

Update to ESB Compost Facility

By: Jack Richardson, PE

Deputy Utility Manager – Gas, Water, Sewer (GWS)

ESB Meeting – November 19, 2020

1



COMPOST FACILITY ENTRY POINT

Vehicle Storage Building in the
Background

VEHICLE STORAGE BUILDING

Housing the Scarab Windrow
Turner & Front End Loader

- **COSTS FOR BOTH WWTP'S APPROXIMATELY \$120,000 PER YEAR.**
- **PERSONNEL HOURS FOR BOTH WWTP'S APPROXIMATELY 2,150 HOURS PER YEAR.**
- **These costs and personnel hours include things other than purely the compost facility. The total costs & hours include: operation & maintenance of the compost facility; bio-solids dewatering at the LA wwtp; and bio-solids pumping and hauling to disposal from the WR wwtp. Compost Facility O&M is estimated to constitute approximately 40% of these costs and hours.**
- **Pumping and hauling from the WR wwtp will end in FY22 with the new wwtp coming on line. The new WR wwtp will dewater bio-solids and they will be hauled directly to the compost facility; thereby increasing the throughput of the compost facility by an estimated 30%.**
- **Total costs and personnel hours are not expected to increase significantly between what they are now and what they will be after the new WR wwtp is on line.**
- **DPU is now planning for expansion of the compost facility to enable processing of the increased throughput after adding the WR wwtp.**

SCARAB Equipment – Used to “Turn” Windrows

3



11.16.2020

MATERIAL VOLUMES & WEIGHTS – TYPICAL WINDROW

4

- **WW BIO-SOLIDS = 13 TONS = 120 CUBIC YARDS**
- **GREEN WASTE (YARD WASTE) = 24 TONS = 84 CUBIC YARDS**
- **STABLE WASTE (MANURE) = 29 TONS = 42 CUBIC YARDS**
- **OVERS (RECYCLED STUFF) = 24 TONS = 84 CUBIC YARDS**

Green Waste Storage Pile – NMED Does Not Require this Material to be Stored in a Lined Area

5



Green Waste Close Up – Notice Plastic Debris

6



Overs Storage Pile – Notice Plastic and Other Debris Accumulating

7



TYPICAL WINDROW RECIPE

8

- Green Waste = 2 Loads = 12 Cubic Yards
- Manure = 2 Loads = 12 Cubic Yards
- Green Waste = 2 Loads = 12 Cubic Yards
- Overs = 2 Loads = 12 Cubic Yards
- Green Waste = 2 Loads = 12 Cubic Yards
- Bio-Solids = 1 Load = 6 Cubic Yards
- Overs = 2 Loads = 12 Cubic Yards



- Built from the Bottom up with a layer of Overs at the Bottom

Front End Loader Equipment – Creating a New Windrow

9



SCARAB Turning a Windrow

10



SCARAB – Back End While Turning a Windrow – Notice Steam Due to Internal Heat Released by Turning Action

11



11.16.2020

STANDARD OPERATING / PERMIT PROCEDURES

12

- Windrow temperatures => 130* F for more than 15 days
- 5 Windrow Turns within that 15 day period
- 30 to 60 Day Cure (in windrow or static pile)
- Post Cure Fecal Coliform Test Results = Less than 1,000 MPN
(MPN = Maximum Probably Number)
- CFR Chapter 40 Part 503 Subpart D
Pathogens & Vector Attraction Reduction
(CFR = Code of Federal Regulations)

Temperature Probe Installation into a Freshly Turned Windrow

13



Temperature Probe Close Up

14



11.16.2020

MATERIAL VOLUMES & WEIGHTS – ANNUAL

15

- ➡ **WW BIO-SOLIDS = 208 TONS = 1,920 CUBIC YARDS**
- ➡ **GREEN WASTE (YARD WASTE) = 379 TONS = 1,344 CUBIC YARDS**
- ➡ **STABLE WASTE (MANURE) = 470 TONS = 672 CUBIC YARDS**
- ➡ **OVERS (RECYCLED STUFF) = 379 TONS = 1,344 CUBIC YARDS**

TONS TO CUBIC YARDS CALCULATION

16

- ➡ **WW BIO-SOLIDS = Cubic Yards X 0.083 = TONS**
- ➡ **GREEN WASTE (YARD WASTE) = Cubic Yards X 0.282 = TONS**
- ➡ **STABLE WASTE (MANURE) = Cubic Yards X 0.700 = TONS**
- ➡ **OVERS (RECYCLED STUFF) = Cubic Yards X 0.282 = TONS**

Screen Equipment – Used to Separate Finish Compost From Overs (to be Re-used) –
Overs Discharged Left and Finished Compost Discharged Right

17





Finished Compost Coming Off the Screen

19



Finished Compost Storage Pile – NMED Requires this Material be Stored in a Lined Area

20



11.16.2020

STATE FACILITY DISCHARGE PERMIT PARAMETERS

21

- **Ground Water Quality Bureau Discharge Permit No. DP – 1904**
- **Full Rainfall Runoff Retention**
- **Semi-Annual Reporting of Retention Pond Water Levels and Water Levels for Individual Rainfall Events**
- **Semi-Annual Testing for: Total Kjeldahl Nitrogen (TKN); Nitrate-Nitrogen (NO₃-N); Total Dissolved Solids (TDS) & Chloride (Cl).**
- **Operations Plan and Conditions Compliance with Permit Requirements (erosion or animal damage, seepage, pond overflow, etc.)**
- **SubSection C of 20.6.2 NMAC**
(NMAC = New Mexico Administrative Code)

Retention Pond – Notice Manure Storage Pile Inside Pond's South End
- Notice Also Storage of Overs and Finished Compost Within the Windrow Area

22



Compost Facility Expansion Plans

23

- The addition of Bio-Solids from the White Rock WWTP will necessitate an expansion of the Compost Facility by FY 2022.
- The expansion plans call for the addition of storage space so that green waste, manure, overs and finished compost does not have to be stored in the windrow area.
- This will leave expanded area for addition windrows to accommodate the material from the White Rock WWTP.
- The estimated cost for this expansion is between \$750,000 and \$1,000,000.
- Expansion is planned for two phases: FY 2021 & FY 2022.

Preliminary Compost Facility Expansion Plan – Notice Expanded Storage Areas

24

