
CompostUSA

Advanced Residuals Management



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Applicant's Exhibit "1"

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Applicant's Exhibit 1

CompostUSA is a company focused on providing an economical, environmentally friendly and sustainable solution for managing wastewater residuals – “biosolids”.

Currently, in the southeastern United States, the majority of biosolids are either land-filled or land applied. The land application of biosolids has however, created a hurdle in the form of the public’s perception of this widely used practice and adding these materials to our landfills compounds the problem of diminishing airspace for our solid waste.

CompostUSA utilizes the Modified Static Aerobic Pile (MSAP) composting method developed by Harvest Quest. This unique method of composting provides major environmental and economic benefits and results in the production of class ‘AA’ finished compost, which can be utilized in a wide range of agricultural, horticultural and environmental applications.



With significant technical expertise and strong alliances, CompostUSA is positioned to become one of Florida’s leading residuals management companies.

Our team has decades of experience in composting, soil science, transportation, logistics, regulatory permitting, and environmental engineering



Operating Procedures



Incoming pressed and dewatered biosolids are tipped onto a prepared pad of ground yard waste or other suitable dry carbon based bulking agents.



Biosolids with high moisture contents, small particle size and poor structure must be amended with coarse carbon based materials to reach an ideal consistency for composting. Bulking agents are added in proportions of two to three parts bulking agent to one part biosolids (by volume).

Bulking agents, such as ground yard waste, wood chips, shavings or 'Over's' (oversized tailings from previous screening of finished compost), provide moisture control, good porosity and structure within the compost pile.

CompostUSA, as part of its daily operations, accepts and processes yard waste and tree trimmings from landscape companies and power line maintenance contractors.



↑ These materials are ground to a suitable size for composting using a horizontal grinder and provide the majority of the required bulking agents.



In order to mitigate odors, incoming biosolids are immediately covered with additional bulking agents.

Using a front end loader the biosolids and bulking agents are mixed by rolling / folding the materials several times. Essential to composting are the various levels of oxygen, nutrients, moisture and pH that must be maintained throughout the process.

Therefore, it is critical to thoroughly mix the biosolids with the bulking agent to prevent anaerobic clumps from forming within poorly mixed sections.



Care and attention taken during this preprocessing stage results in highly efficient composting and a consistent end product



↑ This image shows the materials after blending/mixing

Mixed materials are placed to form windrows approximately 7 feet tall x 16 feet wide and they can extend to 500 feet in length



← A proprietary inoculant, containing enzyme producing bacteria, is added to the end of each windrow. This product initiates the Modified Static Aerobic Pile (MSAP) composting method

The windrows are also capped (covered) with a layer of ground yard waste or previously composted material. The capping layer serves to both retain and repel moisture and acts as a passive biofilter.

The bacteria within the catalyst spread rapidly outward from the points of application initially populating the outer edges of the windrow just beneath the capping layer.



This prolific microbial activity generates initial temperatures on the surface of the pile that far exceed regulatory requirements for pathogen destruction. The microbes then work their way towards the center of the windrow effectively breaking the pile down from the outside in. This action increases the windrows natural chimney-effect, allowing sufficient air-flow into the pile.

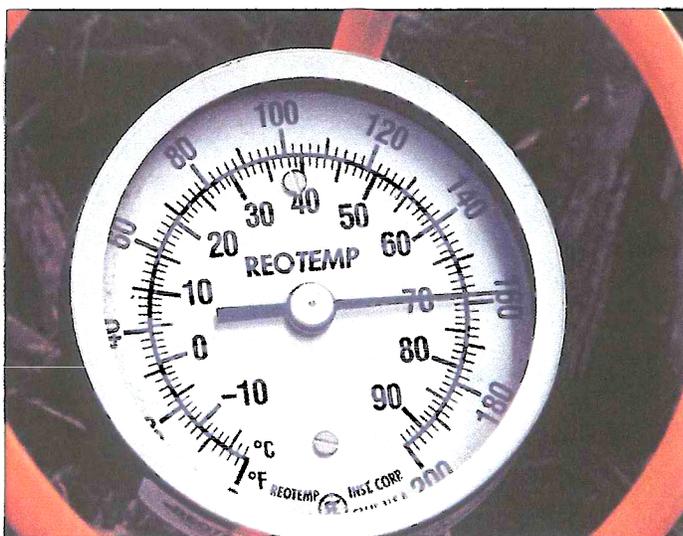
The temperature front moves from the outer edges of the windrow towards the center of the piles. Within several days the whole pile, from just beneath the capping layer through to the core will far exceed 131°F (55°C) and elevated temperatures will be maintained for a period of several weeks.

The Environmental Protection Agency (EPA) has traditionally viewed Static Aerobic Piles as engineered piles with man-made conveyances providing air (oxygen) movement. The MSAP Method has demonstrated to EPA staff and

compost industry professionals that the use of Harvest Quest's catalyst working the piles from the outside in, along with adjusted windrow management techniques, is just as effective in drawing oxygen into the piles as is piping attached to a fan.



The windrows remain undisturbed for an initial period of 30 to 40 days. During this time there is no physical movement or turning of the windrow. The microorganisms do the work. *(In comparison, regulations for conventional windrow composting require that the rows are turned a minimum of five times in a fifteen day period).*



The temperatures both internal and external are carefully monitored and temperatures are recorded daily. The optimum temperature range is from 131 to 165°F; this insures a process for the further reduction of pathogens (PFRP) and a minimum temperature of 131°F will be maintained for a minimum period of 72 hours at a depth of 10 inches and a minimum of 15 days at 20, 30, and 40 inches.

After the initial 30 to 40 day static phase, the windrow is turned for the first time using a windrow-turner or bucket loader. At this point in time the materials are sufficiently composted as not to produce any offensive odors. The turning action folds in the extreme outside edges of the windrow and brings material from the bottom of the row to the top.

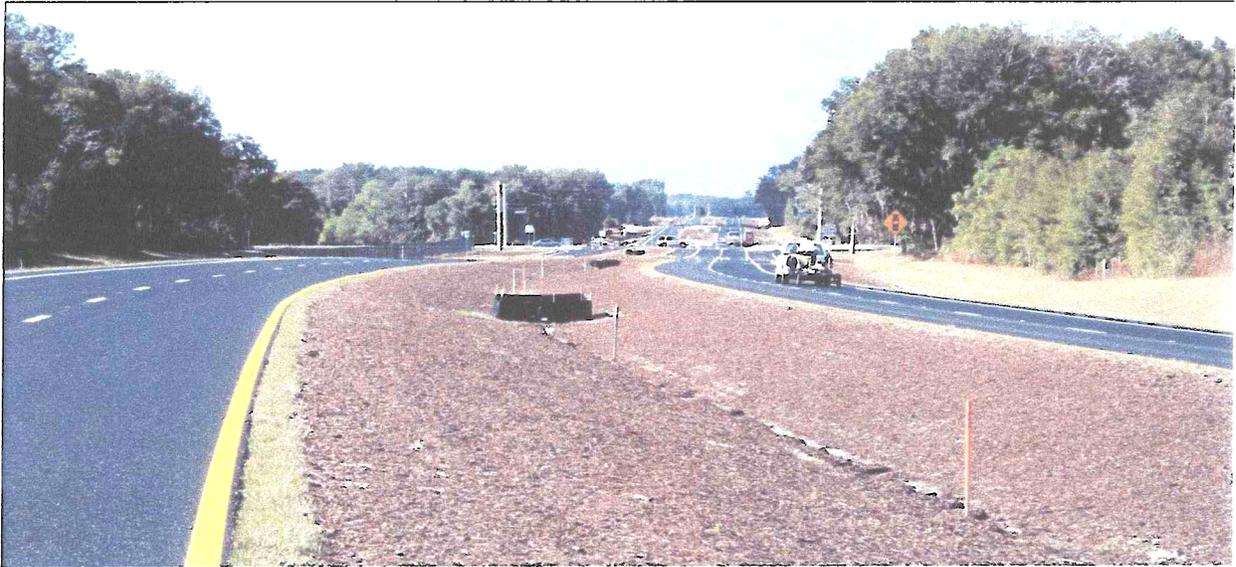


A second windrow turn is carried out approximately 14 days after the first. This action facilitates an even consistency and moisture content throughout the windrow in the final stages of composting.

The properly controlled marriage between bacteria and compostable materials produces quality finished compost in as little as 60 days.



The completed windrows are screened to separate the fine particles (finished compost) from the oversized wood residuals ('Over's'). Resulting from the larger particles of wood / yard waste, that were purposely added at the mixing stage to facilitate good airflow through the piles during the



↑ FDOT construction projects



↑ Component of potting soil manufacture