

## **Compost Odor Emissions and Process Efficiency – Connecting the Science to the Practice**

### **Summary:**

In this class we will present how composting biology responds to process conditions inside the pile, and what operators can do to make it better. This will include a not-too-technical discussion of research findings and mechanisms. We'll then review what is meant by BMP compliance, and how the range of BMP compliance impacts the biology. This will include actual data from operating composting facilities. We'll then talk about how operations and facility design contribute to BMP compliance. Finally, we'll look at the economics of BMP compliance and discuss how to determine the right level of BMP compliance for specific composting facilities. The class includes an afternoon session where participants can submit problems or issues ahead of time and Tim and Geoff will discuss solutions with the whole class.

**Instructors:** Tim O'Neill and Geoff Hill, Engineered Compost Systems

**Time:** 8:30 AM to 4:30 PM

**Fee:** \$310 for USCC members, \$385 for nonmembers

**CCOM™/CCP™ PDHs:** 7

### **Topics covered**

1. Composting Science: Brief review of peer-review published finding of how process conditions impact air emissions and biological stabilization rates
2. Facility Data: Examples of the air emissions and biological stabilization rate performance at different facilities have correlated with process conditions.
3. Compost Process Conditions (Biological) Best Management Practices
  - a. Definitions
  - b. Aeration requirements
  - c. Operating requirements
  - d. BMP compliance scale
4. Facility Design
  - a. Mixing options
  - b. Aeration and control options
  - c. Life-cycle cost analysis
  - d. Cost of compliance vs. Risk
5. Process Quality Control
  - a. Measurement of key performance indicators
    - i. Pile conditions
    - ii. Odors and air emissions
  - b. Measurement accuracy/uncertainty
  - c. Using QC to better manage process
6. How to Match BMP Compliance to the needs of a specific site

**Expected learning outcomes**

- A better understanding of compost process BMPs
- Gain skills and knowledge of tools and techniques to measure and track BMP compliance
- Gain an understanding of the tradeoffs in facility design between cost and performance

**About this Workshops**

Tim O'Neill has taught these subjects at operator training courses for both the Washington Organics Recycling Council's and the US Compost Council's. We have done the research, collected the data, presented papers and talks, and/or implemented operationally the agenda items above. To date we not presented all the above information in a single ½ day workshop format

**About the Instructors:**

**Tim O'Neill**, ECS President.

Tim is president and founder of ECS. He has worked as an entrepreneur providing technology and consulting to the compost industry since 1993. He enjoys the broad range of challenges and never-ending opportunities to learn that industry provides. He is a recognized expert in compost aeration and control, regulatory compliance, process control and monitoring technology, odor control, feedstock preparation and material handling.

**Geoff Hill**, PhD, ECS Director of Technical Services

Geoff leads the development and delivery of ECS technical service offerings. Geoff has worked with ECS since 2015. His prior work included GM for Harvest Power in Vancouver and independent waste consulting. His PhD work focused on pathogens and compost inhibition.



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