**Compost Demonstration Permit Application – TEMPLATE**

Prepared by Jorge Montezuma, NCDEQ DEACS on December 2015

*The purpose of this editable-text template is to assist those seeking to prepare a Compost Demonstration Permit Application and to be used in conjunction with the NCDEQ Division of Waste Management Solid Waste Section “Compost Pilots and Demos: Guidelines for the Application Process November 2011”. This template follows those guidelines and it is not meant to replace them. Included are* ***noted recommendations*** *to provide a better understanding of the composting process proposed for the applicant and the permitting agencies involved.*

1. Executive Summary
	1. Provide a short paragraph outlining the following:
		1. Name of operation
		2. Location operation
		3. Composting Method (windrows, aerated, in-vessel, vermiculture, etc)
		4. General feedstocks to be composted
		5. Length of application (1 year, 16 months, etc)
2. Project Involvement
	1. Facility Owner
		1. Name
		2. Address
		3. Phone number
		4. Email (**recommended**)
	2. Facility Operator (if different from owner)
		1. Name
		2. Address
		3. Phone number
		4. Email (**recommended**)
	3. Applicant Information (if different from owner)
		1. Name
		2. Address
		3. Phone number
		4. Email (**recommended**)
	4. Property Owner
		1. Name
		2. Address
		3. Phone Number
		4. Email (**recommended**)
		5. Notarized Statement from the landowner approving the facility (provide as **Attachment 1**)
	5. Closest Fire Station (**recommended**)
		1. Chief Name
		2. Address
		3. Phone Number
	6. NCDEQ Regional Representative (**recommended**)
		1. Name
		2. Address
		3. Phone Number
		4. Email
3. Location
	1. Site Location (size, address, description of general vicinity, proximity to creeks, wells, residences, buffers, etc, see .1404 Siting/Design requirements for solid waste composting facilities)
	2. Driving directions from nearest obvious landmark
	3. County Roadmap with site marked (provided as **Attachment 2**)
	4. Aerial Photograph (provide as **Attachment 3**)
		1. Scale: 1” = 400’
		2. Must show area within ¼ mile around the proposed facility
		3. You can use online county/town GIS aerials
	5. FEMA map showing 100-year flood hazard area
4. Feedstocks
	1. Composting Recipe
		1. List of each proposed feedstock and expected amount for the duration of the application (i.e. 1 year, 2 year, specify, in addition you can include monthly amounts)
		2. Composting Recipe Calculators (**recommended**)
			1. Green Mountain Technologies (web-based): <http://compostingtechnology.com/resources/compost-calculator-tool/>
			2. Cornell (downloadable spreadsheet): <http://compost.css.cornell.edu/download.html>
	2. Testing (if applicable)
		1. For nonstandard feedstocks laboratory testing might be required before you start composting
			1. Provide C:N in the feedstock
			2. Run a waste analysis test from NCDA&CS (make sure to request every test the lab can run). You can submit through NC Cooperative Extension Service Offices.
5. Project Schedule
	1. Propose a length of time for your project
	2. If more than 12 months are requested, include a detailed explanation of why this amount of time is needed
	3. Anticipate the length of time of the proposed composting process (the composting processing begins when the materials are blended and stops when the compost has reached desired maturity level—i.e. ready to use).
6. Composting Process
	1. Explain in detail the specific composting method you plan to use (**recommendations**: length/width/height of windrows or in-vessel machines, spacing in between them, shed dimensions, how odor will be controlled, etc)
	2. If demonstrating more than 1 method, discuss each in detail.
	3. If you are using different methods in sequence, explain every method in the order in which it will be used.
	4. Include the following:
		1. On-site Feedstock Storage
			1. Describe where the different feedstocks will be stored prior to blending
		2. Blending
			1. Describe the blending methods you will use, including the initial proportions of material/feedstocks
			2. If the moisture content of the materials is very high, provide explanation on how liquid will be contained (concrete pit, bowl-shaped woody containment, etc)
		3. Aeration
			1. Describe the aeration method you will use on the composting process (passive, active, through pipes, etc)
			2. If using pipes, provide details on hole size and spacing.
		4. Monitoring
			1. Describe monitoring method
				1. Monitoring Temperature (required)

Type and size of thermometer (**recommendation**: 48” with guard to protect thermometer)

Time periods between readings (**recommendation**: daily during PRFP)

Physical distance between readings (**recommendation**: either every 50 feet or 10 readings per windrow)

Depth at which they are taken (**recommendation**: 2 readings per spot, 18” and 36” for windrows)

* + - * 1. Monitoring Moisture/Oxygen/Carbon Dioxide (not required): if applicable, please describe equipment, and monitoring protocols.
			1. PFRP (Process to Further Reduced Pathogens): keep these temperature requirements in mind when describing your temperature monitoring protocols.
				1. Windrow Method

A temperature of 1310 F or greater shall be maintained in the windrow for at least 15 days.

During the high temperature period (1310 F +), the windrows must be turned at least 5 times.

This process meets the requirements for pathogen and vector attraction reduction.

* + - * 1. Static Aerated Pile

The temperature of the compost pile shall be maintained at 131 0 F or greater for at least three days.

To meet the criteria for vector attraction reduction, the compost shall be maintained at a temperature of above 104 0 F for 14 days or longer with an average temperature of 1130 F.

* + - * 1. Within Vessel Composting Method

The temperature in the compost pile should be maintained at a minimum of 1310 F for at least 3 days.

To meet the criteria for vector attraction reduction, the compost shall be maintained at a temperature of above 104 0 F for 14 days or longer with an average temperature of 1130 F.

* + - * 1. Vermicomposting

There are no temperature requirements for this type of composting, but additional or more frequent testing may be required.

* + 1. Process Water/Leachate Management
			1. Describe how you will manage any expected process water or leachate generated from the composting process
		2. Soil Erosion & Stormwater Runoff Control
			1. Describe how you will manage any expected eroded soils or stormwater runoff from your site
			2. **Recommendation**: contact Ken Pickle (NCDEQ Stormwater Permitting ken.pickle@ncdenr.gov) to determine whether your site/process are required to apply for a stormwater permit.
		3. Flow of materials through process (**not required but highly recommended**)
			1. If possible, include a mass flow diagram (i.e., start with x amount of feedstock A and x amount of feedstock B, total x amount will start composting, then amount will decrease by x% and will have x amount going into curing, etc)

Figure 1. Composting Process Material Flow Diagram – **TEMPLATE (recommended)**

1. Site Layout
	1. Include a drawing/sketch of your facility to make sure you have sufficient space for all of your materials, traffic, and stormwater flows.
	2. Locate the different areas (feedstock storage, handling, blending, active composting, secondary composting, screening, curing, stockpiling, office, bathrooms, equipment, roads, etc)
	3. Show slopes/topography (**recommended**)
	4. Include construction information (concrete, sheds, etc)
2. Equipment (**recommended**)
	1. Include a list of equipment (loader, screener, turner, etc) to be used and characteristics (size, brand, type)

Table 1. Proposed Equipment – **TEMPLATE (recommended)**

|  |  |  |
| --- | --- | --- |
| Equipment | Owned/Leased | Type |
| Loader | Owned | 4-cy brand xyz  |
| Loader | Owned | 6-cy brand xyz  |
| In-Vessel | Owned | Xx-cy brand |
| Aerated System | Owned | Xxx brand x # of bays, size, etc |
| Mixer | Owned | Stationary xx-cy  |
| Turner | Owned | Pull behind xx model |
| Screener | Leased | XY123 Trommel  |

1. Noise/Odor/Vector Management
	1. Describe how the facility will manage equipment noise, odors, and vectors.
2. Hazardous Weather Operations
	1. Describe how the facility will operate during the following conditions: windy, heavy rain, snow, freezing
3. Product Testing
	1. Provide a description of how you will test your end-product, keep the following in mind:
		1. Test your product and submit results to the solid waste section before distributing.
		2. Run additional tests every 6 months or 20,000 tons.
		3. Test for fecal coliform or salmonella.
		4. Determine foreign matter content.
		5. Tests can provide valuable information about the best use for your compost.
		6. Waste analysis with heavy metals (NCDA&CS)
4. Record Keeping
	1. Provide list of the records you plan to keep (**recommendation example**: temperature logs (provided as **Attachment 4** (there are 3 samples attached to this template), site visits, incoming feedstock receipts, amount generated, leachate generated, rainfall/effects on composting, complaints, laboratory results, etc)
	2. Provide description of how you plan to track composting time and staff-hours to determine the project’s cost effectiveness.
5. Product Use (**recommended**)
	1. Describe how your end products will be used, what markets will they go to.
6. EPA Standards
	1. Compost used in areas where they may be public contact must meet EPA PFRP standards (outlined above under PRFP).
7. End of Project Report
	1. Describe what information your end of project report will contain
	2. The following are requirements by NCDEQ – SWS
		1. Amount and type of materials received in tons
		2. Amount of compost produced in tons
		3. Amount of compost distributed in tons
		4. Copies of all test results
		5. Monitoring Records
		6. Narrative Explanation of why the project was a success/failure

RECOGNIZABLE AREA ON SITE

WINROW

WINROW

**TEMPLATE TEMPERATURE LOG – NAME OF FACILITY**

**DATE**

XX/XX/XX

**TIME**

XX:XX

**WEATHER**

XXXXXX

….

No. x

….

No. 2
or started on
Xx/xx/xx

No. 1
or started on
Xx/xx/xx

Temp 5

Temp 4

Temp 3

Temp 2

Temp 1

|  |
| --- |
|  **COMPOSTING MONITORING LOG - EXAMPLE 1** |
| **NAME OF FACILITY** |
|  |  |  |  |  |  |  |  |
| **Date** | **Time** | **Windrow** | **Location** | **Temp (deg F)** | **Oxygen (%)** | **Moisture (%)** | **Notes** |
|   |   | A | 1 |   |   |   |       |
| 2 |   |   |   |
| 3 |   |   |   |
| 4 |   |   |   |
| 5 |   |   |   |
|   |   | B | 1 |   |   |   |       |
| 2 |   |   |   |
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| 2 |   |   |   |
| 3 |   |   |   |
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| 5 |   |   |   |
| **COMPOSTING MONITORING LOG - EXAMPLE 2** |
| **NAME OF FACILITY** |
|  |  |  |  |  |  |
| **Date** | **Time** | **Windrow** | **Location** | **Temp (deg F)** | **Notes** |
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