



Keystone

For the Solid Waste Professionals of the Keystone Chapter of SWANA

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A Message from SWANA President Robert Hasemeier



With the presentation of Chapter scholarships, this is a good time to discuss succession

“Better be wise by the misfortunes of others than by your own.”

~Aesop quotes

“In those days he was wiser than he is now; he used to frequently take my advice.”

~Winston Churchill

plans in our solid waste business. As evidenced by my photo, I have less color in my hair suggesting by some that I am getting old. But with age, I offer, “It is easy to acquire knowledge, but wisdom is knowing how to effectively apply that knowledge.” Some other gems of wisdom follow:

“Wisdom oft times consists of knowing what to do next. “

~Herbert Hoover

“All men make mistakes, but only wise men learn from their mistakes.”

~Winston Churchill

Where am I going with this thought? I am looking to identify persons who will succeed us “wise guys” in the solid waste business. Examine the quotations again prior to proceeding.

There is a body of knowledge in the industry that may disappear with impending retirements. I am presenting a paper at the New York Federation conference later this month in Lake George, NY. In establishing the background for the audience about how flexible membrane liner (FML) materials have evolved since the 1976 passage of

Keystone Chapter Scholarships Awarded

The Keystone Chapter has selected and awarded four scholarships this year to three graduating high school seniors and a current undergraduate student. All plan to major in either environmental science, engineering or other major that is related to solid waste management. The winning scholarships are reprinted on pages 3-6 of this newsletter. The 2012 Keystone Chapter Scholarship winners are as follows:

Category 1 Winners (Graduating High School Seniors)

Jessica Jasitt - \$2,000 Scholarship winner. Jessica will attend Messiah College and is the daughter of Doug Jasitt who works for the York County Solid Waste Authority as Manager, Engineering/Operations Division.

Bailey Barstar - \$1,500 Scholarship winner. Bailey will attend University of Pittsburgh and is the daughter of George Barstar of Barstar Geotechnical & Environmental Services, Inc.

Seth Trovinger - \$1,500 Scholarship winner. Seth will attend Juniata College and is the son of Bill Trovinger who works for the Lancaster County Solid Waste Authority as the WTE Facility Manager.

Category 2 Winner (College Upper Level Undergrad with Major Related to Solid Waste Field)

Andrew Trovinger - \$1,000 Scholarship winner. Andrew attends Temple University, Engineering Major. Andrew is the son of Bill Trovinger who works for the Lancaster County Solid Waste Authority as the WTE Facility Manager.



Scholarship winner Jessica Jasitt with her parents and Bob Zorbaugh, from LCSWMA and Keystone Chapter Secretary.



Bob Zorbaugh presenting Bill Trovinger scholarships for two of his sons.



Bob Zorbaugh with Bailey Barstar and her father, George Barstar.

Scholarship Winner— Jessica Jasitt



Solid waste management is a topic that is typically not discussed between teenagers. One chore that a teenager might have is to take out the trash. They usually don't think about where the trash goes after it leaves their house. I, however, have had more exposure to the issue of solid waste management because both of my parents work at the York County Solid Waste Authority. As a young child, I took a field trip to the York County Resource Recovery Center and toured the plant where I learned how trash was made into electricity. Also, I learned how to make a new piece of paper by recycling old pieces of ripped up paper.

Solid waste management deals with the collecting, transporting, recycling, processing, composting, and disposing of trash. All these things need to be done in ways that are friendly to the environment. At my house, we separate the items that can be recycled from those that cannot. Then, the recyclable items are transported by truck to the local recycling center. The remaining trash is taken to the York County Resource Recovery Center, where it is converted into electricity which is then sold to a power company.

Everyone makes waste and everyone participates in some aspect of waste management. Residents, as well as businesses, produce trash, which needs to be collected and disposed of properly. People in many different professions are involved with solid waste management, such as accountants, engineers, geologists, community relations professionals, and laborers. Municipal governments also participate in waste management. The York County Solid Waste Authority's mission is to provide a solid waste management system for the county which addresses waste reduction, reuse, recycling, and disposal and includes programs and facilities to manage the county's various waste streams. The college I'm going to attend, Messiah College, has a sustainability waste initiative. They turn their cooking oil into biodiesel, which fuels the campus utility vehicles. Messiah also has a vigorous recycling program. I plan to work with children in my professional career and I believe sustainability and environmental protection are very important. Teaching our children about proper waste management is key to promoting responsible environmental stewardship. I look forward to taking on that role upon my graduation from Messiah College.

There are many current issues that challenge the solid waste management industry. One issue is the depressed economy. During an economic downturn, solid waste businesses and facilities still need to provide efficient and environmentally safe services, but they must do so in a more cost-effective way. Another issue in the industry is the environmental laws that are always changing. Professionals in the solid waste management industry need to stay updated on these laws so they know if their equipment or processes meet the correct standards. If they no longer meet the required standards, they may need to be replaced or modified. Also, new reporting requirements may be necessary, which requires additional data to be collected and reported.

In the future, the world's population will continue to increase. An increase in population also means an increase in the amount of trash that will be produced. There will continue to be a need to effectively recycle and capture the valuable resources in the waste, while minimizing waste disposal needs. An example of this is electronics recycling. When an electronic device dies, it should be taken to an electronics recycling program. There needs to be more electronics recycling programs so that more people have access to them. I believe with increased recycling programs, use of waste to energy plants, and the development of new waste management technologies, we can continue to preserve the environment for future generations. 

Scholarship Winner—Bailey Barstar



Everyday people throw away things like boxes, paper goods, plastic, and many other materials. This solid waste or the trash that excludes liquids is generally incinerated, recycled, or most commonly put into a landfill. The EPA estimated approximately 36.2 million tons of municipal solid waste was discarded last year. About half of that solid waste ended up in a landfill. All of this trash, if unwatched could cause serious health problems.

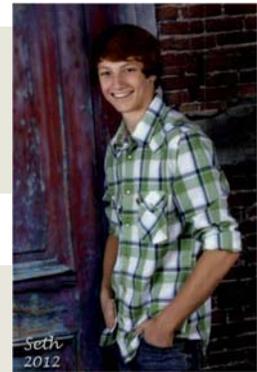
In earlier days our solid waste would just be left in a hole or left for the animals. Today most of our solid waste goes into modern landfills. These modern landfills are carefully regulated and designed by teams of engineers. Civil engineers especially have been fighting the issues of solid waste management for years. With their innovation and dedication they have developed systems to battle two of the biggest problems facing solid waste management. That is to collect leachate and harmful gasses. To prevent water contamination, whether into a nearby stream or the underground water, liners have been developed to capture the leachate. The leachate that comes out of the landfills could be toxic or harmless depending on the landfill it is coming from. A more across the board issue is the collection of the harmful gasses often created by the landfills. Also there are now systems in place to capture the highly flammable methane gas that comes out of the landfills. Solid waste management is looking at the problems the decomposing trash may inflict on both people and the environment and trying to find a resolution.

Despite many improvements, landfills that contain our solid waste have a major issue facing it. That issue is cost. Even when a landfill closes it needs to be regulated to make sure the liners and gas systems are working to ensure safety for everything. For instance if a landfill closes near a residential area and the liner or gas system is faulty the results could be disastrous. A family could have a fire in their backyard that turns into an explosion because there is too much methane present in the air. Or perhaps the liner is faulty in some way and leachate leaks into the water supply causing major sickness for a whole area. Not only would fixing such problems cost money but having a dedicated engineer go every year to a closed landfill costs money as well.

Although there is no cheap way to manage waste currently, I believe eventually it will be a money making industry. The future for solid waste management will be bioreactors. After the initial startup costs one could sell the methane gas as energy. It will be costly but once one is able to produce the methane and harness it into energy a world of opportunity opens. A more short term innovation that maybe useful are the bio-covers.

Bio-covers are compost covers that also eliminate the output of methane gas by oxidizing the gas. Other technologies will continue to emerge as the constant demand for being creative in reducing overall costs for operation and long term obligations for landfills while providing enhanced environmental protection. 🌍

Scholarship Winner— Seth Trovinger



By definition, waste management is the processes involved in dealing with the waste of humans and organisms, including minimization, handling, processing, storage, recycling, transport, and final disposal ("waste management"). According to the EPA (Environmental Protection Agency) U.S. citizens generated about 250 million tons of trash last year ("Municipal Solid Waste"). This large number poses a great threat to our growing nation but there is hope; the EPA goes on to state that over the last few decades, the generation, recycling, composting, and disposal of solid waste have changed substantially. While solid waste generation has increased from 3.66 to 4.43 pounds per person per day between 1980 and 2010, the recycling rate has also increased—from less than 10 percent of solid waste generated in 1980 to about 34 percent in 2010. Disposal of waste to a landfill has decreased from 89 percent of the amount generated in 1980 to about 54 percent of in 2010 ("Municipal Solid Waste").

Based on the facts and figures shown above it is obvious that we are headed in the right direction but the question still remains—will we ever solve the issue of solid waste? The members of the community, the scientists, and the technicians are all part of the solution. For years we have worked to lessen the amount of waste we put into our landfills and have attempted to decrease the pollution we emit to the atmosphere. Many believe that the greatest issue facing the never ending saga of waste management is the environmental hazards, but the greater issue seems to be the challenge in balancing the amount of waste we have with the amount of space we have to dispose of it. This shows that the future of solid waste management leans greatly toward renewable energy plants that decrease the volume of waste while creating a consumable resource such as electricity.

The issue of solid waste will never disappear. People will continually consume and discard meaning waste management is a sustainable industry. Though statistics are improving the issues of waste still pose a wide variety of administrative, economic, and social problems that must be managed and solved. 🌍

Scholarship Winner— Andy Trovinger



I believe that waste management is the collection, transportation, disposal, and monitoring of waste materials. Those waste materials come from many different sources including: hospitals, residential homes, businesses, etc. Waste management is a process that takes the waste from those sources and finds a way to dispose of it in an efficient manner. Incinerators and landfills are a major part of the disposal process. Incinerators that convert waste to electricity are a large benefit to waste management because energy is produced and a large amount of waste is converted into a small amount of ash that does not occupy nearly as much space in landfills. Solid waste management not only affects those in the profession - it affects all of us. The waste management process involves society as a whole because it all begins with what we throw away. The process also involves environmentalists who are trying to find more eco-friendly ways to dispose of waste as well as residents and politicians who are trying to find where it is beneficial and least invasive to place waste management facilities. I believe that the most beneficial way of disposing of waste is to convert it into some form of renewable energy while decreasing the initial volume of the waste, but there are many issues that face this area and waste management as a whole.

I feel that it is very difficult trying to convey to the public that waste to energy incineration and other processes are environmentally friendly and effective at the same time. It seems that many people are under the impression that because waste is being burned it cannot be healthy for us or the environment. Therefore, one of the main challenges facing waste management is the public's view on it. The majority of people look at landfills they see pollution and environmental decay; when in reality if they knew the precautions taken and the science behind the landfill process, they would see something entirely different. They would see that disposing of waste is a necessity but there are environmentally safe ways of doing it. They would also see that waste to energy incineration not only produces electricity but it also cuts down on the amount of space occupied in a landfill and also the number of jobs that waste management creates. Furthermore, they would see the number of precautions taken to make sure that if accidents do occur that there is minimal to no damage done. Another challenge is trying to find a median between efficient waste management that is also environmentally safe. I believe that this is where the future of waste management lies.

The future of waste management looks very positive from my point of view. As the population increases there is also an increase in waste. Waste management will never be a dying profession because there will always be some form of waste that needs to be disposed. Future developments in technology will lead to more cost effective and environmentally safe ways to dispose of waste but I believe that the main research efforts will soon dramatically shift to thoughts of where we will go with the waste of today as well as the waste of the future. As the population expands, an even larger quantity of land is being used for housing and other developments and there is less land that is available for landfills and other waste management facilities. As a future civil engineer I plan to work with renewable energy in the waste management field and I hope to help develop new ways of harnessing every bit of energy possible from the different waste management processes while increasing profit margins and creating more jobs. It seems that if we are able to gain as much as we can from as little waste as we can then we will be able to get the community on our side and educate them so they know what happens after they set their waste on the curb. I believe then we will be able to work together as one to develop the least invasive means of disposing of our waste while still giving back as much as we can to the community. 🌍

A PROJECT OF MANY FIRSTS: THE SOUTH HADLEY LANDFILL CELL 2D VERTICAL EXPANSION

With only a few years of capacity remaining prior to permanent closure, and confined due to lateral expansion constraints in nearly every direction, a vertical expansion, enabled by a mechanically stabilized earth (MSE) berm, was the best choice to economically prolong the life of the South Hadley Landfill (SHL), located in South Hadley, Massachusetts. Accordingly, South Hadley Landfill, LLC hired ARM Group Inc. (ARM) in 2006 to begin exploring the feasibility of using an MSE berm to support a vertical expansion in a State (i.e., Commonwealth of Massachusetts) that had never allowed an MSE berm for capacity development at a waste containment facility. Over the course of

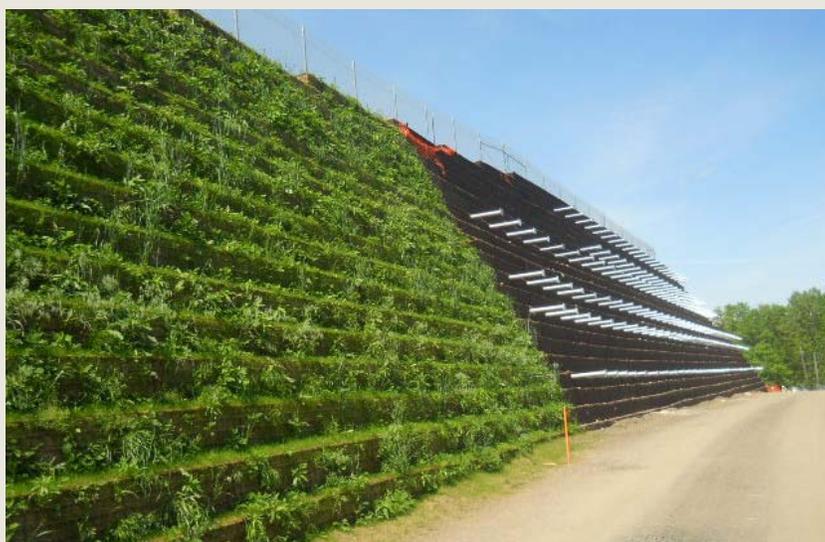
the next 4 years, ARM worked with the Town of South Hadley and the Massachusetts Department of Environmental Protection (MassDEP) to approve the use of an MSE berm to construct what is referred to as the “Cell 2D Vertical Expansion” (Cell 2D) at the SHL. During the Cell 2D expansion, several unique challenges were encountered and unprecedented innovations were employed in the successful permitting and construction of the first MSE berm in Massachusetts for a waste containment application.

The Cell 2D MSE Berm

The SHL is located in South Hadley, Massachusetts and is owned by the

Town of South Hadley. The SHL, which is operated by South Hadley Landfill, LLC, a subsidiary of Interstate Waste Services, is located in an industrial complex and is approximately 3,000 feet from Westover Metropolitan Airport and Air Reserve Base (Westover). The landfill site is in a low-lying area surrounded by wetlands, conservation lands, and industrial businesses. The proximity of the surrounding environmentally sensitive areas and industrial businesses severely limited the ability of the landfill to be laterally expanded. The proximity to Westover limits the height of the facility due to aircraft safety considerations.

The SHL has disposed of municipal and industrial solid wastes since approximately 1951. From 1951 to 1969, the landfill was operated as an open-burning pit where solid wastes disposed on-site were generally left uncovered and periodically burned along with liquid wastes. From 1969 to 1996, SHL was operated as a sanitary landfill. As a result of these historic practices, a majority of the site is underlain by an unlined landfill.



Longwood Gardens is Green Business Award Winner

The Chester County Board of Commissioners, through the Chester County Solid Waste Authority and the Chester County Chamber of Business & Industry, recognized Longwood Gardens as the 2011 Green Business Award recipient at the January Annual Chamber Dinner.

Chester County Green Business Award winners are chosen by the Chamber's Business Advisory Recycling Committee. The committee includes private and public sector representatives who meet regularly to promote recycling in businesses and institutions, providing education and encouraging municipalities to promote recycling efforts.

This award recognizes businesses that implement efficient resource conservation, pollution prevention, waste reduction, recycling and/or "Buy Recycled" business practices without the use of government funds. The Longwood Gardens recycling program, developed by their Recycling Task Force, exceeds all requirements. In addition to recycling Act 101 materials and the usual oil/filters, chemicals, batteries, asphalt, computers and cartridges they also recycle

Tyvek, Christmas lights and an unusual assortment of plastic pots, trays, and other containers. Food waste from the restaurant is composted along with other organic waste to produce mulch, topsoil amendment and potting media. With 160 full time and 240 part-time employees, over 700 volunteers and visitors from all over the world, their education program is strategically placed and easy for anyone to understand and follow.

Winners have consistently shown that their practices, which go well beyond recycling, represent substantial financial savings as well as environmental benefits. Recycling is no longer "just the nice thing to do".

The Chamber and the County anticipate honoring another *Green Business* at next year's Annual Dinner. To nominate a winner or apply for a Green Business Award, call 610-273-3771 ext. 228. 

Submitted by: Nancy Fromnick, Chester County Recycling Coordinator



Photo from www.longwoodgardens.org



Photo from www.longwoodgardens.org

Waste Wise: Fingerprinting Garbage

These days, waste composition (i. e., what's in the waste stream) is becoming more and more important. Trends and activities such as increased recycling, organics diversion, landfill-gas-to-energy (LFGTE) and waste conversion technologies all are highly dependent on what's in the waste stream. Recycling revenue and profit depend on the commodity prices of the individual recyclables being collected (e. g. plastic like high-density polyethylene, cardboard, glass, etc.), which ties the composition of what's in the recycling bin directly to the bottom line. The prevalence and widespread development of LFGTE projects observed today is based not only on industry drivers of revenue and regulated collection and control of gas, but also on scientific research. The Environmental Research and Education Foundation and many of its stakeholder consulting firms and universities have primarily led these research efforts.

Knowing the waste composition also allows for the effectiveness of recycling programs to be evaluated. For organics diversion, the first question that many ask is how much food waste, yard waste, and paper waste is

in the waste stream, as this defines how diverted organics are handled and processed. Landfill-gas-to-energy is based on how much gas is produced in a landfill, a function of – you guessed it – waste composition.

There is increasing concern that successes in organics diversion from landfills will adversely impact landfill gas production. Landfilled organics are what turn into that gas. Thus, take the organics away and gas production goes away. LFGTE proponents need to know the status of organics in the waste stream.

Similarly, many of the thermal and catalytic components required for waste conversion processes can be adversely affected by waste with a moisture content greater than 10 percent or too many contaminants such as metals and glass. Both of these variables, again, are functions of waste composition.

Given this, one would think our industry would be awash with waste composition data; however, this is not the case. Although estimates of waste disposal tonnages have been widely available for decades now, accurate information on the composition of waste at the curb or in the dumpster is

much more difficult to come by.

A national assessment of readily available waste composition studies was recently completed by the Environmental Research and Education Foundation. Of the 50 states, only 19 (38 percent) had done waste composition studies. Of these, less than half had completed a waste composition study within the last five years.

This means less than one-fifth of states (18 percent) have relatively recent knowledge of what's in their waste. A study done in 2009 (Staley and Barlaz, 2009) showed that population directly correlates to waste tonnage disposed. As a result, one would expect that the more populous states would have a strong interest in waste composition since a significant fraction of the waste comes from these states.

Of the 10 most populous states (California, Texas, New York, Florida, Illinois, Pennsylvania, Ohio, Michigan, Georgia and North Carolina, in that order), six had completed waste composition studies but only two – California and Illinois – had done so in the last five years. This lack of knowledge of waste composition is surprising

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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 [Diane Roskos](mailto:Diane.Roskos@swana.org), 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 Chapter newsletter.

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“Fingerprinting” continued from page 9

given many states have set or plan to set aggressive diversion or recycling goals. How can one establish a goal accurately without an initial understanding of what’s in the waste stream to begin with?

Another key issue is that existing waste composition studies are inconsistent in the categories used to define what’s in the waste stream. For example, one study may define “mixed paper” as including mail and envelopes, while another includes these items in a category called “other paper” along with additional paper components, making it difficult to compare different studies.

Similar inconsistencies in definitions exist when it comes to defining terms such as “zero waste,” “zero landfill” and “recycling,” all of which need to be standardized to be truly meaningful. But when it comes to waste composition, a better understanding of what’s in our waste is needed if we are to advance the industry, improve the efficiency of operations, and evaluate new opportunities. 

By: *Bryan Staley in Waste Wise*
<http://waste360.com/blog/waste-wise-fingerprinting-garbagecessed>
Accessed: March 26, 2012

“Vertical Expansion” continued from page 7

VERTICAL EXPANSION DESIGN

Because of the location of SHL, the options for expansion were limited. The only economically desirable way to provide additional capacity at the site was through a vertical expansion facilitated by the construction of an MSE berm. The Cell 2D MSE berm is approximately 1,490 linear feet with a maximum height of 46 feet and an average height of approximately 21 feet. Since historic, unlined waste largely extends to the property line of the SHL, it was necessary to design the Cell 2D MSE berm to be founded on historic waste that was overlain (capped) by a flexible membrane liner (FML) and cover soils. An MSE berm in this type of setting (foundation conditions) had not been previously accomplished.

It was economically infeasible and environmentally undesirable to attempt to excavate and relocate all of the existing waste within the footprint of the proposed Cell 2D MSE berm footprint. Due to the sloping nature of the existing waste, it was necessary to excavate and relocate some of the existing waste to achieve a level subgrade for MSE berm construction. All excavated

waste was relocated to an on-site, active double-lined landfill cell. Where the existing cap system was removed to enable subgrade construction, a “replacement cap” was installed to isolate the MSE berm backfill from the existing waste and to minimize leachate generation from unlined portions of the landfill.

Because the MSE berm was being founded upon a heterogeneous waste mass, both stability and differential settlement were closely analyzed during the design phase. The stability of the MSE berm was thoroughly analyzed with the use of two computer programs: SLIDE and MSEW. The stability analyses yielded results that were equal to or greater than 1.50 for static conditions and 1.10 for seismic conditions. Additionally, although MSE berms can accommodate relatively large amounts of differential settlement, excessive differential settlement, particularly longitudinal differential settlement, can jeopardize the integrity and stability of an MSE berm. Accordingly, an extensive settlement analysis was performed to determine the anticipated magnitude of settlement at different points throughout the vertical expansion footprint. The settlement calcula-

tions were also used to ensure that stormwater features provided positive drainage after settlement occurred.

SOLAR INTEGRATED MSE BERM

Another unique feature of the vertical expansion at the SHL is the solar integrated portion of the MSE berm. The integrated photovoltaic (PV) system was custom-designed by ARM with patent-pending technology and was the first PV system designed for installation on the face of an MSE berm. The PV system was installed on an approximately 480-foot segment of the MSE berm. The system consists of 372 rigid panels with a rated capacity of approximately 84 kilowatts (kW). The estimated annual electrical output of the system is approximately 99,000 kWh.



“Vertical Expansion” continued from page 12

The facing of the MSE berm behind the PV panels had to be modified to accommodate the solar installation. Typically, the MSE berm facing consists of vegetation; however, sunlight would not reach the facing of the MSE berm behind the solar panels. Therefore, vegetation had to be replaced with a rock facing. Additionally, a dual layer of biaxial geogrid and a sacrificial geotextile were installed at the face of the PV-covered MSE berm to provide additional ultraviolet (UV) radiation resistance for the UV-stabilized geosynthetics.

The horizontal support anchors for the PV system were installed within the MSE berm during construction of the berm. The system is fully cantilevered to allow it to accommodate differential settlement within the berm. The PV system will provide electricity to the SHL to offset operational electrical loads and any excess generation will be sold back to the grid.

MSE BERM MONITORING

Through the course of the permitting process with MassDEP, several programs were developed to monitor the MSE berm. These programs include continuous monitoring of the vertical and lateral movement of the MSE berm as well as an inspection and maintenance program. The purpose

of these programs is to identify any early signs of any potential problem with the MSE berm.

The movement of the MSE berm is monitored on a quarterly basis with devices that have been installed throughout the length of the MSE berm. Vertical movement is monitored by settlement plates that were installed within the MSE berm sub-base during construction. Lateral movement is monitored with the use of permanent control monuments that have been installed on the face of the MSE berm.

A comprehensive inspection and maintenance program was also developed for the facility. Routine inspections of the MSE berm were specified to occur at predetermined frequencies and supplemental and/or emergency inspections were specified to be conducted immediately following unusually intense rain events or following other severe weather/natural phenomenon that could potentially cause damage to the MSE berm. The scope of the maintenance and inspection program emphasized stormwater management features, signs of berm movement, and damage to existing features within the berm. The maintenance program segregated routine maintenance from

emergency repairs and specified protocols for notification and action. Inspector credential requirements were also included in the program.

CONCLUSION

When the Cell 2D vertical expansion was completed, the SHL had less than six months of capacity remaining. The vertical expansion provided additional capacity and allowed SHL to continue operations. In order to construct the vertical expansion, the first MSE berm for a waste containment application in the state of Massachusetts was permitted. Additionally, to the authors' knowledge, no other MSE berm prior to the SHL vertical expansion had been founded on waste. Additionally, ARM introduced patent-pending technology that allowed for a PV system to be installed on the face of the MSE berm. The vertical expansion at the SHL had several unique features and was truly a project of many firsts. 

Written and Submitted by: Bryan M. Wehler, P.E., P.G.; ARM Group Inc.; Hershey, Pennsylvania and Benjamin S. Allen, E.I.T.; ARM Group Inc.; Hershey, Pennsylvania

LCSWMA Unveils New Transfer Trailer Designs

The Lancaster County Solid Waste Management Authority (LCSWMA) recently added two new wrap designs to its transfer fleet. Focusing on a message of converting trash-to-energy (renewable energy generation), the Authority employed two different messages: "Trash: Unlocking Your Renewable Energy" and "Waste In, Energy Out". Over the next 1-2 years, all of the Authority's transfer trailer fleet will be converted to the new designs.

Submitted by: Kathryn J. Sandoe, Communications Manager, LCSWMA



The next Newsletter will be distributed Mid-September 2012.

All article submissions are due to [Diane Roskos](#) by August 17, 2012.

Article submissions are welcomed from any member of the Keystone Chapter.

Realising the Waste-To-Energy Opportunity

The waste to energy opportunity

Sustainable waste management is one of the most pressing issues facing developed countries today. We produce billions of tonnes of waste each year, much of which is sent to landfill or incinerated; this is neither environmentally sound, nor can it provide a long term solution to our waste management conundrum. Moreover, as mountains of waste are buried or burned, traditional supplies of material and energy resources are rapidly depleting. We urgently need to balance the sustainable management of one resource with the consumption of others. Advanced Plasma Power (APP), a UK-based waste to energy and advanced fuels technology

company, has developed an innovative technology which, by converting waste into a clean renewable energy source, can do just this. By managing waste as a valuable resource in itself, our Gasplasma® technology can at once alleviate our waste management issues, and provide a clean and local source of energy.

The Gasplasma® process

Through the development and commercialisation of the Gasplasma® process, APP is revolutionizing the way in which we treat waste sustainably, by maximising the value derived from it as an energy and materials

resource while minimizing the impact on the environment. The process brings together two existing and well-proven technologies, gasification and plasma

conversion, to create a unique technology which is clean, modular and scalable, delivering high efficiencies and maximizing landfill diversion at the same time as minimizing visual and environmental impact.

After the removal of valuable recyclates, the Gasplasma® process treats a wide range of non-recyclable feedstocks produced from residual municipal solid waste and commercial/industrial waste, converting it all into two high value outputs: a clean, high quality, energy-rich synthesis gas (syngas) and a solid, vitrified product, each with multiple applications.

The syngas can be used to generate electricity directly in gas engines, gas turbines and/or fuel cells, or it can be converted to bio-substitute natural gas (Bio-SNG), hydrogen or liquid fuels. The solid product, Plasmarok®, is strong, inert and non-leaching and has a variety of valuable end uses, for instance, as a building material.



“President's Message” continued from page 1

RCRA, I surprised myself about how many FML materials the industry used to use. Who is going to share with the next generation of designers why those materials fell out of favor since some FML materials are coming back to designers.

I have been in the solid waste business since 1977. This is an eternity for the X and Y generations that are to succeed me and other white haired practitioners in this industry. So whom do I share my knowledge and experience with? This is the question facing many of us who desire to identify and share with a successor. Not only in business, but also in our SWANA organization is this need for succession planning required. Regardless of your age, if you are still reading this, think about how you are going to help the next generation in our solid waste business. Seek out a mentor and participate in SWANA. 

Happy trash memories,
Robert Hasemeier, a.k.a. Mr. Trash



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Simplehuman Founder Frank Yang on Reinventing the Trash Can

Trash cans get a bad rap. Usually stuck in cabinets below the sink, it isn't until you stuff something too big in the can and the side rips that you are forced to get a new one. This all changed in 2000, when UCLA alumnus Frank Yang invented a new and improved version of the tired kitchen accessory.

His creation: a circular, stainless steel cylinder with a pedal at the bottom to lift the lid. The cylinder acts as the trash can and not only traps in odor, but also serves as a sleek kitchen art piece. He named his company www.simplehuman.com, and his idea took off. Today, the company sells multi-sized trash cans as well as products like touch-less soap dispensers and shower caddies in retailers like Bed Bath & Beyond, Target and The Container Store. According to Yang, who is also the company's CEO, simplehuman brings in "well over \$100 million" in revenue.

I recently bought my own 50-Liter Semi-Round Step Can, and I'm in love. Inspired, I called up Yang to get the inside scoop on his company and to thank him for making something that spruces up my kitchen.

Tell me about your background.

I grew up in the South Bay of Los Angeles and went to UCLA for political science. When I was a senior, my girlfriend (now wife), a graphic designer, encouraged me to take an industrial design class. I absolutely loved the concept of making existing products better, so when I graduated I looked into jobs at industrial design firms. I worked for a few years at my Dad's commercial product company and then went out on my own in 2000.

How did you come up with the idea for simplehuman?

I knew I wanted to take a product and make it better, I just didn't know what product yet. One day I looked around my house, saw an ugly trash can and picked it. I hired a few freelance industrial designers, formed my company, created the product, had it manufactured in Asia, and then went to the International Home & Housewares Show in Chicago to show it for the first time.

Everyone at the show loved it. Back in 2000, industrial design was not prevalent in the houseware industry. Pretty much all industrial designers worked on cars, so that made our company unique.



Photo By: Dan MacMedan, USA TODAY

Frank Yang, simplehuman CEO, display his company's innovative house products at Bed Bath and Beyond in Hawthorne, CA

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What challenges did you face starting out?

It was difficult to nail down the supply chain part of it at first—the whole process of tooling, engineering and how to make products efficiently and at a reasonable price point.

The second challenge was understanding how to work with retail partners. We had no idea how to ship our product, what kind of price they demanded, and the margin that was needed. We had to be honest with our partners about what we could and could not deliver. We were able to slowly gain trust and now have excellent relationships with all of them.

How did you fund your operation in the beginning?

It was all bootstrapped.

When did you start expanding your product line?

About two years in. At first, the company was named Canworks because we were entirely focused on retooling the trash-can. But after a year, we did some soul searching and brainstorming and decided that we wanted to make other products and needed something to tie it all together. We wanted to make tools that will help people live better lives, so we came up with the tagline ‘Tools for Efficient Living.’ Then we talked to a consulting firm and came up with our current name: simplehuman: Tools for Efficient Living.

What lessons have you learned along the way?

I’ve learned to be very focused. For example, because of our success with the trash can, we were approached about expanding to make things such as cabinet organizers. At one point, we actually spent about \$100,000 designing a cabinet organizer but in the end, we didn’t love it, so I killed it at the last moment. The lesson is to know what you do, stick to it and do it well, even if you have a ton of choices.

What does the future hold for you and simplehuman?

I plan to stay here for a long time. I am a very hands-on CEO and like to be in the trenches.

As for the company, we’re not looking to go public, we just want to make the best products possible. We’d like to continue our expansion internationally. We’ve been in the United Kingdom for five years and that is now our second largest market.

What advice can you give to budding small business owners?

Stay humble and pick the right partners early on. We were very lucky to sign on Beth Bath & Beyond and The Container Store and they are fantastic. You really need to have solid relationships for your company to work.

Can you tell me about the next product you plan to release?

I can’t say much, but when it comes out I know everyone will be really impressed at its functionality.



The History Of Flag Day

The Fourth of July was traditionally celebrated as America's birthday, but the idea of an annual day specifically celebrating the Flag is believed to have first originated in 1885. BJ Cigrand, a schoolteacher, arranged for the pupils in the Fredonia, Wisconsin Public School, District 6, to observe June 14 (the 108th anniversary of the official adoption of The Stars and Stripes) as 'Flag Birthday'. In numerous magazines and newspaper articles and public addresses over the following years, Cigrand continued to enthusiastically advocate the observance of June 14 as 'Flag Birthday', or 'Flag Day'.

On June 14, 1889, George Balch, a kindergarten teacher in New York City, planned appropriate ceremonies for the children of his school, and his idea of observing Flag Day was later adopted by the State Board of Education of New York. On June 14, 1891, the Betsy Ross House in Philadelphia held a Flag Day celebration, and on June 14 of the following year, the New York Society of the Sons of the Revolution, celebrated Flag Day.

Following the suggestion of Colonel J Granville Leach (at the time historian of the Pennsylvania Society of the Sons of the Revolution), the Pennsylvania Society of Colonial Dames of America on April 25, 1893 adopted a resolution requesting the mayor of Philadelphia and all others in authority and all private citizens to display the Flag on June 14th. Leach went on to recommend that thereafter the day be



known as 'Flag Day', and on that day, school children be assembled for appropriate exercises, with each child being given a small Flag. Two weeks later on May 8th, the Board of Managers of the Pennsylvania Society of Sons of the Revolution unanimously endorsed the action of the Pennsylvania Society of Colonial Dames. As a result of the resolution, Dr. Edward Brooks, then Superintendent of Public Schools of Philadelphia, directed that Flag Day exercises be held on June 14, 1893 in Independence

Square. School children were assembled, each carrying a small Flag, and patriotic songs were sung and addresses delivered.

In 1894, the governor of New York directed that on June 14 the Flag be displayed on all public buildings. With BJ Cigrand and Leroy Van Horn as the moving spirits, the Illinois organization, known as the

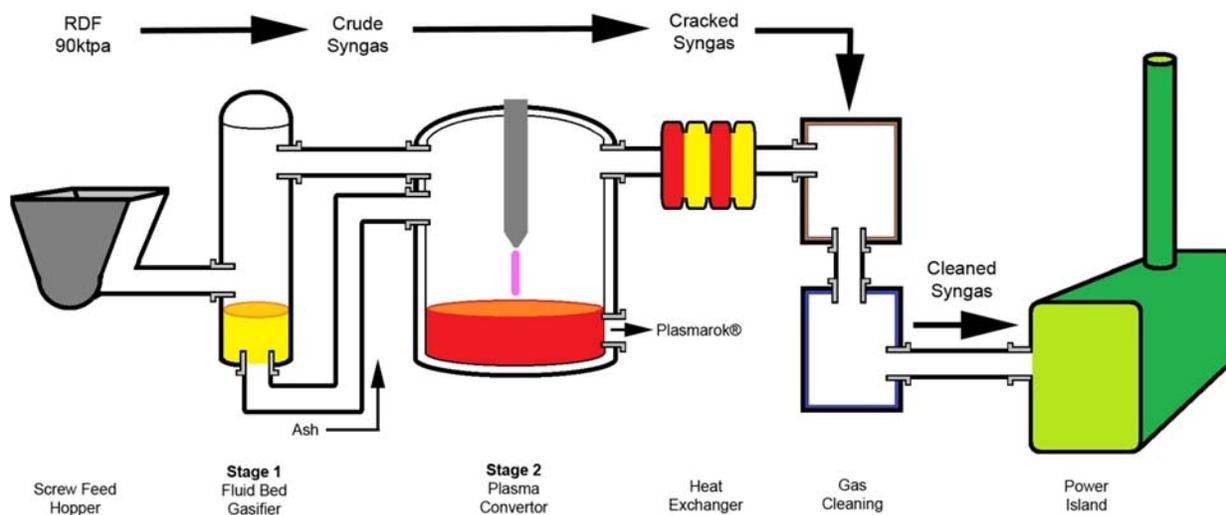
American Flag Day Association, was organized for the purpose of promoting the holding of Flag Day exercises. On June 14th, 1894, under the

auspices of this association, the first general public school children's celebration of Flag Day in Chicago was held in Douglas, Garfield, Humboldt, Lincoln, and Washington Parks, with more than 300,000 children participating.

Adults, too, participated in patriotic programs. Franklin K. Lane, Secretary of the Interior, delivered a 1914 Flag Day address in which he repeated words he said the flag had spoken to him that morning: "I am what you make me; nothing more. I swing before your eyes as a bright gleam of color, a symbol of yourself."

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Gasplasma® Process Flow Diagram



Managing waste efficiently

The technology delivers a highly efficient waste management solution, enabling almost complete landfill diversion whilst being complementary to recycling. It can be used in conjunction with existing recycling schemes, as it takes waste that cannot be recycled and uses it to produce energy or fuels. The process also produces a high value construction material called Plasmarok® that is recognized as a product not a waste. This removes any environmental, regulatory and commercial risk stemming from concerns over the ecotoxicity of bottom ash produced by

incinerators and other thermal processes.

Converting waste to a gas to generate electricity directly in gas engines, turbines or fuel cells dramatically improves energy conversion efficiency and maximises electrical output. The gas is also capable of output. The gas is also capable of being converted very efficiently to substitute natural gas for distribution to homes and businesses in existing gas grids.

A local and low impact solution

A typical Gasplasma® plant is around 15m high, meaning that it

can fit into a standard warehouse similar to the kind seen in edge of town business parks. When producing power on site, emissions from the plant are very low allowing for a stack of only some 10 metres above the height of the building.

The low environmental impact means that a plant can be located, unobtrusively, on the edge of a town, taking waste from that town and supplying power and heat in return—a local, community solution to local waste management challenges and sustainable energy requirements. This further reduces

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Inspired by these three decades of state and local celebrations, Flag Day - the anniversary of the Flag Resolution of 1777 - was officially established by the Proclamation of President Woodrow Wilson on May 30th, 1916. While Flag Day was celebrated in various communities for years after Wilson's proclamation, it was not until August 3rd, 1949, that President Truman signed an Act of Congress designating June 14th of each year as National Flag Day. 🌐



Submitted by: Diane Roskos, Barton & Loguidice
<http://usflag.org/history/flagday.html>

Accessed April 9, 2012

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the carbon footprint of the management of a community's waste in that it reduces the distances which waste must be transported. It also allows plants to be located close to heat users, whether industrial or domestic, thereby further improving energy efficiency.

Global applications

Waste management is a global problem. APP is currently involved in a number of projects around the world, primarily in the UK, Europe and US, to construct and operate Gasplasma® plants.

In addition to new waste, large quantities of waste are sitting in landfills around the world causing environmental issues. The concept of reclaiming a landfill site opens up a whole spectrum of opportunities especially as our primary sources of materials and fuels become ever more depleted. The sites themselves, around which in many cases populations have grown, can be returned to developable land or parkland with amenity value.

APP is putting this very concept into action at the landfill site of Remo Milieubeheer NV in Houthalen-Hechteren, Belgium, where APP and global waste management firm Group Machiels have embarked on a pioneering project to convert some 16 million tonnes of landfilled waste into recyclables and clean energy. In the period of reclamation, the waste will be processed through APP's Gasplasma® plants, producing power for the local community and heat for nearby greenhouses to grow vegetables.

The critical status of our global waste management capability, coupled with the urgent need to develop sustainable energy sources, has opened the door to the opportunity for waste-to-energy technologies to take centre stage. The efficiency, key benefits and rationale that underpin processes such as Gasplasma® mean that there is a real opportunity around the world to work towards a zero waste economy whilst delivering on the renewable energy generation targets that the world so desperately needs. 🌐

By: Rolf Stein, CEO, Advanced Plasma Power

News You Can Use...Federal

On March 1, 2012, Senator Jeff Bingaman (D-NM) introduced The Clean Energy Standard Act of 2012. The bill would require utilities to purchase a gradually increasing amount of energy from "clean" sources as identified by the bill.

A significant change in the bill is the movement of landfill gas to the subsection on "qualified waste-to-energy". This placement will put the same standards on landfill gas that were previously placed upon mass burn waste-to-energy. These additional qualifications require facilities to show they are in compliance with all federal, state and local permits, as well as providing recycling to citizens. Additionally, the bill includes a placed-in-service date of December 31, 1991, meaning any facility operating prior to this would not be eligible. Unfortunately, this would prevent almost all waste-to-energy plants from generating clean energy credits.

Given the current political climate, it is almost certain that the bill will not leave committee as there are no Republican supporters. Previously, Bingaman worked closely with his Ranking Member, Lisa Murkowski (R-AK), on energy standards. Discussions broke down last spring over Bingaman's decision not to include language preventing EPA regulation of greenhouse gases. 

The United States Senate recently took a few votes on issues important to waste-to-energy as part of its consideration of a bill to provide highway funding, but fell short of the 60-vote threshold to move forward. An amendment from Sen. Debbie Stabenow (D-MI) failed on a 49-49 vote and would have included an extension of section 45 renewable energy tax credits and the Section 1603 Treasury Grant. Sen. Jim Demint (R-SC) also saw this amendment repealing energy tax credits fail to win inclusion. During the debate, Senate Majority Leader Harry Reid (D-NV), Minority Leader Mitch McConnell (R-KY), and Finance Committee Chairman Max Baucus (D-MT) engaged in a colloquy agreeing that they should find a path forward for expired and expiring tax extender programs, while Republicans also called for a full examination to see which could be eliminated. The Senate also failed to muster the required sixty votes to pass the Collins Boiler MACT bill, which ERC supports. These amendments were not expected to pass, but represent continued efforts on behalf of their sponsors to bring these important issues to the forefront. 

Senators Chuck Grassley (R-IA), Mark Udall (D-CO) and others introduced legislation on March 15 entitled the American Energy and Job Promotion Act (S. 2201). The legislation would extend the section 45 production tax credit for renewables, including waste-to-energy until December 14, 2014. The current PTC for wind expires at the end of 2012, and at the end of 2013 for all other renewables, including waste-to-energy. 

News You Can Use...Pennsylvania

Court Denies Drilling Industry, Legislators Motion To Intervene In Drilling Law Challenge

Senior Commonwealth Court Judge Keith Quigley denied the petition by representatives from the gas drilling industry and legislators to intervene in a legal challenge to Act 13 Marcellus Shale law, according to the Delaware Riverkeeper Network and seven municipalities who filed the challenge.

In his ruling, Judge Quigley found that both the industry and the legislators were already being adequately represented by the State Attorney General and documents regarding the passage of the legislation already in the legislative history created during the passage of the law.

"This is an important ruling by Judge Quigley, he is honoring the importance of keeping the focus on the facts and the law when it comes to Act 13 rather than allowing the challenge to turn into a drawn out media circus filled with the obfuscation and the misrepresentation the gas drillers are attempting to bring to the action," said Maya van Rossum, the Delaware Riverkeeper and plaintiff in the legal action.

"As for the PA legislators, giving them two bites at the apple on this legislation would simply be adding insult to injury against the public these legislators have already so damaged with their wholesale handover to the gas drillers of the health, safety and quality of our Pennsylvania communities, history and environments," van Rossum added.

"The interests of the gas drilling industry are adequately represented by the Commonwealth," said Jordan Yeager, Esq., representing the Delaware Riverkeeper Network, Nockamixon Township and Yardley Borough. "To suggest that the gas industry isn't adequately represented by the government is like arguing that Phillies fans aren't adequately represented at Citizens Bank Park or the Pittsburgh Steelers fans are not adequately represented at Heinz Field. The gas drillers are fully enmeshed in our state government and the state government can represent them just fine." 

News You Can Use...Pennsylvania

Below is a summary of remarks made by Tim Hartman, the Keystone Chapter's Legislative Chairman, at the May 3rd Board meeting:

Mr. Hartman reported that Act 13 which permits and regulates injection well extraction of natural gas from the Marcellus Shale formation is not going unchallenged. He noted developments in a Commonwealth Court case challenging the Act's constraints on local zoning rights and a number of bills that have been introduced or that are in development that augment Act 13.

Mr. Hartman related that the Pennsylvania State Association of Township Supervisors and the Montgomery and Bucks County Associations of Township Officials are supporting legislation that would convert the State Recycling Fund into a non-lapsing restricted fund from which all Section 904 recycling performance grants would be paid in full before any of the funds from this account could be used for other recycling program activities.

Mr. Hartman stated that two companion bills are being prepared for introduction in the Pennsylvania House and Senate that would amend Act 213 of 2004 to move Waste-to-Energy (WTE) up from Tier II to Tier I of the Advanced Energy Credit (AEC) scale. He explained that change could increase the demand and value of WTE AECs.

Mr. Hartman highlighted a few of the newly introduced bills identified on the May 2012 legislation tracking matrix including HB 2286 requiring school districts to test for radon and to report the results. He also announced that the Senate versions of the General Fund and Capital Budgets have been introduced in SB 1466 and SB 1480. 

May 2012 Pennsylvania Legislative Update

BILL #	Description	Status
HB 1950 SB 1100	An exhaustive amendment to the Oil and Gas Act to address the manifold issues pertaining to, but not limited to, Marcellus Shale formation and fracking including fees and their uses and environmental protection.	Enacted February 14, 2012
SB 151	Provides for twenty five percent (25%) of air pollution fines over \$50,000 to be returned by PADEP to the municipality in which the violation occurred	Enacted July 7, 2012
SB 263	Assures proposed regulations are supported by empirical and replica data.	Enacted July 7, 2011
Act 27	Increases accessibility of air quality State Implementation Plans to the Public and Legislature	Enacted April 12, 2012
SB 303	Provides for fines collected under the Hazardous Sites Clean-up Act be deposited in the Hazardous Sites Clean-Up Fund.	Laid on the Table in the House, December 12, 2011
SB 304	Increases accessibility of air quality State Implementation Plans to the Public and Legislature.	Signed into Law As Act 27
SB 532	Ensures waste facility violations be corrected before permit modifications are granted.	Referred to Appropriations Dec. 12, 2011.
SB 995	Requires operators of unconventional wells to post 911 response information at well entrance.	Enacted February 2, 2012
SB 1022	Adds Section 509 to Act 97 providing for baseline well testing before land application of sludge.	Referred to ER&E Committee. April 28, 2011.
SB 1054	Provides for further continuing professional competency requirements for Engineers, Land Surveyors, and Geologists.	Signed into Law As Act 24
SB 1324	Amends Title 42 Judiciary and Judicial Procedure of the PA Consolidated Statutes, particularly rights and immunities providing for actions to quiet title involving subsurface rights.	Referred to Judiciary Committee, March 12, 2012.

For additional information go to the Pennsylvania General Assembly's Website at <http://www.legis.state.pa.us>

May 2012 Pennsylvania Legislative Update

“Legislative” continued from page 24

BILL #	Description	Status
SB 1386	Empowers Environmental Quality Board to repeal control of volatile organic compounds from gasoline dispensing facilities under the Air Pollution Control Act.	Referred to ER&E Committee. March 12, 2012
SB 1398	Extends underground storage tank environmental Prevention Program sunset from June 30, 2012 to June 30, 2017.	Referred to ER&E Committee. March 14, 2012.
SB 1414	Providing for the creation of land banks for the conversion of vacant or tax delinquent properties into productive use.	Referred to Appropriations Committee. April 30, 2012
SB 1431	Requires an environmental survey and remediation of contamination at industrial closure sites.	Referred to ER & E, Feb, 27, 2012.
SB 1466	Senate versions of State Budget.	Referred to Appropriations, April 3, 2012.
SB 1480	Providing for a 2012-13 Capital Budget.	Referred to Appropriations, April 3, 2012.
HB 1813	Establishes a Land Reclamation Financial Guarantee Program to insure reclamation of suitable surface mining activities for qualified operators in lieu of bonding.	Passed House. Re-referred to Senate Appropriations Committee, March 13, 2012.
HB 1934	Eliminates residents of Federal and State facilities in determining populations of Act 101 mandated municipalities other than counties.	Passed House referred to ER & E in Senate April 10, 2012.
HB 2032	Establishes grading and penalties for theft of secondary metals described as wire or cable commonly used by communications and electrical utilities, copper, aluminum, other metal or a combination of metals valuable for recycling or reuse as a raw material.	Passed House February 8, 2013. Referred to ER&E in Senate April 10, 2012.
HB 2251	Establishes a Keystone Vehicle Grant Program for companies' comprehensive natural gas conversion plan implementations.	Referred to ER & E Committee, March 16, 2012.

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:

MAY 2012

- Thursday, 5/3, 10 a.m., Board Meeting—Lancaster County SWMA
- Thursday, 5/3., 11:30 a.m., Presentation of Chapter Scholarship Awards
- Email Chapter Members Requesting Nominees for Chapter Officers & Directors for 2012-2014
- Distribute Spring Newsletter via email (Mid-May)

JUNE 2012

- Thursday, 6/7, 10 a.m., Board Meeting Conference Call
- Nominating Committee presents slate of Offices & Directors for election.
- Email registration announcement for 14th Annual Fall Conference
- Review Annual Budget
- Thursday, 6/14, Annual Mid-Atlantic ROAD-E-O Reception (Time & Place TBD)
- Friday, 6/15, Mid-Atlantic Regional ROAD-E-O - Maryland Environmental Services, Midshore II Regional Solid Waste Facility, Ridgeley, MD

JULY 2012

No Activities Planned

AUGUST 2012

- Thursday, 8/2, 10 a.m., Board Meeting Conference Call
- Program Committee prepares program for the 14th Annual Fall Conference
- 8/14—8/16, WASTECON, Washington, D.C.
- Friday, 8/17, Articles for Summer Newsletter due.

SEPTEMBER 2012

- Monday & Tuesday, 9/10 & 9/11, PWIA/ SWANA.PADEP/PAHMI Fall Conference—Crowne Plaza Hotel, Harrisburg
- Thursday, 9/11, Chapter Annual Business Meeting and Election
- Distribute summer newsletter via email (Mid-September)
- Chapter fiscal year ends



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Chester County Solid Waste Authority

► 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, summer, and fall). If you have ideas for future articles, updates, or general suggestions for The Keystone, please contact **Diane Roskos** 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.*