



# **After 40+ Years Successfully Composting Biosolids, Merrimack, NH Plans for the Future**

Jim Taylor –Assistant DPW Wastewater, Merrimack, NH  
Leo Gaudette- Wastewater Treatment Facility/Compost  
Facility Operations Manager, Merrimack, NH  
Geoff Kuter Ph.D. - CEO, Agresource Inc., Amesbury, MA  
Richard Nicoletti, PE - Compost System Manager, BDP  
Industries, Greenwich, NY



## Merrimack NH

- Located along Merrimack River in Southern NH
- Among Top 25 places to live in the US in 2013 by CNN/Money Magazine
- Population of 26,000; Urban/Suburban community with median household income of \$70,000 per year.
- Home to PC Connection and Brookstone companies; other large employers include Fidelity Investments, Anheuser-Busch and BAE Systems.



## The Merrimack Wastewater Treatment Facility (MWTF) operational in 1970





## **Upgrades in 2007 and 2013**

At present the MWTF is designed to treat 5.0 MGD with an average flow of 1.8 MGD.

Annheuser-Busch brewery generates about 35 % of flow and 70% of the TSS entering the plant.

Treatment process train includes Biological Nutrient Removal (BNR) followed by activated sludge.

Screw press is used to produce a dewatered cake which is composted to meet EPA class A standards.





## Merrimack WTF with Composting Facility





## **Solids Management**

Onsite composting at present operating at about 9,600 wet tons per year with about 3,600 from other treatment facilities (27%).

Started Composting in 1970's with Aerated Static Pile; upgraded to In-Vessel in 1994

Commitment made in 2008 to renovation of compost facility





## Early solids management: sludge lagoons







## 1976 Pilot Project Aerated Static Pile Technology







## Full scale operation of Aerated Static Pile; 1980's



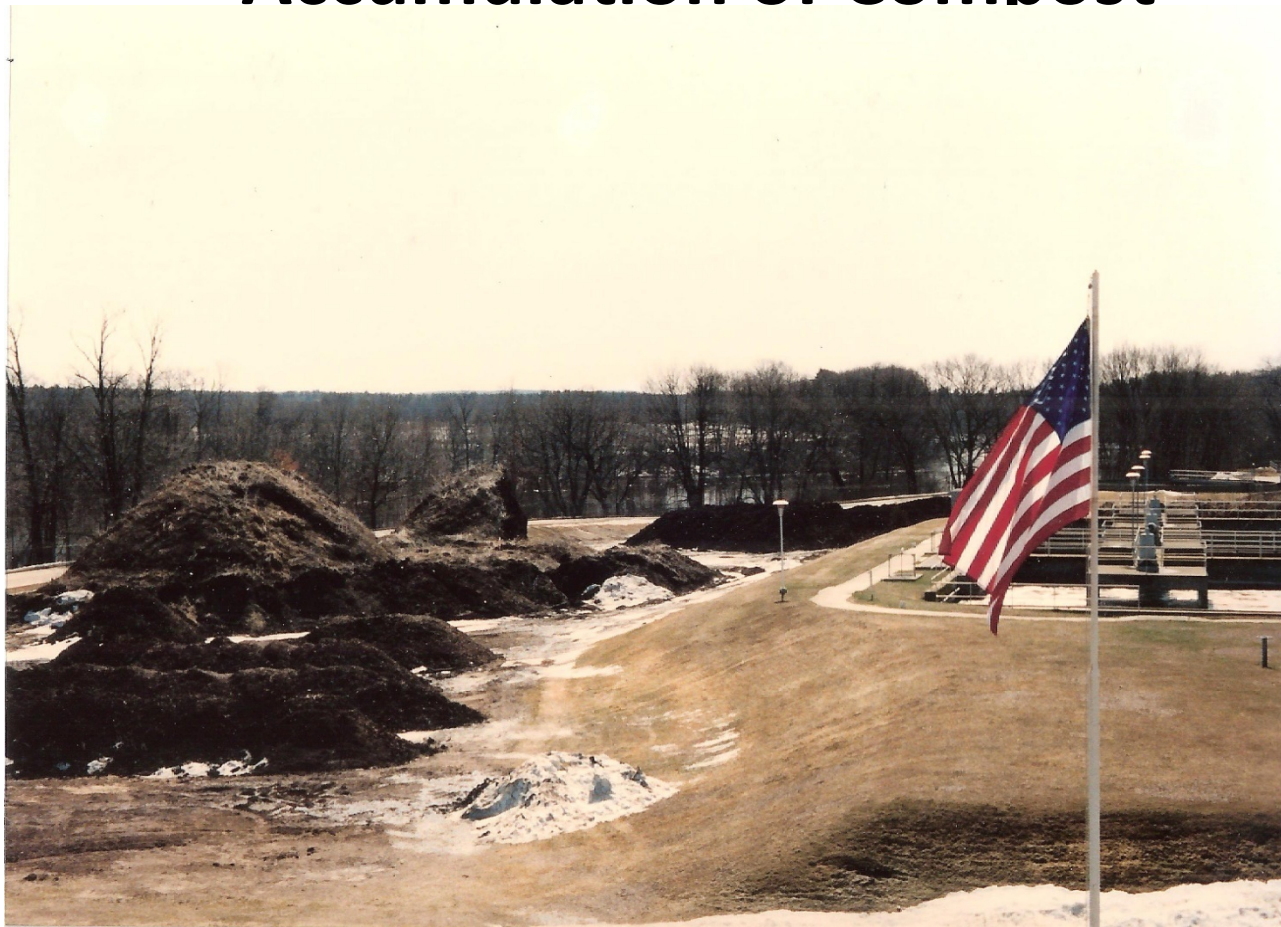


## Aerated Static Pile Challenges

- Outdoor facility with limited process control
- Lack of effective odor control
- Poor drying
- Difficulty screening and recovery of wood chips
- Inability to produce marketable compost



## Accumulation of Compost







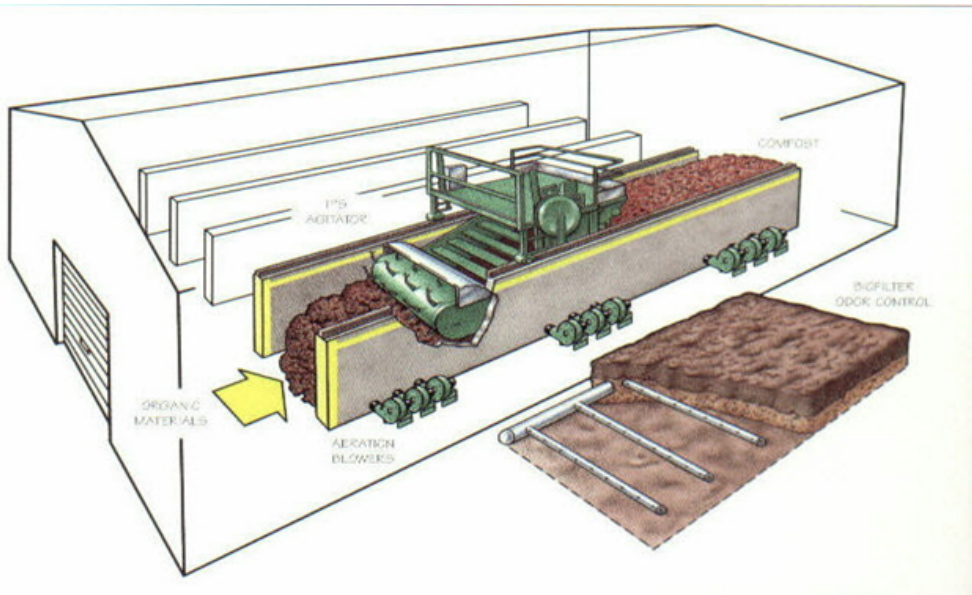
## **Decision to upgrade to Enclosed In-Vessel Composting**

- Enclosed facility providing capture and treatment of odors
- Agitated-Bed composting with process control
- Production of consistent quality dry product



# Agitated Bed Composting System

## IPS Technology operational in 1994





## Compost Facility Configuration

21 Days active  
composting to  
meet PFRP and  
VAR

Minimum 30  
days windrow  
curing  
(uncovered)

Covered  
storage for  
amendment







## Biofiltration for Odor Treatment





## Manufacturing Quality Compost







## Compost Marketing; Partnership with Allgro and Agresource







## Focus on Top Dressing

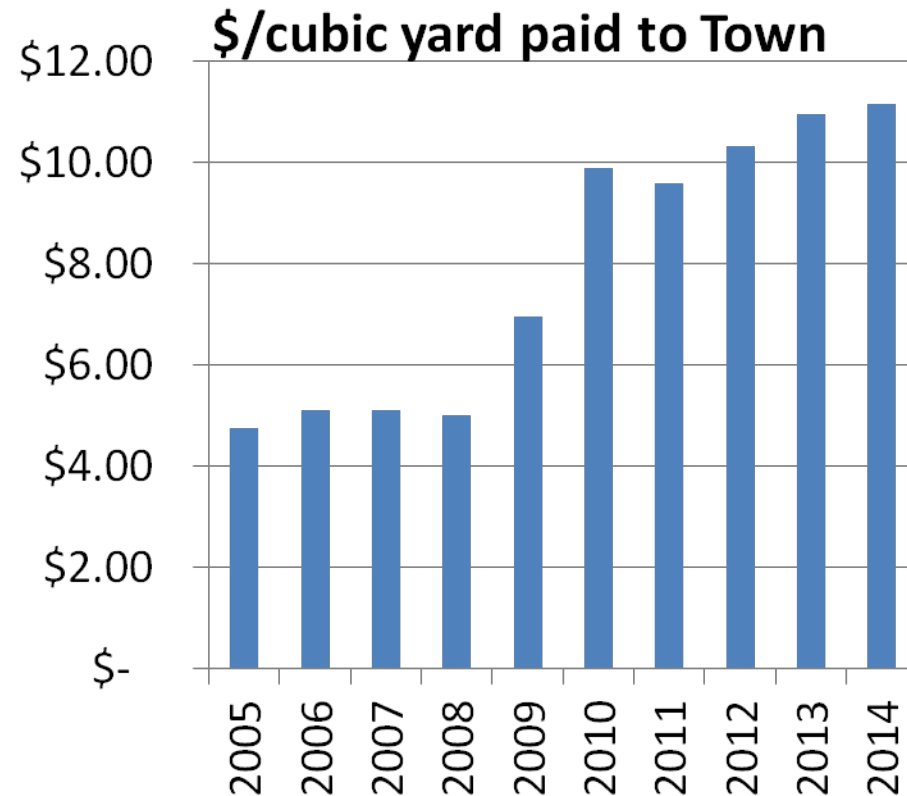


TPC Boston Topdressing primary rough areas





## Revenue sharing benefits Town as value of the compost increases





## Challenges to Composting

- Enclosed facility: corrosion requires significant costs to renovate compost building
- Difficulty to obtain adequate supplies of quality amendment and increased cost

*To Continue or Not?*





## 2008 Study

Options considered:

Close facility with Landfill disposal or Land Application

Make renovations and continue with:

1. Private operator
2. Continue Town operation



## 2008 Study Results

Least cost option:

- Continue in-vessel composting with Town operations.
- Utilize excess capacity with solids from outside the Town.





# **A Greenhouse Gas Emissions Analysis of Biosolids Management Options**

**April 2008**

**Ned Beecher, Executive Director, North East Biosolids and  
Residuals Association**

“Despite the greater use of energy to perform composting, composting generates less GHG emissions than landfill disposal. Calculations indicate that ... future landfill disposal would emit .... 2.5 times as much as the current composting operation and 3.4 times as much as the composting option with improved dewatering.”



## Facility Upgrades

2.875 Million dollar project  
Replacement of roof and side  
panels. All new purlins, and all  
bolts replaced on the main  
supporting members.

Replace original three agitators  
with two new machines.







## **The future for Merrimack NH**

Town support for investment in Enclosed  
Agitated Bed composting

Composting most cost effective approach for  
solids management utilizing excess capacity

Focus on creating valuable product; working  
with Agresource to develop market program



## **Further Information: Merrimack NH**

<http://www.merrimacknh.gov/public-works-department>

Jim Taylor and Leo Gaudette (603) 420-1620

## **BDP Industries**

[www.bdpindustries.com](http://www.bdpindustries.com)

Richard Nicoletti (518) 695-6851

## **Agresource Inc.**

[www.agresourceinc.com](http://www.agresourceinc.com)

Geoff Kuter 978-388-5110