Commercial Composting in Colorado

Denver Master Composter - March 20, 2023

Jace Driver Hazardous Materials and Waste Management Division



Regulations



Compost Feedstocks

- **Type 1** Vegetative waste, and other materials determined by the Department to pose a low risk to human health and the environment.
- **Type 2** Animal waste, manure, source-separated organics, food residuals and food processing vegetative waste.
- **Type 3** Biosolids, mixed solid waste, processed solid waste and sludges and food processing residuals not covered in Type 2, fats, oils, greases, dairy manufacturing wastes, dissolved air flotation (DAF) skimmings, paunch and any other compostable material not covered in Type 1 or 2.



Compost Facility Types

- CESQ (Small Community): 22 Facilities
- Class I (Yard Waste): 7 Facilities
 - Only Type 1 feedstocks (offsite) at under 50,000 cy Or
 - Source separated organics (onsite) under 5,000 cy and 2 acres
- Class II (Manure): 2 Facilities
 - Type 1 feedstocks and manure under 50,000 cy
- Class III (Larger Commercial): 18 Facilities
 - All feedstocks, any size



Permitting

Class I (yard and vegetative waste)

- Maintain Composting Plan Onsite
- Submit Closure Plan
- Financial Assurance

Class II (manure and type I feedstocks)

 Engineering Design and Operations Plan



A1 Organics Rattler Ridge Facility



Class III (all feedstocks)

Certificate of Designation

Exemptions



General exemptions

Exempt Compost Operations

- Agricultural waste
- Backyard
- Biosolids





Conditional Exemptions

- Small quantity operations (may operate commercially)
 - Have up to 100 cubic yards of Type 1 feedstock and up to 5 cubic yards of Type 2 feedstock (if in pile/windrow) or up to 10 cubic yards of Type 2 feedstock if in vessel
- Conditionally exempt agricultural operations
 - Only onsite feedstocks and imported clean wood



Operating Requirements



All Commercial Facilities

- Annual Reporting
 - Must report volumes received and processed by March 1 each year
- Prevent Nuisance Conditions
 - Control offsite odors and windblown debris
- Finished Compost Sampling
 - Must sample for metals and pathogens
- Closure Report
 - Remove all waste from site



Processing Requirements

- Windrow Composting
 - Must maintain a temperature of 131 F for 15 non consecutive days
 - Minimum of 5 turnings
- In-Vessel Composting
 - Must maintain a temperature of 131 F for 3 consecutive days
- Aerated Static Pile
 - Must maintain a temperature of 131 F for 3 consecutive days
- Alternate methods may be proposed



Challenges



Large Scale Operation Challenges

- Complying with numerous regulations
 - Air, Water Quality, federal, and local rules may all apply
- NIMBY
 - Feedstocks can cause odors
 - Traffic, dust and noise
 - Waste perceptions
- Economics
 - Capital and operations costs can be high
 - Competing with disposal
 - Marketing and selling finished product



Operational Challenges



Contamination of postconsumer waste



Operation Challenges

- Creating an effective recipe
- Lack of water
- Biodegradable/compostable plastics
- Equipment failures/maintenance
- Selling compost
- Sizing feedstock
- Blending feedstock



Methods



Static Pile





Windrow





Aerated Static Pile





In-vessel









Waste Composition

In 2021 we disposed of 6 million tons of municipal solid waste, and diverted 1.1 million tons (16% diversion)

Compost feedstocks make up the largest percentage of diverted material (326k tons in 2021)

Organics typically make up around 40% of the waste that goes to a municipal solid waste landfill







Feedstock Composition



Food waste (including curbside) makes up the majority of the feedstock coming from the municipal solid waste stream Manure and biosolids make up majority of the non-MSW feedstock

Agricultural & Industrial Feedstocks for Composting (2021)





Facility Locations





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CDPHE Updates



Organics Management Plan Rec's

<u>State</u>

- Regulation Change (CESQ expansion/mid tier food waste composter)
- CDA coordination
- Local government guidance
- CDOT/state procurement standards
- Organics diversion goals

Stakeholders

- Yard waste ban
- Large generator food waste diversion requirement
- Compostable packaging labeling

Others: Regional approaches, food waste reduction, municipal use specs



State Regulatory Update

Decrease Food Waste Composting Permitting Burden

- Increase CESQ volume to 20 cubic yards of Type 2 materials (food waste, manure)
- Create a middle tier compost classification that can accept larger quantities of food waste 1,000 5,000 cubic yards

Timeline: February 2024



Organics Management Plan 2.0?

Organic Waste Landfill Ban Study

- Requires deeper studying of certain organics related impacts (transportation, GHG, costs, financing, etc.)
- Stakeholder process
- Detailed info on other bans and their impacts
- Goal is to develop specific recommendations for implementing organics waste landfill bans in Colorado

Timeline: End of 2024



Thank you



More questions? Jace Driver Jace.driver@state.co.us

