Simulations, with varying LandGEM model parameters, were used. It can be said with 90-percent confidence that the estimated LFG in 2030 will be between 35,000 and 54,000 Mg/year. The most likely value for methane emissions in 2030 is approximately 47,000 Mg/year. These values are significantly different from those obtained in CASE 1. Therefore, Monte Carlo Simulations can provide clients with a range for estimating LFG emissions, providing more confidence when designing and budgeting for a new gas collection system, projecting LFG for beneficial use, etc. Results are not based on one assumption.

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Dunedin Gets the Gold!

Written by Valerie Brown, City of Dunedin

The City of Dunedin has been a certified green city at the silver level since 2007 and was recently upgraded to the gold level. The Florida Green Building Coalition's (FGBC) Green City/County program requires cities

and counties to document many different program areas for points. The 2007 silver certification served as a compilation of initiatives that the city was already undertaking as well as a few new programs and services that were recently implemented. Since the original certification, Valerie Brown, Dunedin's Sustainability Coordinator, has facilitated and

encouraged city staff to achieve additional credits and points towards the gold level certification by implementing policy changes and program improvements. "This certification shows what can be achieved when staff with diverse backgrounds come together to accomplish a common goal" states Brown. Dunedin earned 47 percent of the maximum applicable points and now holds the highest score achieved by any city, matched only by Sarasota County.

This certification upgrade was accomplished by focusing intently on incorporating green building policies and incentives into the

updated City of Dunedin building code. The credits achieved in this upgrade are diverse and include:

- Adopt a green standard as the minimum criteria for new government buildings
- Offer incentives for FGBC or LEED certified buildings (commercial, affordable housing,

homes, developments)

- Provide assistance for the construction of green affordable housing
- Green Building Education for Local Government Staff
- Incorporate Green Cleaning and Maintenance Procedures
- Require mitigation for the consumption of natural resources
- Award program – Environmental Advocate Award program
- Promotion of local eco-hotels
- Recycling obsolete electronic equipment (City and for our customers)
- Plans for invasive species removal in public lands

- Certified Florida Friendly landscapes within the City of Dunedin
- Organic community garden
- Recycling opportunities in public buildings and parks
- Florida Clean Marina Program

Much of Dunedin's points were attributed to Dunedin's

recently updated building code which includes mandates and incentives for green certified buildings such as LEED. And while green building may seem outside the solid waste manager's realm, most green building certifications focus intently on preventing and recycling waste throughout the demolition and construction phases. Credits for many green certification

programs such as LEED or FGBC's Green City program, require a significant amount of documentation. By becoming versed in green certifications and the documentation requirements, the solid waste manager may find more opportunities to divert C&D material and establish ongoing recycling programs once buildings are operational. The FGBC Green City program has over 15 credits related to solid waste management and recycling meaning the Solid Waste Department in any city or county can be an integral part of achieving a prestigious designation like Dunedin.



"Dunedin's Dream Team – (from left) Lael Giebel, Valerie Brown, Lucy Fuller, Jenna Duncan (Greg Rice not pictured). The Dream Team was responsible for updating the City of Dunedin building and development code."

RFID: Not Just an Option Anymore

Written by John Burkett, Kessler Consulting, Inc.

Radio Frequency Identification (RFID) is not a new technology. Its roots can be traced back to World War II, when it first saw use as a means to identify approaching airplanes as friends or foes. Later on in the 1970's, the U.S. government implemented a system to track nuclear materials using RFID technology. Today, RFID is everywhere from highway tolls to identification chips implanted in our own pets. However, only recently have solid waste managers begun to see just how much these tiny devices can do to make business easier in a big way.

To start with, container (asset) management has historically been a challenge for solid waste organizations. With the purchase and distribution of a large number of containers in just as many unique locations, it is impossible to keep track of all these moving parts without a reliable system in place. Originally, this was done by manually matching the container's serial number with the address of its new location, if at all. Barcodes were later added to new containers, allowing distributors to scan each unit at the time of delivery with a handheld barcode

scanner, facilitating a more accurate container database. To maintain a handle on these large asset inventories, managers would be tasked with periodic reconciliation of containers' barcodes and quickly realized that a close-range, optical scan of every container is quite a cumbersome process. The solution came by embedding RFID tags into each container. This made it possible for handheld RFID readers to do the same job, but from a greater distance, allowing the reads to be performed from inside a passing vehicle. With this system in place, the asset inventory can be updated each time a container is repaired or replaced, automatically.

The next chapter began with the idea to integrate RFID readers into the actual collection vehicles, and asset management became a behind-the-scenes process. The automation of this previously-manual process has paved the way for more substantial on-route operational data collection, resulting in more efficient and productive routes. It can be used to improve commercial franchises and licensing management, and can be integrated into geographic information systems (GIS) applications for planning activities.

Some residents have expressed concern over the use of RFID

technology, with the misconception that their local government now knows too much about the waste people are generating. The fact is, solid waste managers have been gathering this data all along, and drivers have always known who does and does not participate. RFID simply allows the manual data collection process to be automated, and has improved the accuracy of this data. The tags also provide a record of service for each home, which can be used to validate missed pickup complaints and improve customer service. The result is a more cost-effective and productive use of taxpayer dollars to provide the most innovative and high quality service possible.

As governments and private sector waste haulers are looking for simpler, cleaner, more intelligent ways to operate, RFID should not be considered an optional "add-on." The technology itself is simple and reliable, but how the data is used can mean the difference between a good purchase and a great purchase. RFID is here to stay, and we are only beginning to learn how it can continue to revolutionize the solid waste industry. All managers would agree that in terms of data, more is better than less. For this reason, RFID should now be considered the standard practice. As the saying goes, "If you don't measure it, you can't manage it."

For more information on how Kessler Consulting, Inc. can assist your organization with RFID solutions, please call Don Ross at (813) 971-8333, ext. 15.

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New Waste-to-Energy Technologies - Do You Know the Right Questions to Ask?

*Written by Marc Rogoff and Bruce Clark,
SCS Engineers*

Companies representing new technologies to process solid waste in an environmentally conscious manner have been actively promoting their systems to governmental agencies worldwide. Systems employing technologies or processes such as anaerobic digestion, gasification, plasma arc and pyrolysis are becoming commonplace. Because the systems are new and there are few successfully operating commercial-scale plants, officials responsible for the decision-making process need to be aware of the risks and uncertainty of the technologies, the resources and experience of these companies, and how it would ultimately benefit the public.

A waste-to-energy facility is perhaps the single most complex public works project usually considered by a community. Not unlike the traditional mass burn and RDF facilities, the feasibility assessment of such projects should be undertaken in a methodical process of ascertaining the answers to key questions upfront. This will assure the public and decision-makers that

all relevant issues have been explored and a resolution reached before significant private and public resources are expended on such projects. If you are unwilling to take the risk, don't be the "experimental project". Stick with proven technologies that you can see in operation. Talk with your peers in communities that have the technology, and get the real story on what it costs to

a clear, concise and un-biased tool that they can use in working through the decision making process. The next few years will likely see some success stories involving these new technologies. By asking the right questions, decision-makers can take steps to ensure that what is being promised is what they will receive. That is a key step to becoming another one of this industry's success stories.

Over the last few years, SCS has conducted more than 35 technical and economic feasibility studies of planned and operating plants based on thermal, bio-chemical, and biological technologies. Table 1 provides some definitive questions and background that officials can use in their due diligence



Newly started 10 TPD GS Plasteel, Plasma Gasification Facility in South Korea

build and operate.

The market of new waste conversion technologies is rapidly evolving with new facilities being announced and operating data on pilot facilities being received to fill in the current gaps on plant operating history. This is beginning to make the job of assessing the claims for these technologies more efficient and accurate. These assessments, conducted by an independent third party, help decision makers by providing

assessment of these new technologies. Come join our blog/newsletter <http://archive.constantcontact.com/fs093/1104123010840/archive/1109184377259.html> on Alternative Conversion Technologies for up-to-date information on current events in this emerging area of solid waste management.

Table 1 – Questions That Need to Be Asked For Alternative Waste Conversion Technology Feasibility

Major Question	Types of Important Issues Addressed
Does the Technology Work?	<ul style="list-style-type: none"> ➤ Annual Operating Experience ➤ Scale Up Issues ➤ Need For Pre-Processing of the Waste Stream ➤ Reliability to Dispose of Municipal Solid Waste
What Is the Strength of the Company?	<ul style="list-style-type: none"> ➤ Business Strength to Secure Capital ➤ Intellectual Property and Patent Rights for the Technology ➤ Parent Guarantee
Does This Project Fit With the Current Solid Waste Program?	<ul style="list-style-type: none"> ➤ Does the New System Mesh With Current Collection, Recycling, and Disposal Program ➤ Transfer System Needed? ➤ Modification of Solid Waste Plan Needed?
Can You Provide Waste Supply to the Plant?	<ul style="list-style-type: none"> ➤ Legal or Economic Flow Control ➤ Can Enough Waste Be Provided By the Community? ➤ Waste Imports Needed?
What Are the Siting Needs for the Plant?	<ul style="list-style-type: none"> ➤ Land Available ➤ Properly Zoned and Setbacks ➤ Needed Utility Needed Available At Reasonable Cost ➤ Public Buy-In for Project
What Kind of Permits Will Be Needed?	<ul style="list-style-type: none"> ➤ Air Permits ➤ Local and State Zoning and Plan Amendments
Are Markets Available for the Products and Energy?	<ul style="list-style-type: none"> ➤ Sufficient Information to Predict Plant Outputs From Technology Selected ➤ Are There Markets Available for Products (i.e., Syngas, Slag, Compost, etc.)?
What Are the Costs?	<ul style="list-style-type: none"> ➤ Sufficient Information to Project Operating Costs ➤ Tipping Fees Required?
Will There Be Financing Risks?	<ul style="list-style-type: none"> ➤ Role of Government Agency in Process ➤ Will Taxpayers Be on the Hook for Risks of Loan?
What Happens If All Else Fails?	<ul style="list-style-type: none"> ➤ Control of Solid Waste System By Local Agency? ➤ Where Will Waste Go If Plant Is Shut Down? ➤ Who Will Be Responsible for Extra Costs?

Visual Waste Assessments

Written by Maureen Schaefer, Kessler Consulting, Inc.

Commercial recycling programs offer tremendous opportunity to increase recycling. Florida's 2009 Solid Waste Annual Report shows that 54% of the MSW generated in our state comes from the commercial sector. Yet, the recycling rate for Florida's businesses overall is only 30%. By conducting a visual waste assessment (VWA) for the large and medium sized businesses in your community, you can break down the four most commonly cited barriers to commercial recycling participation – cost, space/ infrastructure, existing behaviors and habits, and willingness to change.

The results of the VWA will enable you to provide a business with

information about the main types and quantities of waste generated, current waste management practices, and opportunities for improvement. It is an opportunity to discuss the economic and environmental benefits of recycling and provide guidance on how to implement a program at that site.

A complete VWA typically includes six (6) steps:

- Planning
- Information gathering
- On-site analysis and walk-through
- Verbal communication
- Qualitative analysis of findings, and
- Action planning and reporting

Including technical assistance such as visual waste assessments in your commercial recycling program is

a relatively low cost additional service; however, it does require the allocation of existing staff time. Depending on your recycling department's staffing size, waste assessments are predominately done at large business or institutions, unless you have a full time auditor on staff who can handle a comprehensive program. The incremental recycling tonnages captured through the expansion of commercial recycling participation may help businesses offset their disposal and collection costs, and will certainly help your program move towards meeting your recycling goals.

Maureen Schaefer is a Senior Research Analyst with Kessler Consulting, Inc. She can be reached at 813-971-8333.

More \$\$ Now Available for College Scholarships!

Struggling with college expenses? The SWANA Florida Sunshine Chapter now offers two scholarships per year for college students worth \$2,000 each (\$1,000 per semester). These scholarships will be awarded directly to the students to assist with tuition, books, fees and/or living expenses. So if you work in the solid waste industry (and why else would you be reading this newsletter?), graduated or are a senior in a State of Florida High School – or have a child who fits this bill – with at least a 3.0 GPA, what are you waiting for?

Go to our website, www.swanafl.org, and download the application – click on Committees, then Awards and Scholarships. Applications are due by May 1 for the following school semester. Please share this information with your colleagues and others in your organization who can use some help paying for college, and who couldn't these days? Helping someone pay for college also helps SWANA achieve one of its main goals – to educate. And education helps to provide a better future for all of us.

If you have any questions, feel free to contact us at info@swanafl.org.



April 20-21, 2012

Kissimmee, FL

Register Online at
www.regonline.com/swanafl2012roadeo

Hosted by the City of Kissimmee

Headquarters Hotel – Gaylord Palms Resort
 Competition Site – City of Kissimmee Public Works

Why participate?

- To promote professionalism on the part of drivers, equipment operators and mechanics in the field of solid waste management
- To create a spirit of competition and goodwill throughout the participating organizations (municipalities, counties and private haulers)
- To reward deserving employees by allowing them to showcase their skills, thus bringing pride to themselves and your organization
- To provide employees an opportunity to refresh safety and skills in a classroom

The event is open to public and private sector participants. Contestants, volunteers and sponsors are needed for the success of the Road-E-O 2012. The deadline to register and take advantage of the early-bird rate is March 15, 2012.

Visit www.swanafl.org for more information or contact us at info@swanafl.org.



**Container Systems
& EQUIPMENT CO., INC.**



Tentative Agenda

Friday, April 20

9:00 a.m. – 1:00 p.m.

Registration

1:00 p.m. – 1:30 p.m.

Welcome/Introduction

1:30 p.m. – 2:30 p.m.

Truck Driver Safety Class/Exam

1:30 p.m. – 2:30 p.m.

Heavy Equipment & Mechanic Safety Class

3:00 p.m. – 5:00 p.m.

Truck Driver Pre-Trip Inspections

2:30 p.m. – 3:30 p.m.

Mechanic Exam

3:00 p.m. – 4:30 p.m.

Heavy Equipment Pre-Trip Inspections

6:30 p.m. – 8:00 p.m.

Welcome Reception

Saturday, April 21

8:00 a.m. – 11:00 a.m.

Mechanic Competition

8:00 a.m. – 4:00 p.m.

Truck Competition
 (Walk through at 7:30 a.m.)

8:00 a.m. – 4:00 p.m.

Heavy Equipment Competition

7:00 p.m. – 10:00 p.m.

Awards Banquet



SWANA Florida Sunshine Chapter Sponsorship Opportunities

April 20-21, 2012 – Kissimmee, FL

Register Online at www.regonline.com/swanafl2012roadeo

By actively supporting this event, your organization will benefit by strengthening its prominence as a leader in the solid waste industry and by increasing your network of contacts and established partners within SWANA.

ALL sponsors will receive the following benefits:

- Your logo on event signage/banners, promotional materials and the SWANA FL website
- Lunch on competition day
- Special recognition during the awards banquet

SPONSORSHIP OPPORTUNITIES:

☐ **Diamond Sponsor** (\$7,500) – also includes recognition on participants competition t-shirts; space at competition sites to display products or equipment; four awards banquet tickets; premium logo placement at Saturday banquet; and up to two minutes to address attendees during banquet

☐ **Ruby Sponsor** (\$5,000) – also includes recognition on participants competition t-shirts; space at competition sites to display products or equipment; four awards banquet tickets; and premium logo placement at Friday evening reception

☐ **Platinum Sponsor** (\$2,500) – also includes recognition on participants competition t-shirts; space at competition sites to display products or equipment; four awards banquet tickets; and premium logo placement

☐ **Gold Sponsor** (\$1,500) – also includes recognition on participants competition t-shirts; space at competition sites to display products or equipment; and two awards banquet tickets

☐ **Silver Sponsor** (\$1,000) – also includes recognition on participants competition t-shirts; and two awards banquet tickets

☐ **Bronze Sponsor** (\$750) – also includes recognition on participants competition t-shirts

☐ **Friend Sponsor** (\$500)

IN-KIND DONATIONS:

☐ Water, sodas, coffee, donuts, bagels, juice, chips, ice, etc. SPECIFY: _____

☐ Breakfast meal, lunch meal, etc. SPECIFY: _____

☐ Trash and recycle containers, portable toilets, golf carts/ATVs, bleachers, etc. SPECIFY: _____

☐ Shirts, hats, door prizes, give-a-ways, etc. SPECIFY: _____

☐ Other ideas welcome. SPECIFY: _____

Monetary value of in-kind donation: \$ _____

Representative Name (to appear on sponsor list): _____

Company/Organization: _____

Address: _____ City: _____ State: _____ Zip: _____

Phone: _____ Email: _____

Total Amount Due: _____ ☐ VISA ☐ MasterCard ☐ Discover ☐ Check (Payable to SWANA FL)

Card Number: _____ Exp. Date: _____

Card Holders Name: _____

Billing Address: _____

Please mail or fax this form along with your payment to:

SWANA Florida Sunshine Chapter
2854 St. John Drive, Clearwater, FL 33759
Phone: 727.797.4234 Fax: 727.231.0693

Email: info@swanafl.org Web: www.swanafl.org

16 Talking Trash





**SWANA Florida Sunshine Chapter
Judge/Volunteer Registration Form**

April 20-21, 2012 – Kissimmee, FL

Register Online at www.regonline.com/swanafl2012roadeo

Registration Deadline: March 31, 2012

Name: _____ Employer: _____

Address: _____ City: _____ State: _____ Zip: _____

Phone: _____ Email: _____

Shirt Size: S _____ M _____ L _____ XL _____ XXL _____ XXXL _____ XXXXL _____

Do you have judging experience at a SWANA Road-E-O? Yes _____ No _____

Which competition? _____ Truck _____ Heavy Equipment _____ Mechanic

Please specify the events you want to assist with: _____

Will you have friends/family/colleagues attending the Competition? Yes, number: _____

Will you be attending the Banquet? _____ Yes _____ No

*Will you be bringing guests to the Banquet? Yes, number: _____ *Guest fee is \$50/person.

Guest Name(s): _____ Relation to Volunteer: _____

Total Amount Due: _____

_____ VISA _____ MasterCard _____ Discover _____ Check (Payable to SWANA FL)

Card Number: _____ Exp. Date: _____

Card Holders Name: _____

Billing Address: _____

Please mail or fax this form along with your payment to:

SWANA Florida Sunshine Chapter
2854 St. John Drive, Clearwater, FL 33759
Phone: 727.797.4234 Fax: 727.231.0693
Email: info@swanafl.org Web: www.swanafl.org





**SWANA Florida Sunshine Chapter
Contestant Registration Form**

April 20-21, 2012 – Kissimmee, FL

Register Online at www.regonline.com/swanafl2012roadeo

Early-Bird Registration Deadline: March 15, 2012

I. CONTESTANT INFORMATION

Contestant's Name: _____

Email Address: _____ Is Contestant/Employer a SWANA Member? _____

Shirt Size: S _____ M _____ L _____ XL _____ XXL _____ XXXL _____ XXXXL _____

Will contestant have friends/family/colleagues attending the Competition? Yes, number: _____

Will contestant be attending the Banquet? _____ Yes _____ No

*Will contestant be bringing guests to the Banquet? Yes, number: _____ *Guest fee is \$50/person.

Guest Name(s): _____

II. EMPLOYEE CERTIFICATION

Employer: _____ Telephone: _____

Work Address: _____

Length of Employment: _____

Type Equipment Employee Operates (Manufacturer): _____

Within the last twelve (12) months, has the employee had a chargeable:

Accident: Y _____ N _____ Moving Violation: Y _____ N _____

Number of workdays missed (without clearance) in the past twelve months: _____

Number of days late to work (without clearance) in the past twelve months: _____

Certified to be correct:

Supervisor Name (print)

Supervisor Signature

Contestant Registration Form (Continued)

III. PARTICIPANT CATEGORY

SWANA FL reserves the right to remove categories if less than four contestants register. Contestants will be given the opportunity to select another category to compete in.

Will Driver be bringing own truck? Y ____ N ____

Circle one:

TRUCK DRIVER

HEAVY EQUIPMENT OPERATOR *

MECHANIC *

Rear Loader

Compactor *

Side Loader

Front End Loader *

Front Loader

Track Dozer *

Roll Off

Tractor Trailer

Grapple/Claw †

† State competition only.

* Landfill CEUs are available to those who qualify.

IV. FEES

_____ x \$ 195.00 for each Road-E-O Contestant (*Early-bird rate – available on or before March 15*)

_____ x \$ 250.00 for each Road-E-O Contestant (*Standard rate – available March 16-March 31*)

_____ x \$ 50.00 for each Guest Banquet Ticket

Total Amount Due: _____

____ VISA ____ MasterCard ____ Discover ____ Check (Payable to SWANA FL)

Card Number: _____ Exp. Date: _____

Card Holders Name: _____

Billing Address: _____

Please mail or fax this form along with your payment to:

SWANA Florida Sunshine Chapter
2854 St. John Drive, Clearwater, FL 33759
Phone: 727.797.4234 Fax: 727.231.0693
Email: info@swanafl.org Web: www.swanafl.org



SWANA Florida/Recycle Florida Today Partnership Gains Popularity!

Written by Tammy Hayes, CDM Smith

Our third annual joint Winter Meeting was held on January 26, 2012, at the TradeWinds Island Grand Resort, St. Pete Beach. It kicked off the afternoon before when both boards met and agreed to continue this relationship with another joint meeting next January, in response to positive member feedback from both organizations. An outdoor reception followed where numerous attendees networked while being treated to a gorgeous sunset over the Gulf.

For those who were there, we recognize and apologize for the confusion over meeting space being moved around a few times during the day. Nevertheless, the meeting itself was very well attended and well received. A joint breakfast and opening session met with a surprise guest as Mike Alstott (of the Super Bowl Champion Tampa Bay Buccaneers) joined us!

Separate SWANA and RFT tracks were held throughout the day, with people commenting that they would like to have attended simultaneous sessions. Representatives from the North American Hazardous Materials Management Association (NAHMMMA) also participated in this meeting and hosted a session in the afternoon. Since no one could attend everything, all of the presentations have been posted on the associations' respective websites.

Once again, thanks to all of the

sponsors who helped to make this a successful conference. Attracting 188 people all together, there was almost an event split between SWANA and RFT, with more public than private



Tammy Hayes & Mike Alstott

sector SWANA registrants, as well as representatives from several non-profit groups and regulatory associations. Special thanks go to Ray Moreau for stepping in and helping out with the planning efforts.

I hope to see you all at our annual Summer Conference, June 24-26 at the beautiful Sawgrass Marriott Resort & Spa, Ponte Vedra Beach. This amazing resort features 99 holes of championship golf, a world-class spa, four swimming pools, 11 ATP tennis courts, fishing, biking, and miniature golf in lush landscaped surroundings close to St. Augustine. Consider planning a family vacation around this one!



Sunset during our joint reception

Advertising Opportunities Available

It's not too late to reserve a space in the Summer 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.

Member News

NEW MEMBER

Ian Handley has recently joined the Florida Chapter of SWANA. He is VP North America for Ros Roca Envirotec who is one of the world's leading suppliers of biological waste treatment technology. The Company has established its North American operations in Sarasota.

Ian has a long career history in the waste industry worldwide having owned and managed companies in both the equipment manufacturing, garbage vehicle rental and maintenance, and waste treatment technology sectors of the industry.

Ros Roca is world renowned for anaerobic digestion, mechanical biological treatment (for MSW) and biogas upgrade technology having built many large scale plants throughout Europe.

TRAINING COMMITTEE REQUEST

The week of March 12th all SWANA chapter members will be receiving a survey from the SWANA Training Committee pertaining to the training needs of our members. This survey will be conducted through SURVEY MONKEY and should only take a few moments of your time. Please take the time to complete the survey as it is designed to assist the Training Committee in scheduling training events through out the year.

IN MEMORIAM: CHRIS KOHL

It is with a heavy heart that we mourn the passing of our dear friend and longtime SWANA member, Chris Kohl. Christopher Scott Kohl, President of Kohl Consulting, Inc., died peacefully at home in Winter Park, FL, on Sunday, February 12, after a long battle with Head Neck Cancer. He was 56 years old.

Chris graduated from Florida Technological University with a degree in Chemistry. He later worked for Orange County, FL where he managed the Solid Waste and Recycling Department

at the Orange County Landfill. Chris was a founding member of the Florida Department of Environmental Protection Solid Waste Training Committee, providing insight as both a facility operator and scientist to develop training requirements and materials for workers at all manner of waste management facilities in Florida.

He was one of the first solid waste instructors for the University of Florida Center for Training and Education for Environmental Occupations. In 2001 he started Kohl Consulting, Inc. providing on-site training and consulting to Florida landfills and other solid waste facilities. He also consulted with

solid waste management professionals in China, which became one of his favorite countries to visit due to the friendships he made there.

Chris loved visiting waste management and recycling facilities and learning about the innovative techniques his trainees and clients devised to manage

waste and recyclable materials. He had tremendous respect for operators who ran exceptional facilities under challenging conditions. Chris consulted with senior management and owners of multi-million

dollar operations, but his first priority was always the front line worker, truck driver, scale house operator, sorter on the recycling line, heavy equipment operator, and the spotter inspecting loads of waste being delivered to the facility. As an experienced operator he knew the difficulties his trainees faced. His goal was to ensure that they understood their vital role in protecting the environment.

Chris is survived by his wife Melody; daughter Sara and husband Sean Tuttle and their new son Colton Christopher, of Miami; daughter Kristine and husband Michael Cambron, of Orlando.



Chapter Calendar

April 20-21
Chapter Road-E-O
Kissimmee, FL

June 24-26
Summer Conference
Ponte Vedra Beach, FL

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