



Keystone

For the Solid Waste Professionals of the Keystone Chapter of SWANA

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The Scoop on the Spec Fuel Mini-Technical Seminar



Waste Management (WM) recently hosted a mini-technical seminar at its SpecFUEL™

facility in Philadelphia on August 4, 2015 attended by over 20 registrants. Donald Carlton, Deputy Streets Commissioner with the City of Philadelphia, welcomed the seminar attendees. In 2012, the City entered into a long-term processing and disposal contract with Waste Management and Covanta. The City's contractual commitment supported this innovative technology. The seminar began with a presentation, including a question and answer session. The presentation was followed by a tour of the SpecFUEL™ facility and then lunch.

WM SpecFUEL™ is an alternative fuel manufactured from municipal solid waste that offers a cleaner and economical alternative fuel replacement for coal and petroleum coke. SpecFUEL™ is a desirable fuel for companies seeking to reduce their criteria air pollutant emissions such as sulfur, mercury, and greenhouse gases, while also using a product that diverts waste from landfills.

SpecFUEL™ is produced from post recycled paper and plastics extracted from municipal

solid waste (MSW) that would otherwise be landfilled. The residue from the WM Philadelphia Materials Recovery Facility and MSW from the WM Forge Transfer Station are the feedstock for the WM SpecFUEL™ facility. The manufacturing process involves a highly engineered system that uses mechanical and sophisticated optical sorting equipment to remove recyclable metals, organics, chlorinated plastics, and inert materials (e.g., glass, aggregates, wood, textiles, rubber, etc.) that are unsuitable for fuel combustion. The remaining paper and plastics are densified into uniform, predictable, high Btu, low moisture pellets that when combusted emits lower pollutant air emissions than coal or petroleum coke. One ton of municipal solid waste contains 11 million BTUs of energy or the equivalent of a barrel of oil.

The Philadelphia SpecFUEL™ facility, which is a second-generation design, came online in early 2014. The first generation facility is in San Antonio, TX. The facility is designed to process 300,000 tons of inbound solid waste per year, yielding 150,000 tons of fuel per year. 

By: Donald J. Birnesser, P.E., BCEE, Group Manager, T&M Associates

Companies Tap Landfill Alternatives to Raise Revenue

“Companies in waste management either grow or die,” said Scott Wagner, owner of East Manchester Township-based hauler Penn Waste Inc. — but the industry faces unique barriers to growth. Waste-hauling business typically comes through government contracts, the cost of hauling rises as a company expands, and most trash must be taken to county-designated facilities.

Penn Waste is growing along a different path: a new 96,000-square-foot recycling facility that aims to generate much of its business from independently negotiated contracts with other haulers and agencies. The Lancaster County Solid Waste Management Authority (LCSWMA), meanwhile, has developed a booming business through a power plant that burns trash to produce energy. For both companies in a tightly regulated market, competitive and innovative growth remains the key to a financially strong business.

*“Companies in waste management either grow or die”
- Scott Wagner*

New facility

“Penn Waste was founded in 2000 and quickly saw the value in having a presence in the recycling sector,” said Wagner, also a Republican state senator from York County. It built its first dual-stream recycling facility in 2002, followed by a single-stream recycling facility in 2008. That was replaced in early June by yet another new and expanded facility. The new facility uses computerized optical sorting technology to increase efficiency, and will be able to process about 35 tons per hour compared to 10 tons per hour at the old facility, according to the company's website.

The expanded facility will handle recycling needs related to Penn Waste's 66 municipal waste contracts covering about 175,000 homes in southcentral Pennsylvania — and that business is increasing because the amount of recycled materials provided by households, particularly plastics, has *“gone off the charts”*, Wagner said.

Natural growth aside, though, it is difficult to expand the hauling business geographically because of “windshield time” — the amount of time spent by a truck driver going between a home or business and a trash or recycling facility, he said. As a result, Penn Waste typically operates only within a 35 to 40-mile radius of its base of operations.

Most haulers follow similar principles, although haulers in saturated markets may have to venture for longer distances, said Mark Pedersen, president of the Pennsylvania Waste Industries Association. But Penn Waste isn't content to limit its recycling dreams to its hauling business — in fact, the recycling business is processing recyclables from another approximately 175,000 homes, Wagner said.

Much of the company's recycling business comes from Lancaster County. It received 13,702 tons of single-stream recyclables from the county directly in 2014, along with 12,906 tons through a contract with the Lancaster waste-management authority to handle recycling from other haulers delivered to LCSWMA's transfer station, said Kathryn Sandoe, spokeswoman for LCSWMA.



York County businessman and state Sen. Scott Wagner: president of Penn Waste Inc.



Twenty-eight sorters are part of the workforce at Penn Waste Inc.'s new materials-recovery facility. The York County company handles about 1,700 tons of residential and commercial materials each week.

Wagner said Penn Waste is also actively competing for commercial contracts not regulated by municipal agreements. *"We have a large sales force,"* he said. *"We're out knocking on doors to get more commercial customers."*

Burning trash

Waste-receiving facilities in Pennsylvania also face growth restrictions from government regulations called "flow control." Under Act 101 of 1988, all counties must create a plan for municipal waste management that designates where waste will be taken, Pedersen said.

Many counties manage trash disposal through arrangements similar to Lancaster County and LCSWMA, which has board members appointed by county commissioners and operates under a long-term agreement to take in all residential and commercial waste in the county. The authority, which has no taxing ability, raises money in two main ways: fees for waste disposal and the sale of electricity generated from the trash, said CEO Jim Warner.

The authority generates the second source of revenue through its waste-to-energy plants, which serve as the destination for most of its trash. Overall, Lancaster County burns 54 percent of its waste, recycles 44 percent, and only landfills 2 percent — a record Warner said is more like Denmark's than most of the United States.

The Lancaster facility's boilers can burn about 400,000 tons of waste annually, while the Harrisburg facility can burn about 263,000 tons, he said. That burned waste produces about 220,000 megawatt-hours of electricity annually at the Lancaster facility (enough to fully power one out of every six homes in the county) and 110,000 megawatt-hours at the Harrisburg facility.

While county arrangements provide most of the waste needed to operate the plants at full capacity, the authority must sometimes step into the "very competitive" market for disposal business from other communities, he said.

According to Wagner, there are certain types of waste that are not regulated by "flow control," including industrial and construction waste, for which LCSWMA can competitively seek contracts from other areas. The authority also receives business from outside organizations with waste they specifically want to be incinerated, such as expired drugs.

Warner said the authority has been successful in striking enough contracts to reach capacity at both the Lancaster Resource Recovery Facility and the Susquehanna Resource Management Complex, previously known as the Harrisburg incinerator, which it purchased in 2013.



Penn Waste Inc. expects to see an increase in volume of aseptic packaging, commonly used for juices, milk, soups and other liquids. The York County company's new materials-recovery facility is equipped to sort these type of containers, which are made of multiple layers of paper, plastic and metal such as aluminum.

See "Landfill Alternatives" continued on page 8

SWANA Announces Scholarship Awards

Following the review of applications from a very impressive slate of scholarship candidates, the 2015 Keystone Chapter of SWANA was pleased to award a total of \$10,000 in scholarship contributions to the following applicants in recognition of their remarkable scholastic and extra-curricular achievements:

CATEGORY I

Applicants must be graduating high school seniors, or graduate equivalent certified candidates, who have been accepted for enrollment in a junior college or four-year college or university.



Tim Hoheneder, grandson of Joseph Hoheneder, York County Solid Waste Authority, who will be attending West Virginia University.



Rachael Jasitt, daughter of Douglas Jasitt, York County Solid Waste Authority, who will be attending Messiah College.



Kelsey Munster, daughter of Jeffrey Munster, Lancaster County Solid Waste Management Authority, who will be attending University at Albany -SUNY.



Vivian Tafuto, Daughter of Bill Tafuto, ARM Group Inc., who will be attending University of Virginia.



LenaRose DeLorenzo, daughter of Yvonne Plakotaris, East Penn, who will be attending Muhlenberg College.



Sarah Hnatin, daughter of Michael Hnatin, Lycoming County Resource Management Services, who will be attending Edinboro University.

CATEGORY II.

Currently enrolled full-time college or university students who are entering their junior or senior undergraduate year and pursuing a degree in environmental science, engineering, or other suitable major related to the field of solid waste management.



Seth Trovinger, son of Bill Trovinger, Lancaster County Solid Waste Management Authority, who is attending Juniata College.

The Keystone Chapter of SWANA would also like to offer special congratulations to Vivian Tafuto, whom was awarded an additional \$5,000 scholarship from SWANA International as part of the Grant H. Flint Scholarship Program. This is only the second time that a Keystone SWANA scholarship winner received a scholarship from SWANA International. Congratulations Vivian! 🌍

Nothing Wasteful About Solid Waste

For most people, managing their solid waste means putting their garbage bags along the curb each week to be picked up by their local trash hauler. Encyclopedia Britannica further describes solid waste management as "the collecting, treating, and disposing of solid material that is discarded because it has served its purpose or is no longer useful." While I believe this definition is partly true, I do not think that it fully encompasses the meaning of solid waste management in the 21st century. Today, solid waste management also includes the reuse of waste. Components of solid waste are seen as resources used to make new products or as sources of renewable energy. This means that after solid waste is thrown away, it can still remain useful. I grew up in a household where both of my parents work at the York County Solid Waste Authority and I have been taught that my trash has value. My family and I consistently remove the recyclable material from our household trash. We know the remainder of the trash goes to the York County Resource Recovery Center (YCRRC) to be turned into renewable energy.

Everyone participates in some aspect of solid waste management since everyone makes waste. Consumers buy products and then dispose of the unwanted portions of the product, which need to be collected and delivered to the appropriate locations. Other participants in the solid waste management industry include both professional and operational people such as engineers, environmental managers, safety personal, accountants, site superintendents, and laborers. In addition, governmental entities such as the York County Solid Waste Authority participate in solid waste management by providing a comprehensive plan regarding the management of various waste in York County.

There are many challenges facing solid waste professionals in the 21st century. One such challenge includes ensuring compliance with the many regulations of the solid waste management industry. The regulations cover various areas such as air quality, water quality, and solid waste management. The regulations may dictate how a facility is monitored or if equipment or processes need to be replaced or modified. Another challenge is educating the public and decision makers that their discarded waste is actually a resource that may still contain value. Educating people can change their thoughts on how various wastes are managed. The York County Solid Waste Authority has an education program which teaches the public that waste is a resource. I benefited from this program by being able to tour the YCRRC with my second grade class to learn how waste can be used to generate renewable energy.

As the future of solid waste management progresses, I see the need to further extract valuable resources from the waste. This could be in the form of new technologies for further processing of the waste stream to remove reusable components or by making existing technologies more efficient in removing these items. Many businesses and institutions are incorporating more sustainable practices regarding their waste, which I see as the wave of the future. One such institution that has incorporated sustainable practices is Messiah College, where I plan to attend this fall. Messiah College continues to look at their waste as a resource to feed or fuel another system. Messiah College has programs in place to recycle Styrofoam and other products; compost organic waste, including food waste from each of Messiah's eateries; and convert their cooking oil into biodiesel which fuels the campus utility vehicles. If more businesses and institutions were to incorporate practices such as these, sustainability would be a more attainable goal for the future. 

By: Rachael Jasitt
A Keystone SWANA Scholarship Essay

Americans Waste \$162 Billion in Food Each Year

A majority of Americans waste more food than they are aware of; approximately \$162 billion worth of it each year, according to a new study from Johns Hopkins University. Furthermore, most are unconcerned about the environmental impact of this wasted food.

The report, published early June in the journal PLOS ONE, stated that the top foods wasted, by weight, are fruits and vegetables, which are the most vulnerable because of their perishability and bulk. And according to the researchers, between 30 percent and 40 percent of all the food supplied in the U.S. is wasted. Most of this food is thrown out by households, restaurants and stores.

"Americans perceive themselves as wasting very little food, but in reality, we are wasting substantial quantities," Roni Neff, lead author of the study and director of the Food System Sustainability and Public Health Program at the Johns Hopkins Bloomberg School of Public Health, said in a press release. *"It happens throughout the food chain, including both a lot of waste by consumers, and a lot on our behalf, when businesses think we won't buy imperfect food. The root causes are complex,"* he added.

So what can we do reduce the amount of food waste?

According to Jonathan Bloom, author, activist and creator of the Wasted Food website *"There are three main factors: abundance, beauty and cost."*

The overall food supply is far too abundant and we want that food to look perfect, with the "right" shapes sizes and colors.

"Food prices have certainly been rising for the last five years, but when you look at our household spending that goes toward food, no other nation spends less on its food supply. We simply don't value things we don't spend much on," Bloom says. *"We're very careful about getting deals and discounts at grocery stores and at big-box retailers, but those values don't mean anything when half of that food goes in the trash. Becoming more connected to your food will help you avoid waste,"* Bloom says. Whether you grow your own food or you're simply more conscious while you shop and cook, you're less likely to waste. To help reduce this waste, we compiled these 11 helpful tips.

1. Shop smart and realistically.



It sounds simple, but this is one of the most important things you can do. When you go food shopping, make sure you don't buy too much food. This may mean going to the grocery store more often, and buy-

ing less food each time. If you live far away from the store or you hate shopping, you should be thoughtful and careful about what you purchase.

"Plan out your meals, and make a detailed shopping list with the ingredients you'll need, and when you're in the store really stick to that list," Bloom says. He admits that's easier said than done, but being disciplined is helpful. You should also try to purchase locally sourced produce and other food from places like your local farmer's market.

2. When cooking, don't over-serve food



The idea of massive portions is partly driven by restaurant culture, but it's started to trickle into our homes, Bloom says. Fight against that, and don't over-serve friends and family when you're cooking meals. Using small plates can help with that.

3. Save – and actually eat – leftovers.



In the same vein, make sure you save uneaten food when you either cook too much or you get too much food at a restaurant. Label your leftovers so you can keep track of how long they've been in your fridge or freezer, and incorporate them into your daily or weekly routine.

4. Store food in the right places.



"Storing food in the right place is really underrated," Bloom says. "It's often surprising what kinds of fruits and vegetables want to be at room temperature versus in the refrigerator." The website Food Republic has a fantastic info graphic to help you pinpoint where your various foods should go, while Heart.org breaks down where to put your fruits and veggies to make them last longer.

5. Avoid clutter in your fridge, pantry and freezer.



Bloom reminds us that out of sight is out of mind when it comes to storing food, too. If we forget something's there until it's no longer good to consume, that's a huge waste. Keep things neat and visible, and use the "first in, first out" principle: After you buy new groceries, move the older products to the front so you consume them first. Also remember that things don't last forever in your freezer. Freezing can be a great asset in extending food's lifespan, but it will eventually dry that food out.

6. Treat expiration and sell-by dates as guidelines.



When it comes to expiration and sell-by dates, Bloom recommends not paying much attention to them, as they identify food quality, not food safety. "Trust your senses instead of the date on the package. Trust your sense of

smell and sight and taste," he says.

7. Keep track of what you throw away.



Manage a waste log to keep an eye on what you're throwing out, so you can prevent doing the same in the future. Bloom even suggests adding dollar signs to each thing you throw away. "That tends to get our attention." The other side is to keep track of what's already in your fridge before you go shopping; that way, you won't double-up on products and fail to use them before they go bad. As obvious as that sounds, we all forget to do it from time to time.

8. Donate to food banks and farms.



Before you throw away excess food, look into food banks and charities where you can bring items you know you're not going to consume before they go bad, and give them to people in need. You can find local food banks through Feeding America and WhyHunger. You can also donate scraps and other types of food to farms and companies to feed livestock.

9. Try canning and pickling.



Canning is a great way to preserve food (especially fruit) and increase its shelf life for months.

10. Use helpful apps and gadgets.

There are various tools and apps that aim to help people avoid food waste.



'PareUp' gives discounts to New Yorkers who buy excess food at local businesses and restaurants. 'Handpick' helps you plan meals around ingredients you already have. 'Ample Harvest' points gardeners to food pantries where they can donate excess food, and 'Food Cowboy' makes it easy for wholesalers and truckers to find charities where they can donate unsold food.

Just don't assume these tools will do all the work: it's all still up to us. "No app is going to have as large an impact as us paying more attention to our food consumption habits, but I'm certainly all for any kind of help in getting people to change their ways," Bloom says.

11. Try composting, but don't focus on it.



Rather than discarding scraps, you can compost certain foods and turn it into nutrient-rich fertilizer. But composting shouldn't be top-of-mind when first getting started on reducing food waste. The EPA has a food recovery hierarchy on how we use our food, stating first that we should reduce the waste we create, then donate food, try to feed livestock, use waste for industrial energy and then compost. 🌍

Study information from: Waste360.com

Tips from: <http://mashable.com/>

My Views on Solid Waste

My Views on Solid Waste Managements

Solid waste starts inside the home, business, at the company or in industry. Solid Waste Management addresses how trash/waste is handled. It can be handled by the homeowner, discarding debris, while preserving recyclables (glass, plastic, tin, aluminum, newsprint and others, if available.) It can be handled by businesses who try to find alternative uses and reuses for their discards, while also recycling traditional commercial recyclables such as cutting scraps, cooking oil, tires and office paper. They do ultimately have to throw away something unwanted or unusable. Industries produce residual wastes or bi-products from their manufacturing which must be disposed of but do recycle drums, pallets, metals and assorted fluids.

The state of Pennsylvania has enough landfill space and time for solid waste disposal. However, county and local governments are slowly eliminating small haulers with contracted hauling and disposal. As a member of a family run trash business, I see this as a huge threat to privately held trash companies and the elimination of the consumer's right to choose. This I think, is the single largest issue facing our industry. Another issue, is the New York City trash soon to be brought into Pennsylvania, which will raise dumping rates, effecting all of us in Pennsylvania.

While the Pennsylvania trash industry is facing great debates over contract hauling and the New York City trash, there are several great opportunities in the future of the solid waste industry. The opportunities include more landfills served by rail, waste efficient construction, natural gas garbage trucks, increased composting and eco-friendly trash bags. The future of the waste industry lies within efficiency, sustainability and competition to keep services affordable. 

By: *LenaRoase DeLorenzo*
A Keystone SWANA Scholarship Essay

“Landfill Alternatives” continued from page 3

As Lancaster County continues to grow, LCSWMA may need less outside contracts to keep its boilers operating at full capacity, instead using the Harrisburg facility to burn excess waste from Lancaster County.

Who supplies the trash to local facilities?

The Lancaster County Solid Waste Management Authority feeds its waste-to-energy plants primarily with local waste, but must sometimes compete for trash in other markets to keep boilers operating at full capacity, CEO Jim Warner said.

Here's a look at the sources of trash for local waste-to-energy plants. All numbers represent total tons for 2014.

Susquehanna Resource Management Complex

Total collected: 285,393.9

From Dauphin County: 164,244.2

Other locations providing more than 10,000 tons: New Jersey, Cumberland County, Berks County

Lancaster County Resource Recovery Facility

Total collected: 402,978.4

From Lancaster County: 347,381.4

Other locations providing more than 10,000 tons: New Jersey

York County Resource Recovery Center

Total collected: 447,987.8

From York County: 300,397.2

Other locations providing more than 10,000 tons: Maryland, Philadelphia, Cumberland County, Dauphin County, Adams County, New Jersey

Data provided by the Pennsylvania Department of Environmental Protection. 

By: *Daniel Walmer*,
Originally Printed: June 29, 2015 by the Central Penn Business Journal

T&M Associates Hires Donald Birnesser



Don Birnesser: Solid Waste Group Manager at T&M Associates.

T&M Associates announces that Donald J. Birnesser, PE, BCEE, has joined the firm as Solid Waste Group Manager to lead their growing solid waste practice throughout the Mid-Atlantic and Northeast regions. In this role, he will provide advisory and technical services to help

public and private clients address their recycling, composting, transfer, recovery, and disposal challenges with economical solutions that helps to reduce their environmental footprint. Mr. Birnesser is based in the company's Lancaster, PA office.

His areas of expertise include planning, feasibility studies, site evaluations, environmental permitting and impact assessments, engineering, characterization programs, alternative technology reviews, economic and market analysis, procurement and financing, construction field support, operating and maintenance evaluations, and expert witness services.

"As T&M continues to grow our solid waste practice, Don brings significant expertise that will extend our capabilities and service offerings to our public and private clients looking for innovative waste management solutions," said Ihsan Al-Fayyomi, T&M's senior vice president and environmental services business unit leader. *"From exploring organics management to providing creative landfill services to developing effective planning and public outreach efforts, he has put T&M in a position to meet any challenge our clients may face."*

Mr. Birnesser has been a longtime and active member of the Solid Waste Association of North America (SWANA), a certified Transfer Station Manager, and a member of the US Composting Council. He has a Bachelor of Science Degree in Environmental Engineering and is currently completing a Master of Engineering in Environmental Engineering from Pennsylvania State University. 🌍

Submitted By: Maria Habermann

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Waste Management - A Process

Solid Waste management involves the creation, accumulation, transportation, treatment, disposal, and removal of waste. It can or should also involve reuse, recycling, and reclamation of waste or materials that would otherwise become waste. Virtually every single person is involved in the creation of waste. Responsible management of waste involves many professions, including but not limited to: many types of engineers; many types of scientists; equipment operators; field technicians and laborers; truck drivers; various government positions such as administrators, regulators and politicians; and businessmen and entrepreneurs.

The waste management process begins with the companies that produce goods. As part of the business or production process, companies must consider how to minimize waste creation during the production and consumption of their products, while still successfully marketing their products and earning a profit. Recently, due to government mandates or self-governing strategies, companies are considering how the waste from their products can be reused or recycled, and often returned to them. With raised awareness and education, consumers consider sustainable practices, and after they use products, they may attempt to reuse and recycle the products where feasible. Ultimately, they separate items into recyclable and non-recyclable, and then send "garbage" to the curb.

Garbage collectors are responsible for the collection and transportation of the garbage or "trash," and in some communities, the garbage collectors are responsible for separation of recyclables. Recyclables are taken to a recycling center and trash is taken to a transfer station (for efficient transportation), or directly to an incinerator (resource recovery facility), or directly to a landfill for disposal. Most trash in the United States is disposed of in a landfill, and some fraction is incinerated, and the steam from the incineration process is used to generate electricity.

One of the issues that waste management faces today is that neither incineration nor landfills is an ideal solution, and

both methods face public criticism and a "NIMBY" attitude ("not-in-my backyard"). Although incineration reduces the amount of waste that ultimately requires disposal, it emits air pollutants into the atmosphere. In addition, the ash from the incinerator must be disposed of as well, usually in landfills, though there are some potential uses for ash as a soil substitute. Landfills are the final disposition after exhausting possible reuse and recycling and incineration opportunities, which are not always available in all communities. The technology progression of landfills has helped solid waste management create less pollution and environmental impacts, but with limited space and with reservations that people have toward having landfills near their homes, the amount of trash or residue (from incineration or other processes) that ultimately arrives at landfills must be reduced.

The future for waste management seems to lie in finding ways to reuse as much of the waste as possible for as long as possible, using packaging made from recycled goods, using incineration to reduce disposal volume, and limiting the trash that every single person produces. Other waste conversion processes (such as waste to fuel, like ethanol or biodiesel, etc.) must be advanced to a point where they are economically viable. Despite the potential for future waste processing improvements, waste is produced every day, and while more innovative solutions may come in the future, improvements with reduction and efficiency in reusing trash are the best solutions for now, and we must handle waste every day and, thus, landfills are essential in the near future. Efficiency today and innovation tomorrow are the best solutions we have for waste management so that we are able to keep a clean, sustainable world. 🌍

*By: Vivian Tafuto
A Keystone SWANA Scholarship Essay*



Philly Zoo Makes Art From Recycled Materials

The Philadelphia Zoo is featuring this summer an exhibit of animals and nature sculptures made from recycled materials. The display, called "Second Nature—Junk Rethink," showcases works by various artists to bring attention to the plight of endangered animals. Some of the exhibits include:



Polar Bear Cubs

Australian artist James Corbett created these sculptures from more than 5,000 used spark plugs, never bending

the parts. The spark plugs come from auto workshop trash; even the coating was preserved using solar energy.



Blue Gorilla

Artist Don Kennell created this 13-foot tall gorilla out of recycled car doors, connecting recycling to the future of gorillas in the wild. He often employs up-cycled materials that

make connections between the natural world, environment and human behavior.



Bloom

The sculpture by the collaborative artist group FLUX is a tree sprouting butterflies and flowers that's 35 feet tall. It's made of recycled car hoods, kitchen tools, traffic signals,

heating, ventilation and air conditioning (HVAC) ducts, artificial turf and road plate. It's intended to establish a connection between our actions, animals and our shared environment.



Regeneration

The Cracking Art Group, which consists of six international artists, made colorful and towering rabbits and

other animals from recycled plastic to play hide-and-seek at the zoo. The group has traveled the world demonstrating its environmental commitment through its work.

Crocodile

Italian artist Maurizio Savini made this eight-foot long crocodile out of chewing gum. Chewing gum is a worldwide problem, costing businesses and taxpayers millions of dollars per year to clean up if not properly disposed. Chewing gum cannot typically be recycled or composted.



Gorille en Carton

Montreal artist Laurence Vallieres built this gorilla out of recycled cardboard onsite at the zoo. The material was collected in Philadelphia. The sculpture aims to inspire guests to use less paper and packaging.



"Robot" Animals

Ann Smith Larson sculpted an array of 10 animals—owls, hummingbirds and goats—using recycled machine parts and broken electronics. The smallest hummingbird is composed of 40 pieces, and the largest owl is made of nearly 150 pieces.



White Rhinoceros

Local artist Leo Sewell created his rhinoceros sculpture from 250 silver plate serving trays and other dinnerware collected from curbs, junk sales and scrap piles.

Sewell grew up near a dump and has worked with junk for 50 years. 🌍



*Suggested By: Robert Hasemeier
Source: Waste360.com*

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Improving Waste Management with Technology



Many careers participate in the solid waste industry, from local haulers to scientists and engineers. My views are primarily gleaned from information of my father, who is an environmental engineer at the Lycoming County Resource Management Solid Waste Landfill and Recycling Center. He is also a member of SWANA Keystone and a former member of Professional Recyclers of Pennsylvania (PROP). Recently, I went on a tour of the facility to see the recycling center and the landfill itself, which was quite enlightening to see just how state-of-the-art the facility is. Not only do they have a vacuum collection system, which draws methane gases from decomposing wastes, but they also have a cogeneration plant which produces electricity for use via a steam turbine. In addition, the landfill handles a new single stream-recycling center. The cost to implement and install the system which fully handles and separates a variety of waste products including paper, plastic, metal, glass, and cardboard is quite high, yet the advantages far outweigh the initial output.

My understanding is that this system will be an impetus for the residents of the county to recycle since they no longer have to sort their recyclables at home. Also, the landfill no longer needs a fleet of single compartment recycling trucks and staff to operate them. Not only this, but not they are able to accept a larger variety of plastic, cardboard, and paper types. All of these advantages point to money savings in the long haul as well as additional revenue with the sale of bundled and baled recyclables.

Some of the issues facing the profession are the disposal costs, harmful effects of solid waste, recycling issues, water pollution, hazardous waste disposal, and the rising costs of caretaking after a throwaway society. In an effort to learn more about this, my father went to Europe for a tour of several countries that have outstanding records in the areas of recycling and waste disposal.

Another way he helps is by giving tours of Lycoming County Landfill's facilities to college students who are majoring in environmental engineering, chemistry, biology, and other related fields. He has also given tours and speeches to groups of foreign representatives from Turkey and India, who traveled to America to learn from our local facilities some management policies and procedures that they can take back to their home countries in order to facilitate better waste management practices. In this way, we are making an impact not just locally, but globally, toward the future of better waste management practices. 🌍

*By: Sarah Hnatin
A Keystone SWANA Scholarship Essay*

10 Most Wasteful Cities on Earth

We all know that waste can be a big problem. But just which Cities are producing the most of it?

10. Sao Paulo, Brazil

The giant Brazilian city generated 6.15 million metric tons of municipal solid waste in 2011, the comparative year for the study, "Energy and Material Flows of Megacities."

9. Osaka, Tokyo

Japan's second biggest megacity generated 6.699 million metric tons of MSW in 2011. The report examined 27 megacities, or those with populations of more than 10 million in 2010.

8. Cairo, Egypt

The Egyptian capital generated 7.09 million metric tons of solid waste. In all, the 27 cities measured account for 12.6 percent of the entire MSW generated in the world.

7. Jakarta, Indonesia

The capital of Indonesia accounted for 8.64 million metric tons of MSW in the study year. In 1970 there were only eight megacities (with populations in excess of 10 million).

6. Istanbul, Turkey

The largest city in Turkey generated 9.3 million metric tons of MSW in 2011. A further 10 megacities are projected to exist by 2020.

5. Mumbai, India

The giant city in India reported waste generation of 10.03 million metric tons in 2011. Based on Brinkhoff population data from 2010, Mumbai had a population of 22.8 million people.

4. Los Angeles

America's second largest city accounted for 11.1 million metric tons of municipal solid waste in 2011. The California city of 23.2 million recently has been working toward a waste franchise zone plan to better manage its solid waste.

3. Tokyo

Japan's capital, with a population of 23.4 million, generated 11.9 million metric tons of solid waste in 2011. Tokyo has nearly one-third fewer people than New York City, but uses less energy than the Big Apple.

2. Mexico City

The capital of Mexico has a population of 24.2 million and generated waste of 12.2 million metric tons. The report noted that one of the challenges with the solid waste data is that the construction sector produces large quantities of waste that is not always counted in inventories, and commercial waste handled by the private sector can be difficult to estimate.



Garbage Piled up in Mexico City

1. New York

New York City topped the list of most wasteful cities by far in terms of MSW, generating nearly three times what the No. 2 city generated, or 33.2 million metric tons in 2011. With its population of 34 million it also is tops in solid waste production per capita. In addition, the city ranks as the biggest municipal consumer of energy and water in the world. 🌍

By: The Staff at Waste360
http://waste360.com/collection-and-transfer/worlds-10-most-wasteful-cities?NL=WST-08&Issue=WST-08_20150521_WST-08_91&sfvc4enews=42&cl

Greener Holidays are In Season

As the weather turns cooler and the calendar flips to October we realize that pretty soon, we'll be thrust into the holiday season. It starts with trick-or-treating for goody's, followed by cooking a huge family meal, and ends with the wonderful traditions of driving past homes decorated with beautiful Christmas lights and jolly inflatable Santa's and unwrapping gifts shared with family and friends.

With the increased decorating for Halloween, the often overstuffed Thanksgiving dinners and curbsides littered with Christmas trees, soggy gift boxes, spilled packing peanuts and garbage bags bulging with crumpled gift wrap it becomes obvious that the last three months of the year can be quite a burden on the landfills.

Holiday-generated trash is the ugly and wasteful side of the season. But thankfully there are steps you can take now to make your holiday greener – and we're not talking about the color of your wreaths.

Use compostable Halloween decorations such as corn stalks, gourds, apples and pumpkins. If you like decorating your yard as a cemetery, look for post-consumer recycled woods or cardboards and be sure to store them properly for use year after year. Those poly-fill spider webs might look cool, but don't bother purchasing these or the plastic spiders that fill them; an old pair of pantyhose can look just a spooky with some selectively placed runs. Apples can be cored and stuffed with candles to light up the walkways, and a homemade custom can bring a second life to the clothes used to make it. Finally, look for locally sourced goods such as treats and pumpkins to reduce the carbon footprint.

Once the jack-o-lanterns are in the compost bin, it's time to focus on your family meal. Although it goes without saying, the biggest waste associated with Thanksgiving is in uneaten food. Knowing how much to cook can seem a daunting task, but leftovers tend to go uneaten. A typical

rule of thumb is one pound of turkey per person, but I find the more side dishes you add the less turkey people eat, so plan accordingly. Start again by buying local whenever possible, and plan on sending home the leftovers with multiple people. This gives everyone a chance to pick their favorites and leaves less to get shuffled to back of your fridge. Just be careful that you don't send someone traveling with a quick to spoil food. Speaking of which, try to pick the destination that incurs the least travel for everyone, and if you must leave, set your thermostats back home a bit lower. Of course, anything that the guests don't or can't bring home can also go to a local food bank or shelter too!

Now that our bellies are stuffed its time to think about the largest holiday for waste on this list; Christmas (and to a lesser extent Chanukah). To reduce your waste, start by recycling your tree. Reach out to the companies that always send catalogs and request they stop. Instead of mailing Christmas cards that get trashed come New Years Day, wish relatives a merry Christmas via email. Bring your packing peanuts and burnt out Christmas Lights to a local facility for recycling instead of trashing them. And finally, wrap presents in handmade wrapping paper or old newspapers. Don't forget to choose long lasting and reusable gifts whenever possible.

Another helpful trick is to challenge yourself and members of your family to discover new and creative ways to keep cherished traditions while celebrating without needless waste. When everyone tries to be a little bit greener, the results can be huge. 🌍

By: Alison D'Airo



Solid Future for Solid Waste Management



Landfill Capped with Solar Panels to produce energy on 'wasted' land.

The loud, grating sound of a trash truck at 4:00 in the morning can make anyone groan and muffle that groan by burying his head under the pillow. In the light of day, when the trash is gone, the average homeowner is then thankful for the solid waste management industry. Solid waste management is a vital part of today's society. It encompasses the generation of waste by homeowners and businesses, the removal and transport of waste to a disposal facility and the implementation of solutions to minimize, reclaim and recycle waste. The key participants in solid waste management are the solid waste authorities that manage the disposal of waste and the public officials and agencies that govern the rules of management.

The public at large is also a key participant in that they not only generate the waste by they also have strong opinions on how solid waste should be handled and disposed of. To better understand the scope of solid waste management, it is important to identify the current issues faced by the industry and review the future direction of the industry.

Current issues faced by the industry can be broken down into three categories: landfills, incinerators and waste from other states. The issues faced by using landfills for waste disposal include lack of space, concerns from neighbors and additional miles for transport. Once a landfill is full, it is a long and difficult process to expand it or open a new one. Expansion is often opposed by the people living by or in the surrounding area. Some of the reasons for opposition include environmental impact concerns, increased traffic and smell. In order to open a new landfill, space may only be available far outside the living area requiring additional travel over many miles to get there. Incinerators offer the benefit of generating electricity for the surrounding communities, however, the concerns over the impact of air pollution on the communities often overshadow the benefits. Finally, lack of space in adjacent states requires accepting waste that is not generated by the local community. This causes issues with running out of landfill space as well as public relations issues even though there is additional revenue associated with this practice.

The future direction of the solid waste industry seems to be an environmentally friendly one. Management authorities are now accepting E-waste (waste from electronic products nearing the end of their "useful life"). This waste can be reused, recycled and refurbished rather than being buried or burned. Another environmentally friendly practice is to make use of the open space at landfills by installing solar panels to collect sunlight and wind turbines to harness the wind and convert both to electricity. Converting the methane generated at landfills and converting it to electricity is another practice.

In conclusion, looking at the current issues and the future direction of solid waste management are important in gaining an understanding of the scope of the industry. Issues of lack of land space and potential air pollution are always a concern, yet the practice of implementing environmentally friendly alternatives may outweigh the concerns. The next time a trash truck makes you groan, think of the benefits you are gaining by having a solid waste industry that cares about the future of our environment. 

*By: Kelsey Munster
A Keystone SWANA Scholarship Essay*

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The Keystone is now accepting advertisers in support of the SWANA Keystone Chapter Scholarship Awards!!



For additional information and an application visit KeystoneSWANA.org or contact Alison D'Airo, Phone 717-737-8326

Note of interest—sponsors to either the Road-E-O or the annual Chapter meeting will receive a free advertisement in the next issue of the Keystone newsletter.

Suburban Testing Lab

Mini-Tech Seminar

Suburban Testing Labs, a full-service environmental testing lab in Reading, PA, is hosting a “Day in the Life of a TCLP Sample” Mini-technical Seminar on October 23, 2015. The Seminar is to include:

- Tour and presentation to focus on TCLP analysis
- See a dual TCLP Rotator – customized instrumentation
- How data and results can be translated and how quality control is maintained throughout sample analysis
- Discuss buffers, Total Analysis vs. TCLP
- Review audit findings and how it can impact data

There is a \$25 registration fee for the seminar and lunch afterwards. Individuals touring the lab must wear long pants and closed-toe shoes. Registration forms are located on the Keystone SWANA web page at <http://www.keystoneswana.org/>.

Suburban Testing Labs is a nationally recognized independent environmental testing laboratory specializing in analysis of water, wastewater, and solid materials such as biosolids, sludge and soil. Suburban Testing Laboratories has over 50 years of experience in environmental testing for microbiological, inorganic and organic contaminants, and is accredited in accordance with NELAC (National Environmental Laboratory Accreditation Conference). 

Hope to See You There!!!



Improving Protocols to Reduce Landfill Space

Solid waste management combines the collection, treatment, and disposal of solid materials which are no longer useful. These materials may include food, electronics, and household items, as well as hazardous waste. Those impacted by the waste management process include individuals, businesses, communities, and facilities where waste is processed. Though we blame processing plants such as landfills and incinerators for negative environmental impacts, I believe that the management process begins on the individual level.

Many people don't know where their garbage ends up or more importantly, how much it is adding up. It is easy for someone to think that their waste stops being their problem when it leaves the curb. The solution to this comes with public education and awareness. The future of waste management is not simply in the hands of a few companies, but in the hands of all of us. The goals of Waste Management should be to increase the amount of reuse, reduce the amount of waste produced, and recycle what is left over. However, one of the issues in managing waste is how we dispose of materials that can't be reused or recycled. The solution begins with reduction. There are many ways in which we can curtail the amount of products we are currently disposing of, but due to the "out of sight-out of mind" mentality it is easy to forget how much waste we really produce. The EPA finds that Americans create approximately 4.38 pounds of solid waste per person, per day. For waste to energy facilities this is useful material to sustain their means but in areas where only landfills are available this is not a suitable number. Another statistic provided by the EPA is that there are currently around 3,000 active landfills and 10,000 that have

been retired. Though many landfills are finding new ways to expand it is only a matter of time before they reach maximum capacity.

It is safe to say that the issue of solid waste is not going away. The industry and the community are faced with the task of finding new and environmentally sound ways to dispose of the waste that we all produce. Through education efforts and new technologies I believe we will find a way to manage our waste in a manner that is apt for our current economy. However, this will not happen without the implementation of new processes and protocols which reduce the amount of materials that cannot be reused or recycled. Instead of blaming waste management facilities for their environmental impacts it is time to take responsibility for the waste that we generate. 🌍



*By: Seth Trovinger
A Keystone SWANA Scholarship Essay*



ISRI Investigates the Economics of Recycling

The recycling industry generates more than \$105 billion in economic activity annually, according to an ISRI study. The Institute of Scrap Recycling Industries (ISRI), Washington, has released a new economic impact study that shows the recycling industry accounts for nearly half a million jobs in the United States and generates more than \$105 billion annually in economic activity.

The independent consulting firm of John Dunham and Associates, Brooklyn, New York, conducted the study, which explores the size and scope of the scrap industry in the United States and measure its contribution to the economy in terms of employment, tax generation and overall economic benefit.

The survey finds that since 2013 direct employment in the recycling industry has increased by 8 percent, direct economic activity has increased by 30 percent and tax revenue generated by the recycling industry has increased by about 8 percent.

ISRI conducted similar studies in 2011 and 2013.

“Despite the challenging landscape of today’s global marketplace, scrap recycling has proven to be a resilient, job creating and economy-driving industry,” says Robin Wiener, president of ISRI. *“As the first link in the manufacturing chain and as a major exporter, the scrap recycling industry is a leading indicator to the overall health of the U.S. economy. While the last several months have been difficult for commodities, this study suggests hope for a rebound.”*

According to the report, the recycling industry is responsible for 471,587 direct and indirect jobs in the United States, of which 149,010 are direct jobs. Direct jobs include those in facilities that process scrap materials into new, usable commodities. Indirect jobs come from those that supply machinery, equipment and services to processors and the wages and taxes paid by the scrap recyclers to their workers and suppliers.

The data used for the study was gathered by location. Further, to ensure the accuracy of the information, John Dunham and Associates only included companies that classified their operations as recycling firms.

Also, according to the study:

- The industry generates about \$4.4 billion in state and local revenue annually and another \$6.8 billion in federal taxes are paid each year by the industry and its employees.
- The scrap recycling industry accounts for 0.68 percent of the national’s total economic activity, making it similar in size to the country’s data processing and hosting, dental and automotive repair industries.
- Exports account for 26.8 percent of the industry’s economic activity, creating roughly 125,276 jobs.
- Export activity generates \$28.3 billion in economic benefits, including \$1.3 billion in federal tax revenue and \$1.7 billion in state and local taxes.

Mark Carpenter, a spokesman for ISRI, says, *“As this study shows, the recycling industry is an economic driver that can attract high-paying jobs to a region, both directly and indirectly, as well as generate local and state revenue through taxes. Being able to show that it is similar in size to industries such as automotive repair and data process and hosting also demonstrates its scope and magnitude.”* Continuing, Carpenter says, *“The ability to break down the number of jobs and economic impact in great detail for each congressional and state legislative district is a great way to educate elected officials about the value and importance of the recycling industry, particularly among their constituents. The study will be shared with members of Congress and state legislators as part of ISRI’s ongoing advocacy efforts through its work on Capitol Hill and [with] chapters and individual member outreach.”* 

Source: <http://www.recyclingtoday.com/isri-2014-scrap-recycling-industry-economics.aspx>

Setting the Goal for A Zero-Waste System

In the Disney Pixar movie Wall-E, a small robotic trash collector of the movie's namesake is seen clambering besides endless piles of rusted metal, discarded goods, and trash. The movie shows us what a world without solid waste management would look like.

Although I was eleven when the movie premiered, I was already very familiar with the concept of solid waste management thanks to my grandfather, a SWANA member for more than 30 years. Through his teachings, he helped to form my views on the subject. I believe that solid waste is a resource and that solid waste management is taking something undesirable and converting it into safe, economic, and environmentally conscious products. Although we may think that only engineers, scientists and other solid waste professionals are responsible for solid waste management, the truth is that everyone who throws away trash par-

ticipates in the process. Each of us not only needs a reliable and economic way to dispose of our trash, we also need to take responsibility for the amount of trash we create and to remember to reduce, reuse and recycle.

There are many issues facing the responsible management of solid waste. Landfills are the primary method of waste disposal in the US; however, burying waste does not allow for the creation of a useable product, but rather for the formation of undesirable methane gas, CO₂, and toxic leachate. Unchecked, these by-products have the potential to pollute our air and contaminate our water. On the other hand, incineration of solid waste can result in the creation of electricity but unfortunately also the creation of greenhouse gas and toxic air pollutants, even when air pollution control devices are installed. Additionally, the ash resulting

from the incinerators often ends up in landfills. The process of waste collection, predominately by truck, is very expensive and likewise contributes to air quality degradation.

To avoid a future as seen in Wall-E, where mankind has laid waste to its home planet, the world needs new and improved ways to reduce, reuse, and recycle our waste. We also need to reduce the greenhouse gas emissions associated with solid waste and make our respective carbon footprint smaller. This can be achieved by reducing the amount of waste produced per person and implementing the latest and most environmentally-friendly methods of turning waste to energy. Eventually the goal of solid waste management is to have zero waste systems. 🌍

*By: Tim Hoheneder
A Keystone SWANA Scholarship Essay*

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Serving the Solid Waste Industry for nearly 30 years!



Call to Young Professionals

Do you know any young professionals working in your organization?

SWANA is inviting Young Professionals (YPs), age 35 or younger, to join SWANA at a special price! New member YPs pay a discounted fee of only \$100 during their first year of membership.

Please consider sharing the information below with eligible young professionals in your organization and encouraging your YPs to join SWANA. And if you are a current SWANA member under the age of 35, please join the Keystone Chapter's YP group by contacting Tessa Antolick at tantolick@armgroup.net.

Why Join SWANA as a YP?

The opportunity to join SWANA will make a significant impact in a young professional's career. Empowering and engaging new professionals in the solid waste industry not only advances our field, it develops tomorrow's leaders and advances your organization as well as our local communities. SWANA members enjoy many benefits, such as:

- **Networking Opportunities** – Excellent networking opportunities exist to meet your peers locally and across the country at various events, conferences and through online resources.
- **Members Only Information** - Over 1,000 presentations are housed on SWANA's eLibrary including past presentations, papers and reports. Unlike random documents you may find online, the documents in SWANA's eLibrary have all been vetted by leading professionals within municipal solid waste management.
- **Chapter Involvement** - As a member of SWANA, you also become a member of the Keystone SWANA chapter. Connect with local members to discuss state regulations and MSW issues unique to Pennsylvania while increasing your network locally. You will also receive The Keystone, the chapter's newsletter pub-

lished three times a year.

- **Leadership Opportunities** - Members have the opportunity to volunteer for a variety of projects in different capacities. From writing an article to leading your chapter, the opportunities to accelerate your leadership skills are available to those up to the challenge.
- **MSW Management** - This bi-monthly publication is the official magazine of SWANA and provides members with the latest information on municipal solid waste management.

How Do I Join SWANA as a YP?

Join SWANA at the special YP rate* by visiting www.swana.org/Membership/JoinSWANA. Provide your birth month and year when prompted to qualify. *Note: The Young Professional Discount only applies to NEW members.

Your YP SWANA Membership ALSO includes a 1-Year FREE Technical Division Membership (a \$45 value) in one of 7 areas of interest to further focus your overall SWANA experience.

Looking to Get Involved in the Keystone YP Chapter?

Are you ready to help advance the solid waste industry and be a part of something bigger? If you are a current YP member of SWANA or a new YP looking to get involved with the Keystone Chapter's YP Group, please contact the YP liaison, Tessa Antolick. You can also log-in to your MySWANA account to connect with other YPs under the community tab, interact with us on Twitter @SWANA or check in with the YP LinkedIn Group.

Visit www.SWANA.org/YP411 for more information. If you have any questions, please don't hesitate to contact Tessa Antolick, Keystone Chapter Young Professional Liaison at tantolick@armgroup.net or by phone (814) 272-0455 x2205. 

Submitted By: Tessa Antolick

SWANA Pennsylvania Keystone Chapter Calendar



For more information, event registrations, and updated information please go to the Keystone Chapter's website:

<http://www.keystoneswana.org/>

Some events to plan for include:

OCTOBER 2015

- Chapter fiscal year begins
- **No Board Meeting scheduled**
- Friday, 10/23, 10 am, Suburban Testing Lab Mini Tech, Reading, PA
- Treasurer prepares fiscal audit packets
- Distribute fall newsletter

NOVEMBER 2015

- Thursday, 11/5, 10 am **Board Meeting at Chester County Solid Waste Authority, Narvon,**
- Thursday, 11/5, Audit Committee meeting immediately following Board Meeting
- Treasurer submits Chapter financial report to the accountant
- Plan to renew Secretariat administrative service contract for next year

DECEMBER 2015

- Accountant audits financial report and prepares 990 IRS Tax Filing
- **No Board Meeting Scheduled**
- Secretary and Treasurer submit Chapter annual reports to SWANA
- Sign Secretariat service contract for next year

JANUARY 2016

- Thursday, 1/7, 10 am, **Board Meeting Conference Call**
- Submit articles for winter newsletter
- Email 14th Annual Mid-Atlantic Regional Road-E-O announcement
- Program Committee initiates planning for 18th fall conference
- Receive Scholarship applications from SWANA Headquarters
- Send Scholarship announcement to members

FEBRUARY 2016

- Thursday, 2/4, 10 am **Board Meeting Conference Call**
- Distribute winter newsletter via email

MARCH 2016

- Thursday, 3/3, 10 am, **Board Meeting Conference Call**
- Mail exhibitors and sponsorship announcement for 18th fall conference
- Program Committee completes planning for fall conference



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► This Publication is for the Solid Waste Professionals of the Keystone Chapter of SWANA

The Keystone is published a minimum of three times per year (generally winter, spring, and fall). If you have ideas for future articles, updates, or general suggestions for The Keystone Newsletter, please contact **Alison L. D'Airo** at Barton & Loguidice, Newsletter Secretariat Production Services, or any member of the Newsletter Committee listed below:

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Chapter members: please freely share this info with others that you work with or who have an interest in waste news in PA. **Please remember to send Kay Dougherty, Chapter Secretariat, your current email address** as all future newsletters, as well as informational broadcast faxes and other communications, will only be sent via email. Her email is: kdougherty@keystoneswana.org. If you did not receive your copy of this newsletter emailed from Kay, *you are not on our email list for news.*