Working Toward a Sustainable Tomorrow: Understanding and Expanding Compost Infrastructure

Meeting Notes

September 28–29, 2009

Submitted to:
Mary Beth Van Pelt
Environmental Protection Agency
Region 4

Submitted by:
ICF Macro, an ICF International Company
3 Corporate Square NE
Suite 370
Atlanta, GA 30329

Introduction

On September 28th and 29th, 2009, the U.S. Composting Council (USCC) hosted the Working Toward a Sustainable Tomorrow: Understanding and Expanding Compost Infrastructure meeting at the Hilton Atlanta Airport Hotel in Atlanta, GA. (The agenda is included in Attachment A.) The meeting was hosted in partnership with the Environmental Protection Agency (EPA), EPA Region 4, BioCycle, the Georgia Department of Natural Resources' Environmental Protection Division, and the Florida Department of Environmental Protection. The purpose of the meeting was to provide attendees from the composting industry and other participants with resources and information on expanding compost infrastructure. (A list of attendees can be found in Attachment B.)

Welcome

Wayne King, Sr., USCC, stated that the seminar was designed to answer the following questions regarding composting:

- What lessons have we learned and what is yet to be taught?
- What does it take to make composting operations viable and successful?
- What must be done to make composting and compost a permanent part of a municipality's infrastructure?
- Where do we go from here?

Mr. King introduced Jon Johnston, Branch Chief of the RCRA Programs & Materials Management Branch, who has been with the agency for 32 years. Mr. Johnston said that it is essential to steer EPA back to materials management, find a way to start exploring valuable materials that are not being used, and facilitate dialogue between recycling organizations and State and local governments. The time is now for everyone to share ideas, perspectives, and information and participate in discussions. A small idea can become a big action, Mr. Johnson said.

Keynote Address: The State of Organics Recycling in America

Jean Schwab, manager of EPA's GreenScapes program, presented an overview of composting in the United States.

From 1995 to 2007, food waste generated doubled, but the percentage of food waste recycled only slightly increased. Comparatively, yard waste generated increased slightly, but the percentage recycled increased from 22.9% to 64.1%. That increase reflected stronger focus on yard waste, because organic waste was recognized to have more value outside landfills than inside them because of the demand for materials such as compost.

Ms. Schwab then listed the following actions that EPA took to promote change:

- Conducted the Organic Materials Management Strategies study
- Created the GreenScapes program

- Funded USCC to develop compost standards (Seal of Testing Assurance Program)
- Funded USCC to develop Department of Transportation (DOT) compost standards to promote compost use on roadsides
- Developed national best management practices (BMP) on compost use for erosion control
- Revised the Comprehensive Procedure Guidelines to include all composts and fertilizers made from recycled organic materials for Federal use
- Conducted workshops with industry and EPA regions
- Developed tools, research, and outreach materials on the beneficial uses of compost

Ms. Schwab discussed GreenScapes, which was created by EPA to educate and promote reducing organic waste generation at the source. Through GreenScapes, facilities reuse organic waste onsite and offsite, recycle organic waste, and rebuy recycled organic material content products such as mulch and compost. She also provided examples (accompanied by images) of how compost can be used to improve the environment and how customers can save money through increased soil quality.

Ms. Schwab acknowledged that there are significant obstacles to the continued growth of composting. There are too few local composters, and generators and end users find it difficult to find composters and compost that is ready to use. Food waste is difficult to manage. There is a widespread misperception that if something is labeled biodegradable, it is better for the environment. (Biodegradable items can take a long time to degrade, and can end up in landfills if the materials are not composted; compostable materials are best, Ms. Schwab explained.) Also, the lack of easy-to-use grades of compost and quality standards for compost and composters to ensure a quality product complicates production, marketing, and purchasing of compost.

Ms. Schwab explained that, fortunately, there are ways to overcome the obstacles. To address the lack of available local composters, the compost and recycling industry can work at the State and local levels where composting is desired; encourage others to view it as product production rather than waste management or disposal; make information available online (findacomposter.com, USCC); and increase emphasis on waste reduction. To correct the misconception of the term biodegradable, an effort can be put forth to better educate consumers. To rectify the problem of no easy-to-use grades and quality standards for compost, the composting industry and regulators should establish performance criteria. It is also important to convey that compost has worth—rather than giving it away, charge for it so consumers will view it as valuable.

Ms. Schwab suggested that the main groups who must work together to for successful composting are generators; haulers; processors; marketers; buyers and end users; local, State, and Federal Government; and nongovernmental organizations such as industry associations, environmental groups, schools, and universities. She urged the groups to start cooperating right away to stimulate national change in composting.

Ms. Schwab provided the following Web sites for more information:

- www.epa.gov/organicmaterials
- www.epa.gov/compost
- www.epa.gov/foodscraps
- www.epa.gov/greenscapes

Ms. Schwab can be contacted by e-mail at schwab.jean@epa.gov or by phone at (703) 308-8669.

Compost Infrastructure: A View From 30,000 Feet

Nora Goldstein is the editor of *BioCycle* magazine, which focuses on natural resource management. *BioCycle* celebrated 50 years of publication in 2009. Ms. Goldstein spoke on the outlook of compost infrastructure in the United States.

At this point, the view is very clear about what needs to be done, a bit obstructed on how it will be accomplished, and pretty hopeful about what is on the horizon for compost infrastructure. According to World Economic Forum/Deloitte Report, "Scarcity of natural resources will leave the consumer industry exposed to higher and more volatile pricing in little more than a decade," she noted. The traditional linear supply model that companies follow (build, buy, bury) must be replaced with a model that enables resources to go full circle.

Ms. Goldstein noted that political will is one an important area that is lacking. The people's will must be changed, since they elect representatives who have the ability to change laws. She pointed out that while we have the technology, knowledge, and proof that we need to make progress in composting, we have yet to put it to use.

Ms. Goldstein can be reached by e-mail at noragold@jgpress.com.

Composting: The Art of Successfully Managing Your Operations and Marketing

Craig Coker, of Coker Composting and Consulting, gave a PowerPoint presentation on how to manage and market a composting business. He noted that to be successful, it is important to master two different businesses: waste management and product marketing and sales.

When dealing with waste management, a composter must be responsible, reliable, and reputable in their dealings with customers. Mr. Coker pointed out that if a client has a bad experience, it is unlikely that the client will give composting a second chance. The composting company must be accessible at all hours, and must ensure that waste is always collected on time (as the odor can be unpleasant). The company must also be professional: develop a feedstock acceptance protocol, use well-prepared contracts, create incentives for good employee performance, and have employees wear uniforms.

A composting facility needs adequate space for composting, handling, storing, and dealing with access and activities. Land area requirements, road and utility access, surrounding land uses, the geography of the land (slope, soil, water/wetlands), elevation, air drainage, wind direction, zoning, and local and State regulations must also be taken into account.

Mr. Coker suggested that facilities incorporate a buffer zone to cut down on the impact of water, noise, odor, and sights of composting. Existing elements such as hills, fields, woods, railroads, and prevailing winds can be incorporated into the buffer zone. A visual barrier can reduce complaints from surrounding neighbors.

Water is a serious issue and must be managed properly at compost sites. Composters should work to ensure good drainage and prevent "dirty" runoff water from leaking into streams or other surface areas. Runoff water can be captured, treated, stored, and reused, and "clean" runoff water should be diverted from material storage and activity areas.

Facilities must also be cautious about fires. The temperature of the compost must be closely monitored, especially if it exceeds 170 degrees, and pile height should be limited to less than 18 feet. A burning pile of compost must be broken down and spread out before dousing, and fire departments must be trained ahead of time to handle this type of fire this.

Mr. Coker explained that marketing is important for a composting company. It is important to identify and characterize markets, evaluate composting operations and compost quality, select distribution and marketing options, and then develop and implement a marketing plan. There are three main markets for compost: (1) traditional markets, which include homeowners/gardeners, landscapers, and nursery production; (2) emerging markets, which include erosion and sediment control, bioengineering (structural soils, living walls, etc.), wetlands creation, and environmental restoration; and (3) reemerging markets, such as agriculture in certain areas.

Mr. Coker stated that on the distribution side, options include wholesale to large-quantity users; direct to municipal agencies; retail/contractor discount to professional end users; and retail to residents. Different ways to market products include merchandise giveaways with a recognizable logo and advertising through different avenues.

Mr. Coker emphasized that it is important to educate purchasers on the benefits of compost use. Compost use:

- helps reduce soil compaction,
- helps increase water retention,
- helps hold nutrients,
- helps reduce chemicals needed,
- reduces erosion,
- increases infiltration,
- reduces some plant diseases,
- increases porosity.

Sales staff must also be educated about composting and compost use. To be effective, they should be well aware of the composting process; compost application and benefits; product quality issues; Government regulation; health, safety, and environmental concerns; competition; prior research; the green industry; user needs; and basic sales and marketing techniques.

Mr. Coker also said when hiring a broker, there are negotiation issues to bear in mind, such as the amount of material to be marketed, the length and type of contract, delivery schedule, reimbursable costs, storage locations and costs, bonding/guarantee requirements, and educational/promotion responsibilities. It is important to use a formal contract agreement.

In closing, Mr. Coker stressed that for a composting business to be profitable, owners and operators must ensure that waste managed correctly and efficiently; guarantee consistency, volume, and value in the products they offer; and take control of their market.

Mr. Coker can be contacted by e-mail at cscoker@verizon.net or by phone at (540) 890-1086.

Building Soil: Market Opportunities for Compost in Storm Water Management, Water Conservation, and Erosion Control

David McDonald, Resource Conservation Planner at Seattle Public Utilities, began his presentation with a quote from Margaret Mead: "Never doubt that a small group of committed individuals can change the world. Indeed, it is the only thing that ever has."

Mr. McDonald cited storm water and erosion control as drivers for change. Large cities are already required to comply with Phase 1 of the Clean Water Act. Smaller cities will be required to comply in Phase 2. For erosion control, EPA's National Pollutant Discharge Elimination System menu of BMP now includes compost blankets, berms, and socks. Also, builders are required to have erosion control training.

Water conservation is also a driver for change, Mr. McDonald stated. Peak summer water demand is landscape irrigation, and compost soil amendment and mulching can cut summer irrigation needs by up to 50%.

Climate change is another driver. Because of global warming, there is less snowpack and more variable rainfall in the Pacific Northwest and annual rainfall is likely to change in most regions of the U.S. and the world. A warmer atmosphere has higher energy, which creates the potential for more frequent, intense storms. Floods or droughts are likely as well, as the Southeast U.S. has just seen. Fortunately, compost can help "climate-proof" our landscapes, he said, by improving infiltration and water-holding capacities (thus mitigating both floods and droughts) and improving rooting depth and plant health to adapt to new stresses.

As an example, Mr. McDonald said that salmon decline in the Pacific Northwest region brought the attention of the public and businesses to the issues of stormwater management, energy (dams) and water conservation. He encouraged the audience to consider using whatever environmental issues are of concern in their own areas to get the public's attention and promote change. He also encouraged attendees to make contact with stormwater regulators and water utilities to build awareness of the unique values of compost.

Mr. McDonald listed the benefits of healthy soil. Soil organisms:

- support healthy plant growth and fertilize and protect plants from disease,
- create soil structure and resist compaction,
- provide storm water infiltration,
- prevent erosion,
- reduce summer water needs,
- filter out pollutants,
- reduce need for landscape chemicals.

He emphasized that compost specifications vary by intended end use (stormwater, landscape, water conservation, horticulture, erosion control, agriculture, etc.) but whatever the end use, quality matters:

- particle size
- C:N ratio
- pH
- maturity/stability
- contaminants
- weed seeds
- nutrients
- biodiversity (mycorrhizae, etc.)
- plant growth tests
-

To market compost successfully, compost producers need to fit the product to the intended use: physically, chemically, and horticulturally.

As an example, Bioretention Soil Mixes – for Low Impact Development (LID) stormwater swales and "rain gardens" need specification like the following:

- 30-40% compost; ¾-½ inch screen, few particles smaller than ¼ inch
    - stable, mature, dependable quality (STA) compost that fits the plants to be grown

  - low contaminants – especially a concern with biosolids compost; need low metals, low soluble phosphorus, low soluble endocrine disruptors, yard/food waste compost needs low pesticides, low plastic contaminants

- 60-70% coarse sand
  - few fines (less than 5% by dry weight passing the #200 sieve)
- Dependable infiltration & detention volume (pore space)
- Dependable plant growth
  - fit compost nutrient profile to plant needs

As another example, selling compost as landscape Soil Amendment (for stormwater, water conservation, plant growth benefits) needs these specs:

- Maturity – dependable enhanced plant growth (meets USCC STA standards)
- Nutrient levels:
  - low soluble nutrients for water quality, but
  - turf needs N (with adequate P)
  - trees and shrubs need C (stable N,P,K)
  - balanced pH, high CEC

For use as mulch, composter producers can sell "overs" or minimally composted wood chips as high quality mulch, but need to differentiate and explain their mulch products:

- Uniform color
- Disease control
- High C, low N for weed control
- Chunky 1-inch minus screened, few fines

Yet another example, selling compost for Erosion Control requires these specs:

- Larger particle size (1" screen)
  - longer chunks tie it together, resist erosion
  - higher initial porosity
  - resists compaction and crusting
- Range of intermediate particle sizes, but few fines
- Low P (for water quality)
- Low metals
- Delivery:
  - blower trucks
  - readily available
  - builders can't wait!

Compost soil can be used for erosion control, water quality and flood control, water conservation, and long-term landscape success, and there are soil mixes for those different purposes. Mr. McDonald listed the following Web sites as sources of information:

- www.soilsforsalmon.com
- www.buildingsoil.com

Mr. McDonald answered the following questions from the audience.

Q. Is anyone testing biosolids going into compounds for endocrine disruptors from pharmaceuticals?
A. This is an emerging issue, but there is good news: Composting process breaks down most of these compounds.
Q. When developing your manual, did you have good representation from architects, engineers, and stakeholders?
A. Our initial stakeholder group included builders and developers, and landscape professionals, regulators and engineers, but not architects initially. Stormwater regulators and policy makers became convinced that soil protection and restoration was an essential part of solving our stormwater and water quality problems in the Northwest, and so the technical team and stakeholders developed a practical, cost-effective soil BMP.
Q. What kind of soil were you working with?
A. Our Washington soils include both glacial and volcanic origin types, so we have the full range of rocky, sandy, silt, clay and glacially-compacted "till" soils that can be like concrete. Soil restoration with compost works well in every type of soil it's been tried on, in the U.S. and around the world which is why we have so much interest from China and every region of the U.S. and Canada now.
Q. How much compost do you end up with a couple of years down the road – what are the levels of organic matter?
A. When we start out with a certain level (in our BMP 5% organic matter (OM) for turf soil, 10% OM for planting beds) that's not what we'll end up with in the long term. About half the organic is burnt up by soil organisms, providing both food and homes for them as they rebuild the soil ecology. Long term, organic levels are maintained by the dense vegetation (turn or trees) that this rich soil supports, as long as the grass clippings or leaves are returned to the soil as mulch. So our turf areas may stabilize after a couple of years as 3-4% OM and planting beds at 4-6% OM. But in the process you've rebuilt soil structure, porosity, and biology, so you get a permanent benefit in terms of infiltration, bio-filtration of pollutants, moisture-holding capacity, cation exchange capacity, nutrient cycling, and plant health.

Mr. McDonald can be reached by e-mail at david.mcdonald@seattle.gov.

Certification of Compost Operations and Operators

Frank Franciosi, of Novozymes North America, Inc., spoke on education, training, and State affiliation provided by USCC. The USCC Professional Composter Training Course (PCTC) follows a 5-day, 40-hour model which will be followed by shorter courses on specific or advanced topics. Following are members of the Professional Certification Committee:

- Cochair: Frank Franciosi, Novozymes
- Cochair: Craig Coker, Coker Composting and Consulting
- Cary Oshins, USCC staff
- Ginny Black, Minnesota Office of Environmental Assistance
- Jeff Gage, Compost Design Services
- Monica Ozores-Hampton, University of Florida
- Jeff Ziegenbein, Inland Empire Regional Composting Authority
- Wayne Thompson, Texas Cooperative Extension
- Ken Powell, Kansas Department of Health and Environment
- Carrie Gregory, Pierce County Recycling and Composting

The PCTC will feature lectures by experts in the field with hands-on experience. The core course will be supplemented by advanced topics at the annual conference. The following topics will be covered:

- Composting fundamentals
- Systems method and equipment
- Feed stocks and recipes
- Site selection and design
- Water management
- Odor management
- Compost quality
- Compost markets and uses
- Marketing
- Facility management

Mr. Franciosi explained that the goal is to have a certified professional composter at each facility. Doing so will prove beneficial, as it will improve product quality, improve facility success, reduce environmental impact, reduce complaints, and increase the acceptance of composting as a resource management strategy for processing organic residuals.

Mr. Franciosi discussed details partnership with USCC, including the State affiliate and chapter system and the benefits of partnership.

Mr. Franciosi answered the following questions from the audience.

Q. What states currently require certified operators?
A. Kentucky, New Jersey, New Hampshire, and Virginia.
Q. What is the cost of the training?
A. In California (our first course), it was $595 for USCC members, but it will vary depending on where it is being held. We are considering doing one in New York.
Q. Will cost be involved with chapter affiliation?
A. You have to join as a state chapter for the $250 membership fee. The USCC will rebate back to the state chapter 10% of the annual dues from membership based in that state.
Q. Can chapter be subset of an existing 501(c)3?
A. Yes.

Compost Infrastructure Challenges and Opportunities in EPA Region 4

Mary Beth Van Pelt, of EPA Region 4, read to the participants letters from representatives who could not be at the conference. (A letter from Bob Bickner in Kentucky is located in Attachment C.) Following is a letter from Brian Rosa in North Carolina:

Friends,

I would like to thank all those who have put this workshop together, especially EPA Region 4 and the USCC. I'm sorry that I cannot attend, but a family illness is taking president over my attendance. I would like to take this opportunity to encourage the USCC and all of those in attendance to work towards a more sustainable future by focusing on food waste diversion as a way to reduce Global Warming. As we are all aware of Global Warming, I'm not sure we are all aware that it (Global Warming) is the single most important issue facing humanity!

I would ask that we as a group and as individuals consider that fact in all our decisions on the future of the compost industry. We have to be more aggressive forcing the issue of carbon and methane reduction! Food waste is the number contributor to methane production in landfills! Methane being over 70 times more potent than CO_2 in a 20-year period and 23 times more potent in a 100-year period. We have to get food waste out of the landfills and have to be done as soon as possible. According to the IPCC (Intergovernmental Panel on Climate Change) "Rajendra K. Pachauri's assertion: We have a window of seven years to stabilize CO_2 at today's levels if we are to limit our global mean temperature increase to around 2.4 degrees Celsius"

I would like to see a strongly worded letter submitted to all branches of the government mandating that the government make any and all carbon reduction actions based on the facts stated in the IPCC's recommendations. Including federal support to increase composting and methane digestion of food waste and all organics currently landfilled.

I know that there so many obstacles but we must persevere! One of those issues we are facing in North Carolina is water quality permitting. HB1100 has given us an

opportunity to try to address that, but at a snail's pace and at this rate, will not be a benefit to the situation at hand! The water quality permitting folks are only looking at a small fraction of the whole. They are not taking into consideration of the benefits of what composting provides, only the mandate to reduce water pollution. How to convince WQ folks that we are working towards the same goal and in order to get there we have to look at the whole process and consider the benefits that surely outweigh the impact on the environment!

Time is of the essence! It is critical that we as an industry and as citizens of this planet to make every minute count! I encourage you all to learn more about global warming issues, consider those issues when making any and all decisions in your business and daily life. We can make a difference and we must!!

Brian Rosa,

Organic Recycling Specialist

NC Department of Environment and Natural Resources/Division of Pollution Prevention and Environmental Assistance (DPPEA)

After reading the letters, Ms. Van Pelt asked for a synopsis of what composters must go through to open a business in respective States.

Scott Mouw, of the North Carolina DPPEA, stated that his department is very focused on trying to get composting going in their state. The effort includes providing sourcing material and making sure people are aware of available resources. He stated that their biggest question is what it means to have a wastewater permit if you are a composter. The ongoing issue is to determine when a composter needs a stormwater permit and when they need a wastewater permit, or both. This process could take up to a year and a half.

Woody Barnes, of the South Carolina Department of Health and Environmental Control, said that when it comes to yard waste, debris and compost regulation is very limited. Their biggest issue is composting food waste, and nothing is spelled out yet. Zoning and facility issues must be addressed, and it has not yet been determined who will make those decisions.

Stephanie Busch, of the Georgia Department of Natural Resources, responded to the question posed from EPA about what happens if EPD receives a call from someone wanting to start a compost operation in Georgia and they already have approval from local government zoning board. Under the current rule, EPD would talk to the caller about the operation (e.g., type of feedstock and the generator source) so as to determine the type of permit the company would need. Depending upon the nature of the call and in what phase of planning their business, EPD may direct composters to the University of Georgia for technical assistance and training, refer them to the Georgia Recycling Coalition for networking and markets, or work another agency to find someone to assist with business planning. Georgia is revising its compost rule as part of a facilitated stakeholder process funded by a Resource Conservation Challenge grant.

Mark Williams, of the Mississippi Department of Environmental Quality, explained that composting activities are limited because of a rigorous permitting process for commercial composters. Testing and requirements may be onerous for facilities, and as a result, there are very few of them. The department is working with local governments, promoting education on composting, encouraging individual composting, and working on a rule change to attempt to develop or modify regulations.

Francine Joyal, of the Florida Department of Environmental Protection, noted that it can be difficult for composters to establish a business in Florida. Engineering costs associated with the application are high and there are many rules and regulations that a business has to abide by. Florida is currently going through a rule change that will create a registration program which will ease the permitting burden for food waste and animal by-product composting. The main sentiment is that the Florida Solid Waste Program is working with the regulated community in developing regulations to encourage recycling while also protecting the environment.

Jonathan Crosby, of the Alabama Department of Environmental Management, stated that the State has no permits requirements for composting. Currently, their main priorities are regular recycling and unauthorized landfills, though legislation to develop compost rigs was passed a year ago. The lack of funding is a big issue.

(A list of composting regulations for Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee is provided in Attachment C.)

Food Waste Diversion and Compost Manufacturing

Holly Elmore, of Green Foodservice Alliance (GFA), talked about composting food residuals and excess food from the foodservice industry, which is one of the biggest generators of organic matter going into landfills. The GFA, based out of Atlanta, works with foodservice operations of all types, including restaurants, hotels, convention centers, event venues, off-premise catering, universities, school systems, cafeterias, and health care organizations to create Zero Waste Zones. Atlanta Zero Waste Zones are prototypes and serve as templates for national expansion. Ms. Elmore said that Zero Waste Zones have a tremendous impact on the environment as the zones divert recoverable products from landfills and back into the production cycle. Zero Waste Zone success is dependent upon a strong infrastructure. There are approximately 250 food permitted composting facilities in the United States. Along with the EPA and USCC, the GFA is working to support efforts to create more in-regulation composting options.

Tim Lesko, cofounder and president of GreenCo, gave a PowerPoint presentation on his business, which deals in food waste diversion and manufacturing. GreenCo currently services the following industries: food processing, meat and seafood, fruit and vegetable, bakeries, supermarkets, food services, hospitals, restaurants, schools, universities, and colleges.

Through a series of photographs, Mr. Lesko showed steps that his business takes from collecting food residuals, to purging and retaining it in holding bays, to mixing it with

ground yard waste, to assembling the material into windrows, to selling the finished organic product to consumers.

Mr. Lesko answered the following questions from the audience.

Q. When you were planning your business, did you have contracts?
A. On the front end, we had several contracts in place for food residuals. On the back end, we did not.
Q. Do you deliver?
A. Yes, we are full service.
Q. What is your wholesale cost?
A. Around $15 to $52.
Q. Was ground water monitoring required?
A. No.
Q. Do you accept compostable products?
A. Yes—in fact, one of our biggest clients is Emory [University]. However, one of our biggest challenges is making sure that food residuals are what we will get from the client, with nothing else mixed in.

Composting in Georgia

Derrick Williams, of the Georgia Environmental Protection Division, gave a PowerPoint presentation about regulations and permitting in Georgia for composting facilities. (A list of composting regulations for Georgia is included in Attachment C.)

Mr. Williams explained that a facility must obtain a solid waste handling permit if it is composting solid waste such as garbage, food industry by-products, industrial or municipal sludge, or solid waste other than yard trimmings. To obtain a solid waste handling permit, the facility owner must complete an application and a request for site suitability and provide documentation of public hearings held by the host jurisdiction. The facility must undergo siting, in which zoning takes place that is consistent with the jurisdiction's solid waste management plan, topography, floodplains, wetlands, stream, and hydrogeologic and site assessments. Design standards must be met as well. The design must be prepared by a professional engineer, and the site design sheet and facility layout must show items such as property lines, existing geographical features, different work areas, and wastewater control processes. The operational plan must describe incoming waste, storage and containment, processing of waste, emergency procedures, and evidence of financial responsibility.

Mr. Williams went over the stakeholder process and creating a "straw man" (proposed rules). There are three tiered systems of solid waste composting permits in Georgia. Materials that are exempt include yard trimmings, onsite agricultural waste, and onsite household waste. There is also permit-by-rule (PBR) which applies to a facility processing no less than 75% (by weight) of solid waste generated there, and there is a full solid waste handling permit.

Mr. Williams then reviewed the five categories of feedstock and the design and operation criteria for the six classes of facilities. He suggested the following Web site for more information: www.gaepd.org.

Mr. Williams answered the following question from the audience.

Q. When are proposed rules going out for public comment?
A. We will be taking it to the DNR in December and there will be a public hearing in March.

Derrick Williams can be e-mailed at derrick_williams@dnr.state.ga.us.

Green Infrastructure: How to Institutionalize Organics Diversion and Compost Use Through Local/State and Government/Business Collaboration

Mr. McDonald explained the value of a "green" infrastructure (ecosystem services that we rely on to make our built environments usable, such as water supply, stormwater management, climate moderation, air quality, food production, etc.). Natural systems have lower energy demands, lower maintenance, higher resiliency, and are locally adaptable over time. Mr. McDonald reiterated (from his previous-day's presentation) that an improtant drivers for compost use in coming years could be climate change. Over the next 20 to 50 years, climate changes will likely result in storm,flood and drought damage, increased energy costs, population shifts, and reduced agricultural productivity. Composting is the foundation of green infrastructure, which relies on healthy soil. Organics recycling can produce, restore and maintain healthy soil for trees, storm water management, water conservation, sustainable and livable landscapes, sustainable agriculture, climate mitigation and moderation, and energy conservation.

He gave a background summary of organics recycling in Seattle (and neighboring communities that have followed this lead):

- 1987: voters rejected incineration
- 1988: Backyard composting bins and education
- 1988: Curbside recycling; 60% Recycling Goal (2008 at 47%)
- 1989: Yard Waste curbside collection. 1998 food waste research & pilots begin
- 2005: Mayor's Climate Protection Initiative, spread to most large U.S. cities (0.25 tons of GHG per ton of food waste)
- 2006: Recyclables banned from garbage
- 2007: Beyond 60% Recycling - 72% recycling by 2025 - Food waste emphasis: food recovery first!
- 2009: Food waste collection citywide - household & commercial curbside.

He talked about Washington's Soil Best Practices regulations (which require compost use to restore construction-disturbed soils) and the benefits of these practices for builders and developers:

- More marketable buildings
- Better erosion control
- Easier planting, healthier plants, fewer callbacks
- More attractive landscapes, that sell the next job
- Easier maintenance for customers (healthier plants, fewer weeds, less need for water, fertilizer, pesticides)
- Reduced stormwater runoff, with better water quality
- Regulatory compliance (current and upcoming regulations)

Mr. McDonald summarized the Washington Department of Ecology's "Post Construction Soil Quality & Depth" BMP in their Stormwater Manual, which is taking effect as local jurisdictions bring their codes up to compliance with that state manual (as they are required to do over the next few years by their NPDES permits):

- Retain native soil and vegetation wherever possible
- All areas cleared and graded require 8 inch amended soil depth:
  - Soil organic matter content 10% for landscape beds, 5% for turf areas, (S.O.M. by loss on combustion method)
    - 10% S.O.M. results from roughly 30-40% compost by volume added to low-organic subsoil.
    - 5% S.O.M. results from roughly 20% compost by volume in soil
    - May use native topsoil, incorporate organic amendments into existing soil, or bring in topsoil blend to meet spec
  - pH 6-8, or original pH
  - Subsoil scarified 4 inches below 8-inch topsoil layer
  - Protected from compaction after amendment
  - Mulched after planting, & maintained by leaving organic debris

In order to implement Washington state's soil BMP, a technical and stakeholder group developed the ***Building Soil*** guidelines manual (approved by the state regulators) which describes practical methods to achieve the soil standards, including:

- Complete a simple form, "Soil Management Plan", for each project site
- <u>Four options for soil management in different areas of the site:</u>

  1) Leave native soil & vegetation undisturbed, protect from compaction

  2) Amend existing soil in place (with compost or other organic)

  3) Stockpile site topsoils prior to grading for reapplication

4) Import topsoil meeting organic matter content standards

- Choose pre-approved or custom calculated amendment rates
- Simple field inspection and verification procedures
- Includes model specs written in CSI and APWA formats
- Available at: www.BuildingSoil.org

Mr. McDonald showed a number of successful soil restoration and erosion control projects using compost around the Pacific Northwest region, discussing the challenges of each site and the lessons learned. Many of these sites and lessons can be seen in slide-shows and links on the www.BuildingSoil.org or www.SoilsforSalmon.org websites.

He then summarized the steps they took in building the Soils for Salmon soil quality movement in Washington, starting from 1999 through the present:

- Start one-on-one with policy makers, building industry leaders. Partner with professional organizations, "green" industry leaders, and regulators.
- Engage (fund) scientists in meaningful research
- Soils for Salmon technical "how to" seminars around the state: 22 events/1600 design & engineering professionals in first 3 years
- 2001-2003 soil quality starts to appear in state policy statements: priorities for watershed restoration, and stormwater management policy.
- Write soil BMPs for WA State Stormwater Manual, then local codes
- Local government and WsDOT projects lead: prove it works, is cost-effective
- Educate engineers, LA's, landscapers, planners (thru professional organizations)
- Effective web-based resources – link them up to professional and agency sites
- NPDES regulators begin to push Low Impact Development (LID), including. soil
- Continue to reach builders through erosion control classes, demos, articles, mail, email, web, and one-to-one.

As an example of the last step, Mr. McDonald cited their successful erosion control trainings for builders over the last two years:

- "Certified Erosion and Sediment Control Lead" (CESCL) trained staff are required by the State on all construction sites over 1 acre in size
- CESCL training now includes the compost-based erosion control BMPs (compost blankets, berms, and socks), and the state soil amendment BMP
- 1200 builders trained in classes and field demonstrations in the last 18 months.

In closing Mr. McDonald said that our challenge is to build a widespread understanding, especially among regulators, that compost is not primarily a waste diversion strategy. Instead it is the foundation of critical, essential green infrastructure (and also a cost-effective diversion strategy).

So he said our discussion should not be "how can we manage all this organic waste", but rather "how can we ever get enough compost to restore and maintain all our essential green infrastructure: stormwater, water supply, air, etc.?" When seen it this light it become self-evident that we can't afford to burn or landfill most organics, because we need every bit to restore and build the soil that is the foundation of that essential green infrastructure.

In order to make that paradigm shift happen, Mr. McDonald said we have to build working relationships and partnerships with a much wider assortment of regulators, policy makers, users, and beneficiaries of soil and organics-based infrastructure. He suggested the following groups as good partners to start on collaboration:

- Organics recyclers: composters, wood processors, biosolids, agriculture, bio-energy, waste haulers, product marketers
- Scientists: land grant universities, regional, USDA/NRCS, climate etc. scientific opinion leaders
- Game changers: storm water and civil engineers, DOTs, water supply planners, energy planners, public health agencies, green building and climate change advocates, public-based environment, community, and regional quality/agriculture/food/green jobs economic development groups
- Doers: builders, developers, landscapers, LAs, erosion professionals
- Regulators: EPA, State, and local—storm water, water, energy, agriculture, public health, homeland security

Mr. McDonald challenged the audience to go out and make those connections in their own region, building on local issues of concern (water, flooding, or whatever's important locally) to create awareness and change.

Here are resources on compost use in soil BMP, erosion, and LID specifications:

- Building Soil guidelines manual for implementing Washington's Post-construction Soil Quality & Depth BMP (includes APWA & CSI specs) and resources for builders, including the EPA-approved compost erosion-based erosion control BMP specifications(blankets, berms, and socks) at www.BuildingSoil.org
- Similar information, plus the scientific background an more resources for designers, at www.SoilsforSalmon.org
- Low Impact Development Technical Manual, from the Puget Sound Partnership www.psp.wa.gov/stormwater
- Seattle's "Natural Drainage Systems" specs www.seattle.gov/util/NaturalSystems
- National specs coming in ASLA/USGBC "Sustainable Sites" criteria, to be released Nov. 5, 2009, and to be incorporated into USGBC LEED green building standards in next few years, at www.SustainableSites.org

Mr. McDonald answered the following questions from the audience.

Q. Have you heard of a developer or builder getting carbon credits for compost use?
A. No, and I think it's unlikely to happen. However, they are getting LEED [Leadership in Energy and Environmental Design] credits for it.

Q. Have you gone back in years after and measured carbon levels (organic matter)?
A. Yes. You're going to stabilize at a lower organic matter that when soil is first amended. When you take degraded soil and amend it, you're building habitat and food sources to get the soil organisms going again. An amended soil will stabilize at an organic content (OM) around one half of the level at time of amendment, but with long-term function restored, and vigorous plant growth that can maintain that OM level.

Brainstorming Discussion
For the last session, Ms. Goldstein and Ms. Schwab led a brainstorming discussion on the next steps for the group. The first question posed was "Who can you collaborate with?" The discussion leaders suggested the following groups should be in attendance at meetings on composting and recycling:

1. Generators
2. Organics recyclers
3. Scientists
4. Game changers
5. Doers
6. Regulators
7. Haulers

Following are responses from the audience:

- The storm water professionals (end users) and those who write the manuals
- U.S. Department of Agriculture
- Homebuilders, Homebuilders Association of Georgia
- Trade associations
- Georgia Green Industry Association
- "Green" builders
- Nursery and landscape associations
- Universities
- Governors, political representatives
- National Governors Association, NACO, city, county
- Media/green media
- Environmental activists
- Land use planners
- Trade magazines (What are decision makers reading/watching?)
- Landscape architects

Ms. Schwab requested that each member of the audience share an action item. Following are the responses:

- The term "waste management" seems like a self-defeating prophecy. It is time for a paradigm shift. We're not waste processors, we're resource managers. Change our vernacular. If the public perceives it as waste, it will never work.
- Stop using term "yard trash." Try and identify composts and grouping by use.
- Tracking.
- Training and education programs on the benefits of compost use. Train-the-trainer, hands-on programs.
- Go find someone who is responsible for water supply and storm water management and start building bridges.
- Be more aggressive when it comes to politics. We need to argue the case for composting. Mention it as a climate solution.
- Focus on the supply side as well. Developers ask for a list of suppliers, and the list is small. You can't have demand without supply, it needs to be catalogued and tracked.
- Get the word out about composting. Have another meeting with lessons learned.
- Get younger people involved since they are the future.
- Perception is reality when it comes to local governments. Political will is the driver. In Georgia, the economy is important. It's not just about disposal.
- We have to deal with supply side. Everyone has to come together when it comes to standing volumes. Get in a competitive market.
- Education and training. Many people do not understand compost and its uses and applications. On the consumer end, more education is needed. Use social media, forums, blogs, and ways to make information accessible to young people. It's a fascinating topic for any age.
- Education. Not many people understand exactly what compost is. We should make definition more clear—it is not manure, it is not trash, it is a high-end product that is desirable.
- Existing permitting needs to create an incentive. The EPA has an opportunity to be a facilitator. Get stakeholders to realize how important it is and make it user friendly. Make it easy to understand and affordable.
- Create demand for the product. Pull together waste, water, air people.
- Make it more straightforward, streamlined, and cost-effective. Time is money. They don't have time to put together the information for an application and wait for a permit that is sitting on someone's desk. We need to be efficient with permits. Get back to contacting people, doing outreach. Go to the CEOs.
- Use the term "waste" to our benefit. We say in business that "waste is a sign of inefficiency." It is important to show businesses how much waste they are creating, and that it can be converted to a resource.

- Drive the leadership of USCC to make it about organics management council. Pull together that theme and direct communications and public relations. No one across the board is managing organics, and that needs to be done. We need to maximize our resources for maximum benefit.

After brainstorming and action items discussion, Ms. Schwab and Ms. Goldstein adjourned the meeting.

Attachments

Attachment A: Agenda

Attachment A
Agenda

Working Toward a Sustainable Tomorrow: Understanding and Expanding Compost Infrastructure

September 28–29, 2009

Agenda

Monday, September 28th

11:00–Noon Registration

Noon–1:30 Welcome
Welcome
Wayne King, Sr., U.S. Composting Council
Jon Johnston, U.S. EPA Region 4

Keynote Presentations
The State of Organics Recycling in America
Jean Schwab, Office of Resource Conservation and Recovery, U.S. EPA
Compost Infrastructure: A View from 30,000 Feet
Nora Goldstein, Editor, *BioCycle*

1:30–1:45 Break

1:45–3:45 Market and Business Development
Composting: The Art of Successfully Managing Your Operations and Marketing
Craig Coker, Coker Composting and Consulting
Building Soil: Basics of Organics Management in Sustainable Communities
David McDonald, Seattle Public Utilities
Facilitated Audience Discussion on Building a Compost Business

3:45–4:30 USCC Education, Training and State
Affiliation
Certification of Compost Operations and Operators
Frank Franciosi, Novozymes North America, Inc.
Case Study: EPA Region 3 Best Management Practices Guide

5:00 Leave for Tour and Reception at Serenbe

Tuesday, September 29th

7:30–8:15 Continental Breakfast

8:15–9:45 Compost Infrastructure Challenges and Opportunities in EPA Region 4
EPA Region 4 states

9:45–10:00 Break

10:00–Noon Building Composting Infrastructure
Food Waste Diversion & Compost Manufacturing
Tim Lesko, GreenCo
Holly Elmore, Green Foodservice Alliance
Georgia's Rule Revision Process
Stephanie Busch, Georgia EPD
The "New" Business As Usual: How to Institutionalize Organics Diversion and Compost Use in Local Government Programs
David McDonald, Seattle Public Utilities

Noon–1:00 Lunch

U.S. EPA Partnership Award for Downtown Atlanta's Zero Waste Zone
Facilitated Brainstorming on Next Steps
Nora Goldstein, *BioCycle*
Jean Schwab, U.S. EPA

1:00–2:00 Roles and Coordination
Discussion of the roles of local, state and federal agencies, universities, US Green Building Council, and trade associations in building infrastructure and promoting the use and benefits of compost