

**FOOD WASTE COMPOSTING  
IN-VESSEL COMPOST SYSTEM REVIEW  
PRESENTATION TO  
NYDEC FOOD WASTE WEBINAR  
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# BIOCYCLE 2007 IN-VESSEL COMPOSTING VENDORS

- American Bio Tech
- Augspurger Komm Engineering.
- Backhus Kompost.
- Bac Tee System.
- Bedminster International
- BioSystem Solutions
- BW Organics
- CH2M Hill
- Christiaens Group
- Conporec
- Double T Equipment
- Engineered Compost Systems
- EPTC
- Fairfield Service Co
- Farmer Automatic.
- Global Earth Products
- Gore Cover Systems
- Green Mt. Technology
- Hallsten Corp.
- Heil Engineered Systems
- Herhof
- HotRot.
- International Composting
- IPS/Siemens
- Longwood Manufacturing
- Miller Composting
- NatureTech
- New Era. (Use HotRot)
- NexGen: Rotocom
- Schafer Systems
- Sorain Cocchini
- Stearns & Wheler (Use Conporec)
- Teg Environmental
- Transform Compost Systems
- VCU Technology
- Versa Corp.
- X-ACT.

# CAPACITY ISSUES

- VERY FEW LARGE CAPACITY FACILITIES SUCH AS THOSE IN MARLBORO, NANTUCKET, DELAWARE, IPSWICH, UNITY
- ON-FARM COMPOSTERS WITH LIMITED CAPACITY
- PUBLIC OPPOSITION TO COMMERCIAL FACILITIES
- CLOSURE OF EXISTING FACILITIES SUCH AS FIVE IN MASSACHUSETTS IN 5 YEARS
- LACK OF RFPs AND LONG-TERM CONTRACTS TO FINANCE NEW FACILITIES

# IMPEDIMENTS TO FARM COMPOSTING

- SITE ACCESS
- LOW-TECH
- INADEQUATE TIP FEES
- SECONDARY PRIORITY FOR FARMER
- INORGANIC CONTAMINANTS
- NEIGHBOR OPPOSITION

# IMPEDIMENTS TO LARGE SCALE COMPOSTING

- POOR PERFORMANCE HISTORY
- HIGH CAPITAL AND OPERATING COSTS
- COMPETITION FROM OUT OF STATE LANDFILLS
- LACK OF WASTE BANS FOR LANDFILL DISPOSAL OR MANDATORY RECYCLING OF ORGANICS
- POOR QUALITY COMPOST
- ODOR CONTROL

# MAJOR PROBLEM: INORGANIC CONTAMINANTS



**PROBLEMS:** Contamination, usually film plastic and bags collecting on teeth in tub grinder.



# *NEW YORK CITY'S RIKERS ISLAND FOOD WASTE COMPOSTING FACILITY*





# ODOR CONTROL

- ALL PROCESSING WITHIN BUILDINGS
- BUILDING AIR BLOWN TO BIOFILTER LOCATED ADJACENT TO BUILDING
- COMPOST BAYS AERATED TO CONTROL TEMPERATURE AND MOISTURE
- CURING PILES AERATED

# Fans and Blowers

- Aerate bays
- Move exhaust air to biofilter





# RIKERS ISLAND CORRECTIONAL FACILITY NEW YORK CITY

- IPS agitated, aerated windrow
- 10 tpd food waste with wood chips
- Compost used on-site for vegetable gardens and landscaping



# *RIKERS ISLAND CORRECTIONAL FACILITY, NEW YORK CITY*

- Largest municipal prison in the country
- 17,000 inmates housed in a series of men's and women's cell blocks
- 5,000 ton per year Siemens/IPS Composting System (IPS) constructed in 1996
- Operated by WeCare Organics, LLC
- Cell blocks have separate cafeterias
- Pre and post consumer food waste collected daily
- Mixed with wood chips for in-vessel composting
- Compost used on-site for gardens/landscaping

# SIEMENS/IPS COMPOSTING TECHNOLOGY RIKERS ISLAND

- Agitator runs on two bays
- Piles in each bay turned daily to move material down bays in 21 days
- Aeration bay blowers aerate and dry compost
- Building air collected in overhead ducts and blown to biofilter







# NYS DEPARTMENT OF CORRECTIONS 2008

- 35 FACILITIES COMPOSTING FOOD WASTE
- 45,000 INMATES SERVED
- 14,000 TONS PER YEAR
- 4 WRIGHT ENVIRONMENTAL VESSELS
- 4 AERATED BAYS
- 12 COVERED WINDROWS
- 15 OPEN WINDROWS WITH LEACHATE COLLECTION & TREATMENT

# NYS Department of Corrections: Windrows inside a building



# WRIGHT ENVIRONMENTAL SYSTEM

- NYS Department of Corrections
- Allegheny College, Meadville, PA
- Numerous other colleges/institutions
- Food waste and bulking agent pre-mixed
- Contained for 21 days in agitated, aerated metal box
- Compost requires additional curing

# ALLEGHENY COLLEGE FOOD WASTE COMPOSTING WRIGHT ENVIRONMENTAL



# **DELAWARE COUNTY, NY COCOMPOSTING FACILITY**







# Oxbow Hollow Compost Marketed by WeCare Organics



- Mulch
- Turf blends
- Potting mix
- Landscaping
- Top dressing
- Soil amendment
- Erosion control
- Filter berms & buffers





# BW ORGANICS ROTARY DRUM FOOD WASTE APPLICATIONS

- Warren Wilson College, Swannanoa, North Carolina
- Lincoln University, Jefferson City, Missouri
- Maharisha School, Fairfield, Iowa
- University of North Carolina, Greensboro, North Carolina
- Michigan State University, Grand Rapids, Michigan
- Montclair State University, Montclair, New Jersey
- Brown Creek Correctional Institution, Polkton, North Carolina
- South Central Correctional Center, Licking, Missouri
- Northeast Correctional Center, Bowling Green, Missouri
- Glacier National Park, Gustava, Alaska
- Toyoto Motor Manufacturing, Georgetown, Kentucky
- SUNY Stonybrook, NY

# TOYOTA MANUFACTURING PLANT, KENTUCKY

- Three cafeterias serving 10,000 employees
- Pre- and post consumer food waste
- Dining hall “Earth Care” recycling centers
- Blend with yardwaste and compost in BW Organics rotary drum
- Use compost in greenhouse, vegetable gardens, and landscaping





# MONTCLAIR STATE UNIVERSITY NEW JERSEY

- BW Organics rotary drum behind conference center
- Food service staff separate food waste
- Mixed with shredded cardboard and wood shavings in attached mixer
- Started operation July 2007
- Process 1,000 lbs.day
- No permit from State required



# NATURETECH

Aerated stationary vessels



# ENGINEERED COMPOST SYSTEMS





# ENGINEERED COMPOST SYSTEMS INSTALLATIONS

- Berks County, PA 1,200 T/Year – SSO Stationary In-vessel – 2008
- Mariposa, CA 50 T/Day - MSW Stationary In-vessel - 2006
- W. Yellowstone, MT 45 T/Day - MSW Stationary In-vessel - 2003
- Marin County, CA Pilot Project – SSO Stationary In-vessel - 2008
- Fort Hood Army, TX Pilot Project – SSO Covered Aerated Static Pile – 2008
- Tenino, WA 60,000 T/Year - SSO/YW Covered Aerated Static Pile – 2007
- Stanwood, WA 30,000 T/Year - SSO/YW Aerated Static Pile – 2008
- Milpitas, CA 20,000 T/Year - SSO Aerated Static Pile - 2003
- Walla Walla, WA 2,000 T/year – SSO/YW Container In-vessel - 2004
- Ottawa, Ontario 6,500 T/Year – SSO Container In-vessel - 2002
- Hutchinson, MN 10,000 T/Year - SSO In-Vessel Aeration & Control - 2001

# WEST YELLOWSTONE, MONTANA

- Engineered Compost Systems technology
- Process food waste from Yellowstone National Park
- Resort concessions separate pre- and post-consumer food waste, soiled paper, and biodegradable service ware



















**THANKS A ROT!**

**KEEP YOUR SENSE OF  
HUMUS!**