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Onondaga County, NY: Going Green with Food Waste Composting

Launching OCRRA's Food Waste Composting Program . . .

In 2007, the Onondaga County Resource Recovery Agency (OCRRA) began developing food waste processing capacity after gathering data that indicated food waste comprised about 15% of the local waste stream, The Agency worked with the NYS DEC to "Register" the Amboy Compost Facility to handle 1,000 cy of food waste and 10,000 cy of yard waste annually. OCRRA initiated a pilot project in 2008 & 2009 that demonstrated the efficiencies of utilizing aerated static pile (ASP) technologies to co-compost food wastes and yard wastes. The success of the ASP composting system has enabled OCRRA to expand its program and garner State and National recognition with the 2010 US Composting Council's Compost Program of the Year Award, 2011 SWANA Excellence Award, Silver - Composting, and the 2011 NYS DEC Environmental Excellence Award.



Food Waste Generators Get on Board . . .

OCRRA's food waste diversion program is aimed at the commercial and institutional sectors. Dozens of local businesses - and at least one local school district -- have been "early adopters" of the Agency's food scrap processing system. The Marcellus School District's elementary, Jr. and Sr. high schools collect pre and post - consumer food wastes and milk from the students' breakfasts and lunches. The school reports an 87% decrease in trash in their first 2 months of food waste diversion, and project an annual disposal savings of \$2,500.



Lemoyne College, Onondaga Community College and Syracuse University have also joined OCRRA's food waste composting program. The University diverted over 300 tons of food waste in 2011, consisting mostly of fruit and vegetables discarded during food preparation along with some spoiled leftovers. The program has since expanded to include post-consumer waste (diners' uneaten food); SU now diverts roughly 9 tons of food waste from its garbage dumpsters each week. Other early food scrap composting adopters include nearly two dozen restaurants in a local shopping mall, a large coffee roasting company, and area hotels.

In response to waste generator demand, more haulers are providing an organics collection service, including Casella, Environmental Products and Services, Feher Rubbish Removal, Syracuse Haulers, and Waste Management.

Goals and Benefits . . .

OCRRA's goal is to process over 10,000 tons of institutional and commercial food waste annually by 2015. Food waste composting has many benefits, but two of them are environmental and financial:

Environmental Benefits:

Composting and compost use leads to reductions in trash and waste, reduced greenhouse gases, healthier soil and plants, better nutrient cycling, greater fertility, and aids in erosion control and stormwater management. The compost generated at the facility can be utilized at home or on area construction projects to reduce soil erosion, prevent pollution and control stormwater runoff, and serves as a soil amendment for "Low Impact Development" projects aimed at promoting long-term, sustainable stormwater management.

Financial Benefits:

There is a cost savings benefit for food waste composting. Large waste generators, such as supermarkets, can save between \$5,000.00 and \$10,000.00 per year per store by fully utilizing a composting program. OCRRA's \$35.00 per ton processing fee for food waste is less than half the \$74.00 per ton MSW fee. The waste generator's savings is seen in the diversion of heavy / wet organic materials from the general trash, reducing the weight and number of trash container pickups. The composting program can also help save money through changing purchasing practices; composting makes waste generators much more aware of what they are throwing away and helps in reducing orders of wasted materials.



OCRRA's Aerated Static Pile Compost System . . .

Materials Management

Incoming food waste is dumped on to a bed of ground yard waste in a mixing bay and then blended at a 3-to-1 ratio with ground yard waste and a bulking agent (wood chips). The mixed material is then placed into large aerated static piles with piping and blowers. The pipes and blowers allow air to circulate through the piles maintaining aerobic conditions and speeding up the decomposition process. To further speed up the decomposition process, the yard waste is first processed through a grinder with a 6" screen. The processing of the yard waste eliminates layering, ensures proper blending with bulking agents, reduces particle size, and minimizes the risk of anaerobic conditions.



Equipment and Set-up

The composting pad is an existing concrete slab that measures approximately 120-feet long by 120-feet wide. The Extended Aerated Static Pile composting system occupies an area of 120-feet long by 60-feet wide by 8 to 9-feet tall, equaling over 2,000 cubic yards of material. The aeration equipment includes the following:

- Four 1.5 HP blowers using single phase 220 volt power
- Four cycle timers, to independently operate the aeration blowers
- Four power cables
- Four 6" aeration manifolds, each set up to provide air to four 4" lateral pipes
- Solid and perforated 4-inch diameter aeration pipes (purchased locally)

The field equipment includes:

- John Deere 624H Front-End Loader with a 5 cubic yard grapple bucket.
- CAT Skid Loader with a ½ cubic yard grapple bucket and pallet forks.
- Vermeer 6000 horizontal grinder
- McCloskey 621 Trommel Screen
- Komptech Slow Speed Shredder



Extended Aerated Static Pile Composting (EASP)

The EASP method uses perforated pipes placed on-grade prior to construction of the compost pile. The air pipes are connected to electric blowers, which force air into the compost pile (positive aeration). Contiguous compost cells are constructed directly on the flank (side slope) of the previous cell producing a flat topped, extended, pile.

As each cell is constructed, a 12-inch layer (minimum thickness) of finished compost is placed over the top of the raw feedstocks. This cover layer serves four purposes:

1. acts as an insulating blanket to ensure that all of the materials reach desired temperatures for pathogen and weed seed destruction
2. serves as a biofilter to digest potential odor-causing compounds
3. helps maintain the desired moisture content within the pile
4. controls vectors (e.g., flies, rodents and birds) from breeding or burrowing in the pile.



Each of the four EASP zones contains approximately 500 cubic yards of feedstock materials, and the completed pile contains a total of approximately 2,000 cubic yards. The initial height of the pile is between 9 and 10 feet tall. Over time, shrinkage occurred as a result of material consolidation and decomposition, reducing overall pile height to approximately 7 and 8-feet by the end of the active phase of composting. Each blower delivers airflow into a 6-inch diameter manifold that in turn divides and balances the airflow into four lateral perforated pipes located beneath the core of the pile. The blowers are set to a timer that controls cycle times and durations

The entire composting process takes place without moving or turning the pile, over the course of 30 to 45 days; completion is based on the temperature cycles and the need to create space for subsequent piles.

By maintaining oxygen levels of at least 5 to 8 percent within the pile through sequenced forced aeration, aerobic conditions are met, thereby mitigating any offensive odors.

Active Composting, Curing, and Testing

The active composting phase (the period during which most of the process heat and potential odors are generated) generally lasts between 28 and 35 days. During this phase, the primary objective is to reach temperatures throughout the pile of at least 55°C (131°F) for a minimum of 3-days. OCRRA's recorded pile temperatures often reaches between 155° and 165°F for more than 10 days, even during the cold winter months with average daily temperatures below 36 degrees F. Throughout the entire active composting period the piles consistently retain liquid, no leachate management issues are typically encountered, even in the wettest weather conditions. The subsequent curing phase of composting (the period during which the product becomes stable and marketable) lasts an additional 30 to 60 days. OCRRA meets the US Composting Council's Seal of Testing Assurance guidelines; the compost is rigorously tested by third party laboratories and meets all DEC and EPA requirements.



Material Marketing

OCRRA sells the finished compost in bulk. Customers include landscapers, top soil producers, golf courses, and local residents. Fees for OCRRA's finished compost are posted online at: www.ocrra.org. The Agency is also exploring the possibility of bagging and selling compost.

Production of Biodiesel from Sewage Sludge

Researchers in South Korea have shown that the production of biodiesel using the lipids extracted from sewage sludge could be economically possible as a result of a high yield of oil and the low cost for this feedstock, as compared to typical biodiesel feedstocks. This sludge is a rich source of lipids, the starting material for biodiesel. Most of sludge's lipids come from bacteria living in it.

The researchers from the Research Institute of Industrial Science and Technology determined that sewage sludge produced 2,200 times more lipids per gram than soybeans. According to the case study, the price of the lipids extracted from the Sewage Sludge was approximately \$0.03 L-(USD), which is lower than all current biodiesel feedstocks.

The researchers developed a new method to transform the high amounts of free fatty acids or rather the impurities of the lipids using heat instead of catalysis to avoid the impurities from interfering with the catalytic process.

Before this can be applied to larger system, wastewater treatment facilities would need to install the equipment necessary to dry the sewage sludge and extract the lipids. Sale of the lipids to biodiesel producers could cover the associated costs.

This new process maximizes the biofuel return, makes it a positive potential choice for future energy.

President's Letter



We enjoyed another great conference at the Sagamore this past May. I hope the seminars and technical sessions were informative, innovative, and helped you continue to thrive in your professional career. The 2013 conference is scheduled for May 5-8. Save the dates!

On June 20, an excellent technical session about anaerobic digestion for organic waste drew a packed house. The next technical session, scheduled for Thursday, November 8, will be "Impacts of New Gas Supplies on the Waste Industry and Renewable Subsidies in New York." All our technical sessions are designed to bring us the leading edge of new technologies; members have told us over the years how much they benefit from the information.

On another note: remember that each issue of this newsletter showcases a solid waste management facility. If you would like to suggest one, please submit details through this link: www.swananys.org/askaquestion.htm. Think of it as your chance to brag!

I look forward to seeing all of you on November 8.

Regards,

Marty Bellew

Wind Power Systems in the U.S.

Collaboration between Venger Wind and SWG Energy has resulted in the largest building integrated wind power system in the United States. The system has been installed on the roof of the Oklahoma Medical Research Foundation building.

To incorporate wind power into the building design as a part of a sustainability effort to produce zero-emission energy Venger Wind installed a series of 18 vertical axis wind turbines (V2 model). The 18.5' tall omni-directional V2 turbines are rated at 4.5 kw, begin generating electricity at wind speeds of 8.9 mph which is below the city's annual average wind speed.

The V2 turbines are vibration free, safer for birds and bats, quiet (less than 5 decibels over ambient noise levels), made from steel and aircraft grade aluminum and require no grid power to start spinning.

Texas A&M University Corpus Christi is the location of the largest vertical axis wind turbine (VAWT) installation of its kind in the United States. Eleven VAWTs are able to produce an output of 92 kW and will help power the university while creating research opportunities for students and staff. The power output of the turbines and the wind conditions on the campus are monitored and posted on a website for both students and the public to view. It is estimated the University will have an \$18,000 to \$25,000 savings in utility costs.

Impacts of New Gas Supplies on the Waste Industry and Renewable Subsidies in New York

On November 8, 2012 the NYS Chapter will hold a one day seminar at the Marriott Albany in Albany, NY.

The significant changes in the natural gas industry's sources of supply, reserves and prices, are impacting solid waste management. The extraction of gas from shale formations nationwide has boosted current supplies and projected reserves, causing a decline in natural gas and electricity prices. Lower gas prices are impacting the economics of existing and planned landfill-gas-to-energy and waste-to-energy projects and causing a debate in Congress over subsidies and renewable energy quotas. Shale gas also brings a variety environmental and community impacts and additional waste disposal issues that must be assessed by both managers and regulators. At the same time, natural gas and bio gas are seen as a beneficial fuel for power plants and vehicles. Many private and public refuse collection fleets are switching from diesel to compressed natural gas (CNG) collection fleets for the lower emissions and lower prices. Liquefied natural gas (LNG) is also in use for some long-haul operations. The natural gas industry is providing services and incentives for such conversions.

The seminar will feature speakers from private companies and public solid waste authorities, as well as natural gas firms, to discuss how natural gas is impacting their operations and decisions regarding landfill gas-to-energy, waste-to-energy, vehicle fueling and disposal of gas drilling waste. A trade association representative will describe Congressional actions and debates on renewable energy subsidies. An attorney will describe community concerns with gas drilling wastes. The New York State Department of Environmental Conservation will discuss the current regulatory framework for gas disposal wastes.

Program brochure and registration form are available on the Chapter website at <http://www.swananys.org/>

Green Guides Issued by Federal Trade Commission

The Federal Trade Commission revised the Green Guides preventing marketers from making broad claims that a product is "environmentally friendly" or "eco-friendly". Marketers should present environmental benefits in a "clear and prominent" way to maintain the truth and not be deceptive by using general claims.

The Green Guides describe the types of environmental claims that may be or not be deceptive under the Federal Trade Commission Act (Section 5). They were last updated in 1998 and new revisions include sections on the use of carbon offsets, certifications/seals, nontoxic claims and renewable energy and renewable materials claims. Terms such as "sustainable, natural and organic" are not included in the Guides. Organic claims made for textiles and other products from agricultural products are addressed by the U.S. Department of Agriculture's national Organic Program.

The revision of the Guides included public comments and information gathered from three public workshops and a study conducted by the FTC. They provide standards for use of wording stating compostable, ozone, recyclable, recycled content and solution reductions assertion. Marketers are advised not to make unqualified degradable claims for solid waste products unless they can prove the whole product or package will completely break down after a year.

Legislative Updates

Polystyrene Foam Food Service Products (A.2097 Kavanagh)

Polystyrene foam is commercially manufactured from petroleum. Recycling is not widely available and is discarded posing a contamination risk. This legislation would require the State and municipalities to use food service products that are compostable provided that comparable, affordable products can be purchased. The legislation has passed the Assembly; the Senate has taken no action.

EPF Resources (S.7525 (Grisanti), A.10519 (Rules-Sweeney, et al.))

This bill would increase the resources allocated to New York's Environmental Protection Fund (EPF) by phasing in \$56 million in unclaimed deposits collected by the state through the Returnable Beverage Container Law from the General Fund over six years.

New York State collects about \$115 million from unclaimed bottle deposits annually, and a portion of these resources would be applied to the EPF each year. The amount allocated to the EPF will increase every year starting in State Fiscal Year 2013-14 with \$10 million, \$20 million in 2014-15, \$30 million in 2015-16, \$40 million in 2016-17, \$50 million in 2017-18 and \$56 million in 2018-19, and every year thereafter.

Also, the bill specifies that this new revenue would be in addition to any other money allocated or appropriated to the EPF. Furthermore, this bill would not amend the mechanism that collects the unclaimed deposits in the state's current bottle deposit law.

Prohibit Disposal of Recyclables in Landfills (A.1241 (Colton, et al.), S.3029 (Grisanti, et al.))

This bill would prohibit the disposal of recyclable materials in landfills and incinerators, and also specifies materials to be separated for recycling, such as newsprint, glass containers, metal containers, and certain plastics.

This bill would provide a minimum definition of "recyclable materials" and help stop the much-abused "existing market" loophole, and would, therefore, make both state and local law clearer and more readily enforceable. The measure would create and protect jobs, improve the state's competitive position, and provide an important recycling stimulus.

Proper Disposal of Pharmaceutical Products (S.6857 (Grisanti), A.9421 (Sweeney, et al.))

This bill directs the New York State Department of Environmental Conservation (DEC) to work with State Police to establish a one-year demonstration program for the safe disposal of prescription drugs. Preventing pharmaceuticals from entering our sewage treatment systems by setting up a responsible take-back system is one of the easiest ways to prevent these drugs from entering our drinking water supplies.

Mercury Thermostats (S.4345-B (Grisanti, et al.))

This bill amends New York State's Environmental Conservation Law with regard to the collection of thermostats that contain mercury. The legislation would require manufacturers to establish a collection program for out-of-service mercury thermostats and prohibits charging consumer fees to do so. This bill also gives the Department of Environmental Conservation authority to revise manufacturers' collection plans if collection goals are not met.

According to the Northeast Waste Management Officials Association, a voluntary collection program established by thermostat manufacturers only captures approximately 1.3 percent of New York's out-of-service thermostats. Thermostats that contain mercury are a source of preventable pollution.

EPA's New E-Waste Program

The EPA announced a new program called the "Sustainable Materials Management Electronic Challenge". The program was created to encourage electronics companies to take back or recycle more of their products through certified recyclers.

The program is a voluntary program that offers companies the option of joining at three different levels:

- Bronze level - send less than 50 percent of their e-waste (by weight) to certified recyclers annually.
- Silver level - send 50 to 95 percent of their e-waste (by-weight) to certified recycler
- Gold level - send 96 to 100 percent of their e-waste (by-weight) to certified recyclers.

In addition, companies that join at the silver and gold level must show increased volumes each year and expansion of collection in one or more states that do not have a takeback law in place.

There are several companies such as Best Buy, Dell, LG Electronics USA, Samsung North America, Sharp and Sprint that have signed up to participate. While the program eventually could stimulate competition between companies as they try to demonstrate their sustainability efforts the program does not provide much oversight in regards to some companies practice of exporting material to developing countries.

Recycling vendors have a great incentive to send overseas because it's often a lot cheaper than processing things safely here and electronics manufacturers often pay very low rates to their vendors. If we're going to have an effective government e-waste program, there will have to be stricter requirements for how electronics are disposed of and companies and vendors will have to comply, not just volunteer.

Public Comment on Updated Electronics Recycling Standards

R2 Solutions has released a draft of updated standards for the electronics recycling.

The updated standards were designed by the Technical Advisory Committee of R2 Solutions, more than four years after the standard was originally released in 2008.

The new standards look to clarify requirements of the R2:2008 practices, improve the readability and understanding of the standard, provide additional best practices and enhance the quality of the certification.

The nonprofit organization that oversees the standard will accept public comment until Dec. 16. Visit <http://www.r2solutions.org> for more information.

Carbon Footprinting Breakthrough

In 2007 a collaboration between The Earth Institute, Columbia University, and PepsiCo, Inc. began with the intent to evaluate and help standardize product carbon footprinting and labeling in both the U.K, and the U.S.

The carbon footprint is calculated by estimating the amount of the greenhouse gas carbon dioxide that the activity emits, and the emissions of other greenhouse gases such as methane, nitrous oxide or refrigerants. All these impacts are added up and represented as a single carbon dioxide equivalent (the amount of CO₂ that would create the same amount of warming).

Researchers from Columbia University Institute's Lenfest Center for Sustainable Energy developed new software that can calculate the carbon footprints of thousands of products simultaneously. This is a breakthrough for a process that is known to be time consuming, expensive and requires staff with specialized expertise. The first product to undergo carbon footprinting by Columbia's software was Tropicana orange juice which led to being the first U.S. carbon footprint label certified by a third party. The database was originally designed to assess approximately 1,137 PepsiCo products. This software can provide great assistance to companies to aid in measuring, managing and reducing their carbon footprint. Customers will have access to better information to make more informed decisions.

2012 Scholarship Results

The SWANA NY Chapter Scholarship Committee is excited to announce the 2012 Scholarship/Financial Assistance program awards. Awards are based on the overall achievements and need of the individual candidate, and not solely on academic performance. After careful consideration, the committee is pleased to announce the following awards recipients.

Category I

- Vincent Salanitro. \$1000
- Lindsay Shilling. \$1000

Category II

- Lauren Laibach. \$1000
- Gregory McCarron. \$1000
- Thea Lange. \$1000

Category IA

- John Dzialo. \$1000

Category III

- Krista Greene. \$1000

Welcome our New Members

Daniel DeCostole
DeCostole Recycling and Transfer Station
Brooklyn, NY

Jack McCarthy
Montenay Dutchess LLC
Poughkeepsie, NY

Victor Carosi, PE
Town of Greenburgh
White Plains, NY

Alex Tergis
City of New Rochelle
New Rochelle, NY

Benedict Salanitro
Village of Scarsdale
Scarsdale, NY

Jonathan Babcock
Haley and Aldrich
Rochester, NY

Upcoming Events

Nov. 8, 2012
Impacts of New Gas Supplies on the Waste Industry & Renewable Subsidies in New York
Albany, NY
<http://www.swananys.org/>

Nov. 12-14, 2012
RE3 Conference
Atlantic City, NJ

Jan. 28-31, 2013
US Composting Council 21st Annual Conference and Trade Show
Orlando, FL
www.compostingcouncil.org