

| Permit No. | Scan Date        | DIN   |
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| 6012       | February 7, 2012 | 16061 |



APPROVED DOCUMENT  
Division of Waste Management  
Solid Waste Section

Date February 28, 2012 By LY Frost

**MECKLENBURG COUNTY**  
**Land Use and Environmental Services Agency**

September 10, 2011

Mr. Michael Scott  
NCDENR  
Division of Waste Management  
1646 Mail Service Center  
Raleigh, North Carolina 27699-1646

**Re: Reply to Technical Review Comments for Large Type-I Solid Waste Composting Facility Permit Application, March 22, 2011**  
Facility Permit No.: SWC-60-12  
Mecklenburg County Compost Central Yard Waste Facility  
5631 West Blvd, Charlotte, NC 28208

In reference to your request for further information, as noted in the Technical Review Comments dated March 22, 2011, please see the responses below.

**I. Permit Application Requirements**

- 1. Pages 3 of 5 and 4 of 5, and Figure 1: Provide a preliminary engineering calculation to demonstrate that based upon the footprint of active composting areas, windrow dimension (21'x10'), composting curation duration (7 months), and curing and storage areas, Compost Central can handle 125,000 tons of wastes and 200,000 cubic yards of mulch operation annually.**

The 125,000 tons of yard waste referenced in the permit application refers to the total amount of yard waste processed at all four of Mecklenburg County's yard waste facilities. From July 2010 to June 2011, Mecklenburg County processed approximately 98,000 tons of yard waste among the four facilities, 67% of which was processed at Compost Central. The current permit for Compost Central allows for 100,000 tons of wastes to be received by the facility. Mecklenburg County is requesting an increase in maximum throughput to 125,000 tons of yard waste to allow for additional wastes received as well as to allow for flexibility in County yard waste operations.

Engineering calculations based on the current footprint of the active composting areas at Compost Central are included with this letter as Attachment 1. Based on the current footprint of the facility, a total of approximately 77,500 square yards of area is available for windrow composting, divided across three asphalt pads. Due to the availability of the

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Backhus 6.65 windrow turner used at the facility, windrows built at the facility tend to be built in pairs, with space (approximately 10 feet) between each pair of windrows for an emergency truck to enter if necessary. Based on this configuration, a total of 42 windrows could be built on the site at one time across the three pads. Assuming the above windrow dimensions, a composting curation duration of seven (7) months, and a compost density of 400 lb/yd<sup>3</sup>, a maximum total of 77,000 tons of compost can currently be processed per year at Compost Central.

Compost Central does not process all material received in windrows. Rather, due to market conditions, a majority of the yard waste received by Compost Central is processed and sold as boiler fuel to industrial facilities. In addition to composting operations and boiler fuel production, pure hardwood waste loads are separated in an approximate 900 square-yard area, double-hammered, and sold as hardwood mulch.

Based on annual records filed by the facility, the combined "mulching" operation that consists of both the boiler fuel production and hardwood mulch production has had an average annual throughput of 193,400 cubic yards within the last five years.

2. **Rule .1405 (a)(7)(B) stipulates that an application for a composting permit shall provide a Process Flow Diagram. Indicate the quantity of materials on a wet weight and volumetric basis at each process box for both composting and mulch operation.**

A Process Flow Diagram is included with this letter as Attachment 2. The material balance described in the process flow diagram is based on the current permit condition of 100,000 tons of yard waste and woody debris received at the Compost Central facility and a finished compost total, based on market projections, of 15,000 cubic yards (4,500 tons using a finished compost density of 600 lb/yd<sup>3</sup>). As shown on the process flow diagram, an approximate 12,067 tons (60,333 yd<sup>3</sup>) of woody debris is processed and sold as hardwood mulch, based on the highest volume of total mulch sold for revenue (hardwood mulch and "nugget mulch" product that was screened out of the finished compost product) in the last five years.

Other assumptions used in the process flow diagram include the following:

- A 40% reduction in volume of the compost windrows during the composting process,
- 10% of finished compost is screened out of the finished product and sold as "nugget mulch",
- Fresh ground material has a density of 400 lb/yd<sup>3</sup>, and
- Finished compost has a density of 600 lb/yd<sup>3</sup>

Should you need any other information for this permit application, please feel free to contact me at 704-336-4447. Thank you.

Sincerely,



Darren J. Steinhilber, P.E.  
Project Manager  
Mecklenburg County Solid Waste

**ATTACHMENT 1**  
**ENGINEERING CALCULATIONS**

Compost Central Capacity Calculations

Based on Conversations with Michael Scott:

Yard Waste Materials:

Finished Compost = 600 lb/yd<sup>3</sup>  
 Fresh Ground Material = 400 lb/yd<sup>3</sup> (Based on NY guidance manual)  
 Volumetric Reduction for Material Balance = 40%

Assumptions:

-Windrow Dimensions:  
 Height: 10 feet Material Density = 400 lb/yd<sup>3</sup>  
 Width: 21 feet Curing Duration = 7 months

-Compost Central is essentially made up of three asphalt pads on which compost rows can be built.

-For these calculations, Pad #1 is split into two sections:

- Section 1 allows for windrows 850 feet in length
- Section 2 allows for windrows 700 feet in length due to the location of the scalehouse/office.

-Distance Between Windrow Pairs (Assumed): 10 feet

Available Area (Based on Figure 3: Site Plan and Topographic Map):

|                                |   |  |  |
|--------------------------------|---|--|--|
| Pad #1 (Along West Boulevard): | 150 feet wide   | Pad #2 (Along Byrum Drive):                            | 450 feet wide  |
| Section 1:                     | 850 feet maximum windrow length                               |  | 500 feet maximum windrow length                            |
| (Area with longer rows)        | 127500 square feet available in Section 1 for windrows        |  | 225000 square feet available on Pad #2 for windrows        |
|                                | <b>14170</b> square yards available in Section 1 for windrows |  | <b>25000</b> square yards available on Pad #2 for windrows |
| Section 2:                     | 450 feet wide   | Pad #3 (Current paved Storage Area along Byrum Drive): | 150 feet wide  |
| (Area with shorter rows)       | 700 feet maximum windrow length                               |  | 200 feet maximum windrow length                            |
|                                | 315000 square feet available in Section 2 for windrows        |  | 30000 square feet available on Pad #3 for windrows         |
|                                | <b>35000</b> square yards available in Section 2 for windrows |  | <b>3300</b> square yards available on Pad #3 for windrows  |

Total Area Available for Composting:

**77470 square yards**

Number of Windrows on Pad #1:

Total Pad Width: 600 feet wide  
 Windrow Pair Width (Including 10 feet for Emergency Truck): 52 feet wide

Compost Central Capacity Calculations

Total # of Windrow Pairs on Pad #1

11.53846 = 22 windrows

**Number of Windrows on Pad #2:**

Total Pad Width:

450 feet wide

Windrow Pair Width (Including 10 feet for Emergency Truck):

52 feet wide

Total # of Windrow Pairs on Pad #2:

8.653846 = 16 windrows

**Number of Windrows on Pad #3:**

Total Pad Width:

150 feet wide

Windrow Pair Width (Including 10 feet for Emergency Truck):

52 feet wide

Total # of Windrow Pairs on Pad #3:

2.884615 = 4 windrows

**Material Capacity of Site**

**Pad #1:**

Section 1 (Based on Figure 3, assumed to be 4 windrows):

4 windrows x 850 ft length x 10 feet high x 21 feet windrow width =

714000 cubic feet

26400 cubic yards

Section 2 (Based on Figure 3, assumed to be 18 windrows):

18 windrows x 700 ft length x 10 feet high x 21 feet windrow width =

2646000 cubic feet

98000 cubic yards

**Pad #2:**

16 windrows x 500 ft length x 10 feet high x 21 feet windrow width =

1680000 cubic feet

62200 cubic yards

**Pad #3:**

4 windrows x 200 ft length x 10 feet high x 21 feet windrow width =

168000 cubic feet

6200 cubic yards

Total Cubic Yards:

192800 cubic yards

Total Mass on Site (Based on Average Material Density of 400 lb/yd<sup>3</sup>):

77120000 lbs

Total Tons on Site at One Time:

38560 Tons

Assuming Two Composting Cycles (Each 6-7 Month Curing Time):

77120 Tons Material Processed Per Year

**ATTACHMENT 2  
PROCESS FLOW DIAGRAM**

## Mecklenburg County Compost Central Process Flow Chart

