Siting and Site Management of a Compost Facility

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Siting

• The process of:
  – Evaluating the project’s needs and requirements
  – Selecting a site
  – Development of that site

• Put the pieces together
Why is site selection important?

• Many (if not most) compost sites experience nuisance or environmental problems that could have been avoided with good siting and development planning.

• Results can include: bad publicity, costly mitigation, litigation or site closure.
Needs

• These are the practical considerations made for ease of operation, convenience and economic viability:
  – Site accessibility
  – Proximity and availability of feedstocks and markets
  – On-site process flow and adequate sizing
Requirements

• These are the considerations made to manage risk to the operator, the public and the environment

• Minimum requirements are often dictated by law, regulation, codes, ordinances and “Best Management Practices”

• Minimum standards may not be adequate for every situation
Site Selection

• Have as many potential site choices as possible
• Which ones best fit your needs
• Which ones best meet the requirements
• What is the best overall
• What can be done to improve the site
Setting

• Characteristics of a geographical area that are likely to remain the same for any site in the region:
  – Prevailing wind direction
  – Seasonal temperatures and precipitation
  – Overall topography
  – Population density
  – Local, state, or federal laws
  – Public sentiment
Site Development

• Where on the parcel? Ask the same questions

• Consider overall site orientation on the land:
  – Prevailing winds
  – Sensitive features
  – Slopes
  – Presence of visual screens and nearest neighbors
  – Future expansion requirements
Example: WWTP Operator

• Overlying Needs
  – Generates large volume sewage sludge annually
  – Needs cost effective year-round disposal method

• Specific Needs
  – Local site (close to facility) w/winter access
  – Low budget/low developmental cost
  – No adverse impacts to surrounding community
Setback Requirements

- Often the simplest way to minimize environmental risk and potential for nuisance is by maximizing separation distances to sensitive features
- BUT... maximizing distances increases land costs and limits site choices
- Maine’s rules set minimum setback requirements
Maine’s Setback Requirements

- Water Supply Wells: 300’ (100 m)
- Protected Natural Resource: 100’ (30 m)
- Property Boundaries: 100’ (30 m)
- Flood Plain: Not In
- S & G Aquifers: Not on
Site Drainage Requirements

• Good site drainage is a MUST!

• Site should have slight slope to aid drainage (~2% to 4%)
  – less slope will result in ponding
  – more slope will cause erosion
Public Input

- Bring public into process ASAP
- Provide informational meetings/workshops
- Listen, listen, listen........
- Be patient – there are no “stupid” questions
- Identify “hot” issues and address ASAP
- Be honest – no secrets
- Provide continual updates to neighbors
- Public often perceives risk differently
Typical Site Layout

- Slope 2%
- Mixing Area
- Amendment Storage Area
- Curing Area
- Compost Area
- Waste Bypass Area
- Receiving /Handling Area
Receiving and Mixing Area

First chance to control odors!
Amendment Storage

Keep separate from other feedstocks. Avoid massive stockpiles!!
Second chance to control odors!

Homogeneous mix initiates compost process.
COMPOSTING AREA

Point where active composting begins.

Should be located close to mixing and receiving areas.
CURING AREA

Essential to completion of compost process.

Extended curing 3-6 months can help make up for shortcomings.
Stockpile Area
Nuisance Problems

– Odors!

– Vectors

– Leachate
Odor

• FIDO
  – Frequency
  – Intensity
  – Duration
  – Offensiveness

• Modified n-Butanol Odor Intensity Scale
  – Concentration of n-butanol in water
  – Intensity scale 1-5
  – Compare “stinky” air to n-butanol concentration

• Bottom line – cannot create a nuisance
Odor Management

• Incorporation
• Process Control
  – Optimize Recipe (C:N 25:1 to 30:1)
  – Porosity
  – Moisture (45-60%)
  – Homogeneous mixture
• Cover piles with 4-5 inches of finished compost, sawdust or ash
Vectors!
Vector Management

- Good housekeeping
- Good mixing
- Good process control
Leachate

• Issues
  – Ground water contamination
  – Surface water contamination
  – Odors
  – Loss of valuable nutrients

• Causes
  – Inadequate recipe
  – Poor mixing
  – Precipitation
  – Lack of surface water run-on/run-off controls
Leachate Management

- Appropriate recipe
- Good mixing
- Sawdust/compost “berms”
- Cover