

Model Compost Rule Template
US Composting Council
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**US Composting
Council®**

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US Composting Council Model Compost Rule Template

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US Composting Council Model Compost Rule Template

SUMMARY

In 2011, the USCC initiated a public-private partnership to develop a model compost rule template (MCRT). The template includes a three-tiered permit structure, with design and operating requirements based on materials composted and technology employed. The foundation of the tiers is the feedstock categories, which are based on the materials' potential risks to human health and the environment. The template also includes siting and testing requirements based on quantity and types of feedstocks processed. The MCRT is anticipated to be a “living document” that will be periodically reviewed and updated as knowledge and experience in compost manufacturing and regulating continue to mature.

PROJECT DESCRIPTION

The US Composting Council, in conjunction with the Georgia Environmental Protection Division, *BioCycle* and a volunteer Task Force comprised of state composting regulators, composting facility operators and several consultants, has developed a Model Compost Rule Template to assist state regulatory agencies in development and/or revision of their composting regulations. Model composting rules, based on science as well as experience, are needed as a foundation for operators and regulators to help in the permitting process and aid in regulatory oversight. To ensure consumer confidence in compost quality and build composting infrastructure, composting facilities must be designed, operated and regulated to ensure quality products are produced and high standards are maintained that are protective of public health and the environment.

BACKGROUND/HISTORY

- In 2010, the Georgia Department of Natural Resources’ Environmental Protection Division (GAEPD) approached the US Composting Council (USCC) about collaborating on a partnership to develop a model compost rule template.
- In 2011, the USCC and GAEPD launched an initiative to interview state regulatory personnel and compost operators from around the country about design and operational practices at composting facilities. The intent was to accomplish two important goals:
 1. Ensuring Georgia’s proposed composting rule changes are science-based, while offering verification that similar rules adopted in other states have been effective, both in theory and in practice.
 2. Providing USCC the foundation and background data needed to develop a template of model rules, incorporating the recommendations, experience and ideas of composting professionals around the country
- Engaged the Fanning Institute at the University of Georgia to conduct a series of confidential interviews and an online survey with composting regulators and private composting facility operators in various states.

- The Georgia “strawman” rule (developed as part of a stakeholder process in 2009) was used as the basis for interview questions. Fanning conducted confidential interviews with 15 private operators around the U.S., 4 state regulators from throughout the country, and facilitated an online survey of state regulators from every state with a composting program. Private operators interviewed represent small, medium and large-scale facilities using a variety of composting methods and systems to process a variety of organic waste streams.
- Surveys and interviews were conducted from the fall of 2010 through spring of 2011. Specific responses were kept confidential and aggregated with responses from interviews with state counterparts from various states. Aggregated responses and recommendations for changes to the Georgia strawman composting rule were provided by the Fanning Institute to GAEPD and the USCC in August 2011.
- The USCC used the findings of the interviews and surveys, along with the most current draft of Georgia’s revised composting rule (still undergoing administrative review in Georgia in November 2012), to provide the foundation and background data for development of a Model Compost Rule Template.
- The USCC contracted with Nora Goldstein, Editor of *BioCycle*, to serve as facilitator and editor of its Model Compost Rule Template project. The arrangement began in December 2011.

DEVELOPMENT OF THE MODEL COMPOST RULE TEMPLATE

- The USCC created a core project team to manage and oversee development of the Model Compost Rule Template (MCRT). Members of the core project team originally included Frank Franciosi, USCC President, Wayne King, USCC Past President, Stephanie Busch, Environmental Project Administrator with the GAEPD, Cary Oshins, USCC Director of Education and Training, Michael Virga, USCC Executive Director and Nora Goldstein, *BioCycle*. About halfway through this project, Brenda Platt, chair of the USCC Legislative and Regulatory Affairs Committee, joined the core project team.
- The USCC convened a Task Force to advise and provide input into development of the MCRT. The Task Force was comprised of state composting regulators, composting facility operators, composting consultants and technical experts. The kick-off Task Force conference call was held in late February 2012. Task Force calls were held monthly through July 2012. The Task Force was asked to do a final review of the MCRT in October. Final comments are reflected in the MCRT.
- As noted, the latest drafts of the State of Georgia’s revised compost rules were utilized as the initial template. The revised Georgia rule utilized the tiered approach, with requirements increasing with each subsequent tier. The USCC MCRT project team, along with the Task Force, decided early on to utilize the tiered approach. This approach was also supported in the majority of comments gathered through the Fanning Institute interviews.
- A variety of state composting rules helped to guide development of the final MCRT. For example, the initial list of definitions (Section 1 of the MCRT) was compiled from states such as Oregon, Ohio, Georgia, California, Washington, Kansas and several others. This list

was ultimately edited and whittled down by the Task Force and core project team. This approach was utilized for all sections of the final MCRT.

KEY ELEMENTS OF THE USCC MODEL COMPOST RULE TEMPLATE

The MCRT project team, with significant input from the Task Force, used the following key elements to guide development of the MCRT:

- The Model Rule would not be prescriptive, i.e., it covers all the key aspects of designing and operating a composting facility that will protect human health and the environment, but does not specify how the composting facility will achieve that level of protection. For example, the MCRT requires control of nuisance odors, but doesn't prescribe how that will be done or to what level odors must be mitigated.

The exception to this preference for performance versus prescriptive-based rules comes in groundwater protection sections of Tiers 2 (4.II.B.2) and 3 (5.II.B.2). Here we have opted to provide 2 alternatives in each, Alternative A being performance based and Alternative B more prescriptive. States adapting these rules will have to decide which alternative to choose.

- The word “waste” is not used in the MCRT; instead, the USCC decided to use the term residuals, to indicate that the raw materials going into the manufacture of compost are resources that can be converted into products via the process of composting.
- The MCRT project team and Task Force decided that all tiers are required to meet the time and temperature requirements in the Process to Further Reduce Pathogens (PFRP). It recommended that the USCC provide an FAQ on the PFRP process.
- During the drafting of Tier 2, the Task Force had detailed discussion on use of the term “leachate” as it related to the composting process. The term leachate in the context of solid waste management originated in regulatory language for landfills, and was carried over into state solid waste composting rules — even though the make-up of landfill leachate is significantly different than what is generated at a composting facility. The State of Minnesota was in the final stages of its compost rule revisions, and the MCRT Task Force learned that Minnesota had decided to use the term “contact water” instead of “leachate.” The MCRT distinguished between contact water — water that has come in contact with raw feedstocks in the tipping and mixing area(s) and active composting piles — and storm water, which is water that has not come into contact with raw feedstocks or active composting piles.

One issue that the project team and Task Force did not fully address was that of animal mortalities. No consensus was reached as far as which feedstock category animal mortalities should be in. States have varying approaches to regulating composting of animal mortalities. Composting of animal mortalities on farms is included as an exemption in Section 3.

Finally, the rule does not address static piles or windrows that are not actively managed or aerated. This method of composting may be addressed in a future version

Please submit comments and questions regarding the Model Compost Rule Template by using the response form at: <http://compostingcouncil.org/advocacy-resource-materials/>

Section 1. Definitions

Agricultural Composting: Composting conducted by an agricultural operation on lands used for farming.

Agricultural Residuals: Materials generated by the customary and generally accepted activities, practices, and procedures that farmers engage in during the production and preparation for market of poultry, livestock and associated farm products; from the production and harvesting of agricultural crops which include agronomic, horticultural, and silvicultural crops; and materials resulting from aquacultural production. Includes manures not managed as part of a Confined Animal Feeding Operation (CAFO) permit.

Aerated static pile composting: Process in which decomposing organic material is placed in piles over an air supply system that can be used to supply oxygen and control temperature for the purpose of producing compost. Piles must be insulated to assure that all parts of the decomposing material reach and maintain temperatures at or above 55°C for a minimum of 3 days.

Biosolids: Solids derived from primary, secondary or advanced treatment of sanitary wastewater that have been treated through one or more controlled processes that significantly reduce pathogens and reduce volatile solids or chemically stabilize solids to the extent that they do not attract vectors.

Capacity: Amount of material, in tons or cubic yards, a facility can hold at any one time. Includes feedstocks, actively composting and curing material, and final product storage.

Certificate of Completion: Document issued by a certifying organization stating that the compost facility operations manager has met the requirements for the specified operations manager program.

Certifying Organization: Public or private entity approved by the [insert regulatory agency] to provide compost operations training.

Compost: A stabilized (see “stability”) organic product produced by a controlled aerobic decomposition process that can be used as a soil additive, fertilizer, growth media or other beneficial use.

Composting: The accelerated biological decomposition of organic matter under managed aerobic conditions resulting in compost.

Composting Facility: Buildings, grounds (see “composting pad”) and equipment dedicated to the manufacture of compost. Also includes stormwater control devices.

Composting Pad: Ground on which composting activities take place. May be subdivided by function, such as “mixing pad”, “composting pad”, “curing pad” or “storage pad”. An “all weather composting pad” is one of sufficient construction, firmness and grading so that composting equipment can manage the process during normal inclement weather, including expected rain, snow and freezing temperatures.

Compostable Products: Containers, films or foodservice ware such as bowls, plates, cups, cutlery, composed of materials such as vegetable matter, paper, cardboard, and plastics that meet ASTM D6400, D6868. These products should be labeled in accordance with the USCC Labeling Guidelines.

Contact Water: Water that has come in contact with raw feedstocks or active composting piles. It does not include water from curing piles, finished compost or product storage piles. See also “stormwater” and “runoff”.

Crop Residues: Materials generated by the production, harvesting and processing of agricultural or horticultural plants. These residues include but are not limited to stalks, stems, leaves, seed pods, husks, bagasse, and roots.

Curing: A continuation of the composting process after the high heat stage during which stability and maturity continues to increase. For the purposes of these regulations, compost enters the curing stage after completing the process to further reduce pathogens and the requirements for vector attraction reduction.

Feedstock: Organic material used in the production of compost.

Food Processing Residuals: Organic materials generated as a by-product of the industrial food processing sector that are non-toxic, non-hazardous, and contain no sanitary wastewater. The term does not include fats, oil, grease and Dissolved Air Flotation (DAF) skimmings.

Food Residuals: Pre- and post-consumer food discards from households and the commercial/institutional sector including but not limited to vegetables, fruits, grains, dairy products, meats, and compostable foodservice ware/packaging that may be commingled.

Hazardous Waste: Any substance identified by regulation as hazardous waste under the “Resource Conservation and Recovery Act of 1976,” 90 Stat. 2806, 42 U.S.C.A. 6921, as amended.

Industrial by-product: Organic materials generated by manufacturing or industrial processes that are non-toxic, non-hazardous, contain no domestic wastewater, and pass the paint filter test. Non-organic industrial by-products such as clay and gypsum shall be considered upon request.

In-vessel composting: Process in which decomposing organic material is enclosed in a drum, silo, bin, tunnel, or other container for the purpose of producing compost; and in which temperature, moisture and air-borne emissions are controlled, vectors are excluded and nuisance and odor generation minimized.

Maturity: Measure of the degree of completion of the composting process.

Mixed solid waste: Mixture of organic and inorganic discards and may contain household and other municipal solid wastes that are excluded from regulation as hazardous wastes.

Mulch: Any organic or inorganic material used on the soil surface to reduce weeds, conserve soil moisture, improve water infiltration, or for aesthetic purposes.

Operations manager: Person responsible for the day-to-day operation of a composting facility.

Run-off: Precipitation that has fallen onto the composting facility and flows off of the facility in either laminar or concentrated flow.

Run-on: Precipitation that has fallen upslope of a composting facility and flows on to the facility.

Sludge: Any untreated solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant.

Source separated organics: Organic material that has been separated from non-compostable material at the point of generation, including but not limited to yard trimmings, food residuals, vegetative materials, woody materials, and compostable products.

Stability: Inverse measure of the potential for a material to rapidly decompose. Measured by indicators of microbial activity, such as carbon dioxide production, oxygen uptake, or self-heating.

Stormwater: Precipitation that has not come into contact with raw feedstocks or active composting piles.

Throughput: Amount of material, in tons or cubic yards, a facility can process in a given amount of time.

Yard Trimmings: Leaves, grass clippings, brush, garden materials, tree trunks, tree stumps, holiday trees, and prunings from trees or shrubs. Can also include vegetative materials resulting from the use of commercial products, including but not limited to discarded flowers, potted flowers, or grave blankets that do not include plastic, metal, polystyrene foam, or other non-biodegradable material.

Vector: Any insect, rodent or other animal capable of transmitting, directly or indirectly, infectious diseases to humans or from one person or animal to another.

Vegetative Materials: Materials derived from plants including but not limited to fruit and vegetable peelings or parts, grains, coffee grounds, crop residues, non-recyclable paper, waxed cardboard and uncoated paper products. Vegetative material does not include oil, grease, or dairy products.

Vermicomposting: The controlled and managed process by which live worms convert organic materials into dark, fertile, granular excrement or castings.

Vermiculture: Raising of earthworms for the purpose of vermicomposting.

Windrow Composting: Process in which decomposing organic materials are placed in long piles for the purpose of producing compost. The piles are periodically turned or agitated to assure all parts of the decomposing material reach the desired stability.

Woody material: Residuals and by-products of cutting trees, including but not limited to tree stumps, sawdust, pallets, and dimensional lumber that has not been treated chemically or with adhesives and coatings such as paint, glue, or any other visible contaminant.

Section 2. Feedstock Categories

Type 1 feedstocks include yard trimmings, woody materials, crop residues, and other materials determined to pose a low level of risk to human health and the environment, including from physical contaminants and human pathogens.

Type 2 feedstocks include agricultural residuals, source-separated organics; and [agency] approved food processing residuals and industrial by-products. Type 2 feedstocks are materials that the department determines pose a low level of risk to the environment but have a higher level of risk from physical contaminants and human pathogens compared to Type 1 feedstocks.

Type 3 feedstocks include mixed solid waste (MSW), sludge, biosolids, diapers, and industrial by-products and food processing residuals not covered in Type 2. They include these and other materials the department determines pose a higher level of risk to human health and the environment from physical and chemical contaminants and from human pathogens compared to Type 1 and 2 feedstocks.

Prohibited feedstocks include: asbestos-containing wastes; biomedical wastes; toxic or radiological wastes; hazardous wastes; and any other prohibited wastes defined in [state] rule _____

Section 3. Exemptions

- I. The following types of composting facilities are exempt from these rules. Each exemption is independent of the others, nor does it apply to other regulatory requirements.
 - A. Any composting facility with a throughput of less than 100 tons of Type 1 feedstock during any calendar year.
 - B. Any composting facility with a throughput of less than 20 tons of Type 2 feedstock during any calendar year.
 - C. Any composting facility with a throughput of less than 40 tons of Type 2 feedstock in any calendar year using an in-vessel composting method.
 - D. Backyard composting
 - E. Animal and crop production operations that compost yard trimmings, agricultural residuals, woody materials, and/or food scraps provided that the following conditions are met:
 1. The owner of the composting facility is the same as the owner of the animal or crop production operation where the yard trimmings, agricultural residuals, food scraps, and woody materials are generated.
 2. The composting facility is located on property owned or leased by the animal or crop production operation.
 3. The composting facility is operated in such a manner that noise, dust, and odors do not constitute a nuisance or health hazard and does not cause or contribute to surface or ground water pollution.
 4. All compost produced is utilized exclusively at the animal or crop production operation.
 - F. Composting of mortalities, provided such composting is in accordance with the requirements of the [state] Dead Animal Disposal requirements, or conducted under auspices of state Department of Transportation, state Department of Agriculture, or other agency programs.
 - G. Composting of animal manures or sewage sludges where such activities are permitted under CAFO or National Pollutant Discharge Elimination System permits.

Section 4. Tier One

- I. Referenced Feedstock Category: Type 1 feedstocks include source-separated yard trimmings, woody material, agricultural crop residues, and other materials determined to pose a low level of risk to human health and the environment, including from physical contaminants and human pathogens.
- II. Design and Operating Standards
 - A. Tier One composting facilities may process Type 1 feedstocks only.
 - B. Tier One facilities shall meet the following design standards in order to operate in a manner that is protective of human health and the environment:
 1. The feedstock receiving, processing and storage areas must be clearly defined and the maximum throughput and capacity specified.
 2. No material may be stored in excess of the designated capacity.
 3. The composting area should have run on and run off control and slope of 1 to 6 percent as determined by site conditions.
 4. Site shall not cause a discharge of contact water to surface water.
 5. Facilities operating on a seasonal basis only (e.g., fall leaves and spring yard clean-outs) must comply with B.1., B.2., B.3., B.4. All other Tier One composting facilities shall include an all-weather composting pad
 - C. Tier One facilities shall meet the following operational standards:
 1. Facility operations managers must be able to document training in the basics of compost facility operations within the first year of supervising the facility. Training must consist of classroom and hands-on course work and conclude with a certificate of completion that must be kept on site at all times. Appropriate compost operations training must be approved by the [insert appropriate agency].
 2. Facilities must develop and follow a Composting Facility Operations Plan (CFOP) — reviewed and approved as part of the Tier 1 permit application — that describes operational procedures (methods and practices) to comply with the intent of regulations to protect public health and the environment and not create nuisances. This includes measures to control nuisance odors, vectors, fires, contact water and stormwater. The CFOP must be internally reviewed annually and updated when there is a change to procedures (including equipment) and/or feedstocks being processed, and reflect how the facility will continue to comply with the intent of the rules. The CFOP must be available to the permitting authority upon request.
 3. Facilities shall be maintained in a clean and sanitary condition, i.e., free of unsecured trash at end of each operating day.
 4. Operators of composting facilities shall comply with all local rules, regulations, and ordinances pertaining to their facilities.
 5. Feedstocks must be managed in a timeframe that minimizes odors, contact water, fire and scavenging by vectors.

6. Contact water generated shall be directed to a containment, recycling, and/or treatment system sized to handle at a minimum a 24-hr 25-yr storm event.
7. Stormwater shall be managed through Best Management Practices approved by the NPDES Program.
8. Storage of finished compost on site is limited to 12 months of production, unless approved by the (insert agency name) on a case-specific basis.
9. Non-compostable waste shall be removed or stored in a waste container and/or containment area, and disposed or recycled at a permitted solid waste facility in a timeframe approved in the CFOP [or as required by local regulating authority and/or as soon as the container is full].
10. Compost processing time and temperatures shall be sufficient to kill weed seeds, reduce pathogens and vector attraction, and produce compost that meets the stability necessary for the intended use (see Section 8. Compost Testing). Pathogen and vector attraction reduction compliance achieved as follows:
 - a. Windrow composting: the compost material must be maintained at a minimum average temperature of 55°C or higher for 15 days or longer. During the period when the compost is maintained at 55°C or higher, there shall be a minimum of five turnings of the windrow with a minimum of 3 days between turnings. The 15 or more days at or above 55°C do not have to be continuous;
 - b. Aerated static pile or in-vessel composting process: Material maintained at a minimum average temperature of 55°C or higher for three continuous days, followed by at least 14 days with a minimum of 45°C
11. The composting area shall be maintained and repaired, as needed.
12. Records shall be maintained that identify the weight or volume of incoming feedstocks and outgoing finished compost. Records documenting compliance of the composting facility with the Rules shall be kept for a minimum of three years from the date of the record, and be in a form suitable for submission or inspection by the (insert agency name).
13. Notice of final closure must be provided to the Director within 270 days (or as specified by state requirements) of receiving the final load of material. Any site not operated on a seasonal basis only and not receiving material for 270 days shall be deemed abandoned and in violation of these Rules unless properly closed. Notice of closure must include the date of final material receipt and a site closure plan for managing all feedstock and active, curing, and finished compost and compost-blended products remaining on site. In addition, the plan must address how contact water stored in containment structures or ponds will be treated and/or removed. All material shall be removed from the facility within 270 days unless it is being utilized as part of site closure as described in the site closure plan.
14. The facility shall have a sign at the entrance of the facility that lists the following: name of facility; operating permit number; hours of operation; and emergency contact information.

Section 5. Tier Two

I. Referenced Feedstock Category:

Type 2 feedstocks include all type 1 feedstocks plus: agricultural residuals, source-separated organics; and [agency] approved food processing residuals and industrial by-products. Type 2 feedstocks are materials that the department determines pose a low level of risk to the environment but have a higher level of risk from physical contaminants and human pathogens compared to Type 1 feedstocks.

II. Design and Operating Standards

- A. Tier Two composting facilities shall process Types 1 and/or 2 feedstocks only.
- B. Tier Two facilities shall meet the following design standards in order to operate in a manner that is protective of human health and the environment:
 - 1. Owner or operator must submit an engineering design report for approval with facility application.
 - 2. Tipping, mixing, active composting, curing, screening and finished compost storage areas must be on an all weather pad.

ALTERNATIVE A:

The all weather pad shall be designed, constructed, and maintained to:

- a) prevent ponding and impede vertical movement of potential contaminants from contact water;
- b) reliably transmit any free liquid present during the storage, treatment, and processing of materials laterally to a containment structure to prevent liquids from entering surface water or groundwater; and
- c) prevent conditions that could contribute to, or cause contamination.

ALTERNATIVE B:

The all weather pad must meet the following criteria:

- a) Five feet or more from the top of the zone of continuous groundwater saturation
- b) Soils within the 5 feet are composed of any combination of the following soils: sandy clay loam, loam, silt loam, silt, sandy clay, clay loam, silty clay loam, clay, and silty clay
- c) If either less than 5-feet from the top of the zone of continuous groundwater saturation or soils other than in 2.b above, an improved low permeability surface is required for tipping, mixing and active composting areas. All weather pad is allowed for curing and finished product storage.

The improved low permeability surface can be constructed of:

- i. Low permeability soils that meet Federal Highway Administration specifications for subgrade stabilization (Sec. 213), which are available at <http://flh.fhwa.dot.gov/resources/pse/specs/fp-03/fp-03usc.pdf>.

- ii. Other: Concrete, asphalt, FHWA specifications for stabilized aggregate or treated aggregate courses (Sec. 302) or other approved methods.
 - d) All weather pad shall be of sufficient slope (1 to 6 percent as determined by site conditions) to direct contact water to the appropriate collection, storage and treatment system.
3. Stormwater management plan must be submitted with permit application. Stormwater control features shall be designed, constructed and maintained to prevent run-on onto the facility during peak discharge from a 25-year, 24-hour storm event and to control and collect the runoff stormwater volume resulting from a 25-year, 24-hour storm event.
 4. Contact water must be segregated and directed to a containment, recycling, and/or treatment system.
 5. The maximum composting process windrow or pile size and minimum composting process windrow or pile spacing shall match the capability and requirements of the equipment used at the facility. As pile height increases, windrows or piles should be monitored to minimize compaction, a potential cause of odor.
 6. The composting facility shall have all-weather access roads. The facility shall be designed such that access to the composting facility shall be limited to authorized entrances, which shall be secured from public access when the facility is not in operation.
 7. A plan and procedure for monitoring the temperature and moisture during composting shall be provided, and should demonstrate that PFRP (Process to Further Reduce Pathogens, USEPA 40 CFR Part 503) is met. The temperature and moisture ranges for the composting cycle shall be specified. The plan shall include contingencies for not meeting the specified ranges for the composting process.
- C. Tier Two facilities shall meet the following operational standards:
1. Facility operations managers must be able to document training in the basics of compost facility operations within the first year of supervising the facility. Training must consist of classroom and hands-on course work and conclude with a certificate of completion that must be kept on site at all times. Appropriate compost operations training must be approved by the [insert appropriate agency].
 2. Facilities must follow a Composting Facility Operations Plan (CFOP) — reviewed and approved as part of the Tier 2 permit application — that describes operational procedures (methods and practices) to comply with the intent of regulations to protect human health and the environment and not create nuisances. This includes measures to control nuisance odors, vectors, fires, contact water and stormwater, as well as provisions for prompt equipment repair or replacement when needed. The CFOP must be internally reviewed annually to ensure it continues to reflect current procedures, equipment and feedstock(s). The CFOP must be updated when there is a change to procedures (including equipment) or the types of feedstocks processed, and reflect

how the facility will continue to comply with the intent of the rules. The CFOP must be available to the permitting authority upon request.

3. Facilities shall be maintained in a clean and sanitary condition, i.e., free of uncontained wastes at the end of each operating day
4. Operators of composting facilities shall comply with all local rules, regulations, and ordinances pertaining to their facilities.
5. The facility must process Type 2 feedstocks in a timeframe that minimizes odors, release of feedstock liquids, fire and scavenging by vectors.
6. Feedstocks with free liquid shall be mixed with drier feedstocks, bulking material or compost so that the liquid is promptly absorbed and not allowed to flow as free liquid from the compost piles or windrows. Free liquid that is not absorbed shall be managed as contact water and directed to a containment or treatment system.
7. By the end of each operating day, all incoming Type 2 feedstocks must be processed into the active composting pile, transferred to leak-proof containment or mixed with bulking material and covered in a manner that minimizes nuisance odors and scavenging by vectors.
8. Contact water shall be directed to a containment, recycling, and/or treatment system.
9. Storage of finished compost on site is limited to 12 months of production, unless approved by the (insert agency name) on a case-specific basis.
10. Non-compostable waste shall be removed, stored in a waste container or containment area, and disposed of or recycled at a permitted solid waste facility in a timeframe approved in the CFOP (or as required by local regulating authority and/or as soon as the container is full).
11. Compost processing time and temperatures shall meet PFRP and vector attraction reduction requirements, and produce compost that meets the stability necessary for the intended use (see Section 8. Testing). Pathogen and vector attraction reduction compliance is achieved as follows:
 - a. Windrow composting: the compost material must be maintained at a minimum average temperature of 55°C or higher for 15 days or longer. During the period when the compost is maintained at 55°C or higher, there shall be a minimum of five turnings of the windrow with a minimum of 3 days between turnings. The 15 or more days at or above 55°C do not have to be continuous;
 - b. Aerated static pile or in-vessel composting process: Material maintained at a minimum average temperature of 55°C or higher for three continuous days, followed by at least 14 days with a minimum of 45°C.
12. The composting area shall be maintained and repaired, as needed. Records shall be maintained that identify the weight or volume of incoming feedstocks and outgoing finished compost, as well as a summary of regulated analytical tests and process results on product and site monitoring results (if/as required). Records documenting compliance of the composting facility with the rules shall be kept for a minimum of

three years from the date of the record, and be in a form suitable for submission or inspection by the (insert agency name).

13. Notice of final closure must be provided to the Director within 270 days (or as specified by state requirements) of receiving the final load of material. Any site not operated on a seasonal basis only and not receiving material for 270 days shall be deemed abandoned and in violation of these rules unless properly closed. Notice of closure must include the date of final material receipt and a site closure plan for managing all feedstock and active, curing, and finished compost and compost-blended products remaining on the site. In addition, the plan must address how contact water stored in containment structures or ponds will be treated and/or removed. All material shall be removed from the facility within 270 days unless it is being utilized as part of site closure as described in the site closure plan.

The facility shall have a sign at the entrance of the facility that lists the following: name of facility; operating permit number; hours of operation; and emergency contact information.

Section 6. Tier Three

I. Referenced Feedstock Category

Type 3 feedstocks include mixed solid waste (MSW), diapers, sewage sludge, biosolids, and industrial by-products and food processing residuals not covered in Type 2. They include these and other materials the department determines pose a higher level of risk to human health and the environment from physical and chemical contaminants and from human pathogens compared to Types 1 and 2 feedstocks.

II. Design and Operating Standards

- A. Tier Three composting facilities may process Types 1, 2 and/or 3 feedstocks.
- B. Tier Three composting facilities shall comply with design and operating standards for Tier 2 composting facilities and the additional design and operating standards listed below:
 - 1. Facilities that compost biosolids or sewage sludge shall comply with all applicable federal regulations regarding sludge management at 40 CFR 501; 40 CFR 503; and 40 CFR 503, Subpart B.

ALTERNATIVE A:

- 2. The receiving, mixing and active composting areas shall be constructed of an impermeable material such as concrete, asphalt, or similar approved impervious material to prevent the infiltration of contact water into the groundwater.

ALTERNATIVE B:

- 2. The working surfaces for all receiving, mixing, active composting and storage areas must be designed, constructed, and maintained to prevent conditions of contamination, pollution, and nuisance. All working surfaces must meet the following specifications:
 - a) All working surfaces must have a hydraulic conductivity of 1×10^{-5} cm/s or less, and meet one the following construction and material specifications:
 - i. Asphalt concrete or Portland cement concrete designed to minimize the potential for cracking and to allow equipment to operate without damage;
 - ii. Compacted clay, with a minimum thickness of one foot and protected from desiccation and installed in a manner such that the integrity will not be impaired by the operation of heavy equipment used at the composting and storage area; or
 - iii. An equivalent engineered alternative.

Section 7. Criteria for Siting a Composting Facility

I. Tiers 1, 2 and 3 composting facilities shall comply with the following Siting Criteria:

- A. The proposed facility will comply with all local zoning and land use ordinances.
- B. The following buffers shall be maintained between the composting operation and the following features. [buffer distances to be determined by state regulatory agency]
 - 1. the property line.....[X ft]
 - 2. adjacent residences.....[X ft]
 - 3. drinking water supply wells.....[X ft]
 - 4. streams, lakes or other bodies of water.....[X ft]
 - 5. wetlands, unless otherwise permitted by the United States Army Corps of Engineers.....[X ft]
- C. Location of a facility within a 100-year floodplain is discouraged. However if it is sited within a 100-year flood plain, the facility shall not restrict the flow of the 100-year flood, reduce the storage capacity of the floodplain, or result in a washout of material on the facility's property.

Section 8. Compost Testing

I. Tiers 2 and 3 facilities shall meet the following test standards and requirements:

1. Samples and measurements taken for the purpose of product testing shall be representative of the composting activity and shall be conducted in a manner consistent with Test Methods for Evaluation of Compost and Composting (TMECC) or other applicable standards pre-approved by the relevant agency.
2. The minimum number of samples that shall be collected and analyzed is shown below. Samples to be analyzed shall be composted prior to the analysis.

<u>Compost Quantity</u> ¹	<u>Frequency</u>
1 – 2500 tons	1 per quarter (or less)
2501 – 6200 tons	1 per quarter
6201 – 17500 tons	1 per 2 months
17501 tons and above	1 per month

¹Either the amount of finished compost applied to the land or prepared for sale or giveaway for application to the land (on as “as is” (wet weight) basis)

If test results show the finished product is stable and in compliance with both metals and pathogens standards for a two year period the facility may request a reduction in the frequency of testing. Compost produced from non-biosolids feedstock may test for pathogens and trace metals at half the frequency, but overall testing for all other characteristics must be as defined in the table above.

3. All compost shall be tested for stability using one of the methods listed in TMECC 5.08, Respirometry.
 - a. The stability results must be reported
4. All compost shall be tested for the presence of pathogens using the methods in TMECC 7.00, Pathogens.
 - a. Either the density of fecal coliform in the finished compost shall be less than 1,000 Most Probable Number (MPN) per gram of total solids (dry weight basis), or the density of *Salmonella* sp. bacteria in the finished compost shall be less than three MPN per four grams of total solids (dry weight basis) before the compost may be sold, given away or applied to the land.
5. All composts shall be analyzed for metals listed in 40 CFR, Section 503.13(b)(3), as amended using methods described in TMECC 4.00 Chemical Properties.

The concentration of metals in compost to be sold, given away or applied to the land shall not exceed the pollutant concentration (milligrams per kilogram) limits for Exceptional Quality compost as defined in the following table contained in 40 CFR, Section 503.13, Table 3

Arsenic	41	Mercury	17
Cadmium	39	Nickel	420
Copper	1500	Selenium	100
Lead	300	Zinc	2800