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## Rulemaking Hearing Rule(s) Filing Form

*Rulemaking Hearing Rules are rules filed after and as a result of a rulemaking hearing (Tenn. Code Ann. § 4-5-205).*

*Pursuant to Tenn. Code Ann. § 4-5-229, any new fee or fee increase promulgated by state agency rule shall take effect on July 1, following the expiration of the ninety (90) day period as provided in § 4-5-207. This section shall not apply to rules that implement new fees or fee increases that are promulgated as emergency rules pursuant to § 4-5-208(a) and to subsequent rules that make permanent such emergency rules, as amended during the rulemaking process. In addition, this section shall not apply to state agencies that did not, during the preceding two (2) fiscal years, collect fees in an amount sufficient to pay the cost of operating the board, commission or entity in accordance with § 4-29-121(b).*

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**Revision Type (check all that apply):**

- Amendment  
 New  
 Repeal

**Rule(s) Revised (ALL chapters and rules contained in filing must be listed here. If needed, copy and paste additional tables to accommodate multiple chapters. Please enter only ONE Rule Number/Rule Title per row)**

Chapter Number	Chapter Title
0400-11-01	Solid Waste Processing and Disposal
Rule Number	Rule Title
0400-11-01-.01	Solid Waste Disposal Control System: General
0400-11-01-.02	Permitting of Solid Waste Storage, Processing, and Disposal Facilities
0400-11-01-.11	Requirements for Compost and Composting Facilities

(Place substance of rules and other info here. Statutory authority must be given for each rule change. For information on formatting rules go to <http://state.tn.us/sos/rules/1360/1360.htm>)

## Amendments

### Chapter 0400-11-01 Solid Waste Processing and Disposal

Paragraph (2) of Rule 0400-11-01-.01 Solid Waste Disposal Control System: General is amended by deleting the definitions for "Board," "Compost disinfection," "Foreign matter," "Manure," "Mesophilic stage," "Normal farming operations," "Stabilized" and Thermophilic stage."

Authority: T.C.A. §§ 68-211-101 et seq., 68-211-701 et seq., 68-211-801 et seq. and 4-5-201 et seq.

Paragraph (2) of Rule 0400-11-01-.01 Solid Waste Disposal Control System: General is amended by deleting the definition of "Compostable material" in its entirety and substituting instead the following:

"Compost material" means solid organic waste that may be decomposed under controlled conditions by micro-organisms under aerobic or anaerobic conditions which result in a stable humus-like material free of pathogenic organisms (e.g., food wastes, yard wastes, and low moisture content wastewater sludge).

Authority: T.C.A. §§ 68-211-101 et seq., 68-211-701 et seq., 68-211-801 et seq. and 4-5-201 et seq.

Paragraph (2) of Rule 0400-11-01-.01 Solid Waste Disposal Control System: General is amended by adding the following definitions in alphabetical order:

"Aerated static pile composting" means a 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 (131°F) for a minimum of 3 days.

"Agricultural residuals" means 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.

"Biosolids" means treated sewage sludge that have contaminant concentrations less than or equal to the contaminant concentrations listed in Table 1 of subparagraph (3)(b) of Rule 0400-40-15-.02, meet any one of the ten vector attraction reduction options listed in part (4)(b)1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 of Rule 0400-40-15-.04, and meet either one of the six pathogen reduction alternatives for Class A listed in part (3)(a)3, 4, 5, 6, 7, or 8, or one of the three pathogen reduction alternatives for Class B listed in part (3)(b)2, 3, or 4 of Rule 0400-40-15-.04.

✓ "Board" means the Tennessee Underground Storage Tanks and Solid Waste Disposal Control Board established by T.C.A. § 68-211-111.

"Capacity" means the amount of material, in tons or cubic yards, a compost facility can hold at any one time. Includes feedstocks, actively composting and curing material, and final product storage.

"Certificate of completion" means a document issued by a certifying organization stating that the compost facility operations manager has met the requirements for the specified operations manager program.

"Composting pad" means the 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.

“Contact water” means 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.

“Crop residues” means 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” means 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.

“Food processing residuals” means 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.

“Industrial by-product” means materials generated by manufacturing or industrial processes that are non-toxic, non-hazardous, contain no domestic wastewater, and pass the paint filter test (Method 9095B).

“In-vessel composting” means a 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.

“Mixed solid waste” means a mixture of organic and inorganic discards and may contain household and other municipal solid wastes that are excluded from regulation as hazardous wastes.

“Source separated organics” means 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” means the 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.

“Throughput” means the amount of material, not to include bulking agents, in tons or cubic yards, a facility can process in a given amount of time.

“Windrow composting” means a process in which decomposing organic materials are placed in long rows for the purpose of producing compost. The rows are periodically turned or agitated to assure all parts of the decomposing material reach the desired stability.

“Woody material” means 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.

“Yard trimmings” means 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.

Authority: T.C.A. §§ 68-211-101 et seq., 68-211-701 et seq., 68-211-801 et seq. and 4-5-201 et seq.

Subparagraph (a) of paragraph (2) of Rule 0400-11-01-.02 Permitting of Solid Waste Storage, Processing, and Disposal Facilities is amended by adding a new part 7 to read as follows:

7. A Tier One composting facility, if:
  - (i) The operator complies with the notification requirements of subparagraph (b) of this paragraph;

- (ii) The operator attaches to his notification all attachments required in the Composting Facility Operation Plan by subpart (2)(a)2(vii) of Rule 0400-11-01-.11; and
- (iii) The facility is designed and operated in compliance with Rule 0400-11-01-.11.

Authority: T.C.A. §§ 68-211-101 et seq., 68-211-701 et seq., 68-211-801 et seq. and 4-5-201 et seq.

Rule 0400-11-01-.11 Requirements for Compost and Composting Facilities is amended by deleting it in its entirety and substituting instead the following:

Rule 0400-11-01-.11 Requirements for Compost and Composting Facilities

(1) General

(a) Purpose - The purpose of this rule is to establish procedures, documentation, and other requirements which must be met in order for a person to operate a composting facility in Tennessee.

(b) Scope/Applicability

1. The requirements of this rule apply as specified to operators of composting facilities in Tennessee. Except as specifically provided elsewhere in these rules, no facility may compost solid waste without a permit as provided in paragraph (3) of Rule 0400-11-01-.02. Composting facilities, subject to a full permit on the effective date of this rule, must submit a part I and part II permit application to describe how it will comply with this rule. The application must be filed within 180 days of the effective date of this rule and implemented upon approval. The Division will not charge an application fee, nor require public notice of the application for facilities which already have permit-by-rule for composting.
2. Composting facilities that process biosolids or sewage sludge as a feedstock shall also comply with all other applicable federal or state laws regarding sludge management.
3. The following facilities or activities are not subject to the requirement to have a permit.
  - (i) Backyard composting and the resulting compost;
  - (ii) Animal and crop production operations that compost yard trimmings, agricultural residuals, mortalities, woody materials, and/or food scraps provided that the following conditions are met:
    - (I) 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, mortalities, food scraps, and woody materials are generated;
    - (II) The composting facility is located on property owned or leased by the animal or crop production operation;
    - (III) All compost produced is utilized exclusively at an animal or crop production operation;
  - (iii) Any composting facility with a throughput of less than 400 cubic yards of Type 1 feedstock during any calendar year;
  - (iv) Any composting facility with a throughput of less than 50 cubic yards of Type 2 feedstock during any calendar year; and

- (v) Any composting facility with a throughput of less than 100 cubic yards of Type 2 feedstock in any calendar year using an in-vessel composting method.
4. A Tier One composting facility may only process Type 1 feedstocks. Type 1 feedstocks include source separated yard trimmings, woody material, 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.
  5. A Tier Two composting facility may only process Type 1 and/or Type 2 feedstocks. Type 2 feedstocks include agricultural residuals, source-separated organics, and food processing residuals and industrial by-products as approved by the Department. Type 2 feedstocks are materials that the Department determines to pose a low level of risk to human health and the environment despite having more physical contaminants and human pathogens than Type 1 feedstocks.
  6. A Tier Three composting facility may process Type 1, Type 2 and/or Type 3 feedstocks. Type 3 feedstocks include mixed solid waste, diapers, sewage sludge, biosolids, and industrial by-products and food processing residuals not covered in Type 2. They also include other materials the Department determines to pose a low level of risk to human health and the environment despite having more physical contaminants and human pathogens than Types 1 and Type 2 feedstocks.
  7. Tier One composting facilities may apply for a permit by rule pursuant to part (2)(a)7 of Rule 0400-11-01-.02.
  8. No waste defined as hazardous waste under subparagraph (1)(c) of Rule 0400-12-01-.02 may be received for composting. Feedstocks containing industrial by-products, sewage sludge or biosolids are subject to a hazardous waste determination, in accordance with subparagraph (1)(b) of Rule 0400-12-01-.03, and must be approved in writing by the Division before being accepted at the facility.
- (2) Facility Standards - Unless specifically noted otherwise, the standards of this paragraph shall apply to all compost facilities subject to a permit as provided at paragraph (3) of Rule 0400-11-01-.02 and Tier One permit by rule facilities.
- (a) General Facility Design and Operating Standards
1. All compost facilities shall meet the following design standards in order to operate in a manner that is protective of human health and the environment:
    - (i) The feedstock receiving, processing and storage areas must be clearly defined and the maximum throughput and capacity specified.
    - (ii) 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.
    - (iii) Contact Water Collection
      - (I) The facility shall have a contact water collection system that is properly managed.
      - (II) Contact water shall be reused in the process or otherwise properly managed as per all applicable laws and rules.
    - (iv) Litter Control - Fencing and/or other control shall be provided to confine loose waste to the area designated for storage or processing; Accidental dispersal from the designated areas shall be recovered daily.

- (v) Personnel Facilities - There shall be provided:
  - (I) A building or other shelter which is accessible to facility personnel which has adequate heating and light.
  - (II) Potable water for washing and drinking.
  - (III) Toilet facilities.
- (vi) Operating Equipment - The facility shall have on-site operational and monitoring equipment capable of maintaining the waste processing as designed.
- (vii) Endangered Species - Facilities shall be located, designed, constructed, operated, maintained, closed, and cared for during the post-closure care period in a manner that does not:
  - (I) Cause or contribute to the taking of any endangered or threatened species of plants, fish, or wildlife; or
  - (II) Result in the destruction or adverse modification of the critical habitat of endangered or threatened species.
- (viii) Location in Floodplains- Facilities shall not be located in a 100-year floodplain, unless the demonstration is made to the Commissioner as required at subparagraph (2)(n) of Rule 0400-11-01-.04.
- (ix) Wetlands - The facility shall not be located in a wetland unless the demonstration is made to the Commissioner as required at subparagraph (2)(p) of Rule 0400-11-01-.04.
- (x) Buffer Zone Standards for Siting New Facilities - All waste management areas shall be located so as to conform to the distance standards at subparagraph (3)(a) of Rule 0400-11-01-.04.

2. All compost facilities shall meet the following operational standards:

- (i) Contingency operations shall identify proper management of all waste in the event of equipment failure, facility disaster, or receipt of unauthorized material such as oil, hazardous waste, etc.
- (ii) Fire Safety
  - (I) No open burning is allowed.
  - (II) The facility shall have, on-site and continuously available, properly maintained fire suppression equipment capable of controlling accidental fires. If available, local firefighting service shall be acquired.
- (iii) Communication - The facility shall have available during operating hours equipment capable of summoning emergency assistance as needed.
- (iv) Dust Control - The operator must take dust control measures as necessary to prevent dust from creating a nuisance or safety hazard to adjacent landowners or to persons engaged in supervising, operating, and using the site. The use of any dust suppressants (other than water) must be approved in writing beforehand by the Department.
- (v) The owner/operator of a compost facility permitted pursuant to paragraph (1) of Rule 0400-11-01-.02 shall file with the Commissioner a performance bond or equivalent cash or securities, payable to the State of Tennessee. Such financial

assurance shall be in an amount determined by the Commissioner to be adequate to insure 30 days operation and proper closure of the facility. The types of financial assurance instruments that are acceptable are those which are specified in subparagraph (3)(d) of Rule 0400-11-01-.03. Such financial assurance shall meet the criteria set forth in T.C.A. § 68-211-116 and at subparagraph (3)(b) of Rule 0400-11-01-.03.

- (vi) Facility operations manager, person responsible for the day-to-day operation, 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 Department.
- (vii) Facilities must follow a Composting Facility Operations Plan (CFOP) — reviewed and approved as part of the 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, provisions for the annual maintenance of the all-weather composting pads, 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. The Department shall be informed in writing of any proposed changes to the CFOP for approval prior to implementation.
- (viii) Facilities shall be maintained in a clean and sanitary condition, e.g., free of unsecured trash at end of each operating day.
- (ix) Operators of composting facilities shall comply with all local rules, regulations, and ordinances pertaining to their facilities.
- (x) 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.
- (xi) Storage of finished compost on site is limited to 12 months of production, unless approved by the Department on a case-specific basis.
- (xii) No material may be stored in excess of the designated capacity.
- (xiii) 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.
- (xiv) The composting area shall be maintained and repaired, as needed.
- (xv) Closure - The facility must meet closure requirements described herein. The facility is finally closed by removal of all solid wastes and solid waste residues for proper disposal. The operator must notify the Commissioner in writing of his completion of closure of the facility. Such notification must include a certification by the operator that the facility has been closed by removal of all the solid waste and residues. Within 21 days of the receipt of such notice the Commissioner shall inspect the facility to verify that closure has been completed. Within 10 days of such verification, the Commissioner shall approve the closure in writing to the operator. Closure shall not be considered final and complete until such approval has been made.

- (xvi) 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.
- (xvii) The facility must manage and process feedstocks in a timeframe that minimizes odors, contact water, release of feedstock liquids, fire and scavenging by vectors.

(b) Tier One Facility Design and Operating Standards

1. Tier One composting facilities may process Type 1 feedstocks only.
2. 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:
  - (i) The composting area should have run on and run off control and slope of 1 to 6 percent as determined by site conditions to direct contact water to the appropriate collection, storage and treatment system.
  - (ii) All composting at Tier One composting facilities shall be conducted on an all-weather composting pad, except for those facilities operating on a seasonal basis only (e.g., fall leaves and spring yard cleanouts). The all-weather pad must meet the following criteria:
    - (I) Except as provided in item (III) of this subpart, the pad surface shall be 5 feet or more from the top of the seasonal high water table of the uppermost aquifer or the top of the formation of a confined aquifer;
    - (II) Soils within the first 5 feet of the surface shall exhibit hydraulic conductivity of  $1.0 \times 10^{-6}$  cm/s. If soil depth to seasonal high water table is 10 feet or greater, a geologic buffer consisting of 10 feet of clay with a maximum hydraulic permeability of  $1.0 \times 10^{-5}$  may be used;
    - (III) If less than 5 feet from the top of the seasonal high water table an improved low permeability surface is required for tipping, mixing and active composting areas. The improved low permeability surface shall consist of concrete, asphalt or other approved material capable of withstanding heavy equipment and preventing contamination of the uppermost aquifer; and
    - (IV) All-weather pad shall be of sufficient slope to direct contact water to the appropriate collection, storage and treatment system. The pad shall also be constructed in such a manner as to prevent run-on of storm water to the extent practicable.
3. Tier One facilities shall meet the following operational standards:
  - (i) 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. Pathogen and vector attraction reduction compliance achieved as follows:
    - (I) Windrow composting: the compost material must be maintained at a minimum average temperature of 55°C (131°F) or higher for 15 days or longer. During the period when the compost is maintained at 55°C (131°F) 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 (131°F) do not have to be continuous; and
    - (II) Aerated static pile or in-vessel composting process: Material maintained at a minimum average temperature of 55°C (131°F) or higher for three

continuous days, followed by at least 14 days with a minimum of 45°C (113°F).

(c) Tier Two Facility Design and Operating Standards

1. Tier Two composting facilities shall process Types 1 and/or 2 feedstocks only.
2. 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:
  - (i) Owner or operator must submit an engineering design report for approval with facility application.
  - (ii) Tipping, mixing, active composting, curing, screening and finished compost storage areas must be on an all-weather pad as described at (b)2(ii) of this paragraph.
  - (iii) 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.
  - (iv) 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.
3. Tier Two facilities shall meet the following operational standards:
  - (i) Feedstocks with free liquid shall be mixed with drier feedstocks, bulking material or compost so that the liquid is promptly adsorbed and not allowed to flow as free liquid from the compost piles or windrows. Free liquid that is not adsorbed shall be managed as contact water and directed to a containment or treatment system.
  - (ii) By the end of each operating day, all incoming 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.
  - (iii) 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. Pathogen and vector attraction reduction compliance is achieved as follows:
    - (I) Windrow composting: the compost material must be maintained at a minimum average temperature of 55°C (131°F) or higher for 15 days or longer. During the period when the compost is maintained at 55°C (131°F) 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 (131°F) do not have to be continuous; and
    - (II) Aerated static pile or in-vessel composting process: Material maintained at a minimum average temperature of 55°C (131°F) or higher for three continuous days, followed by at least 14 days with a minimum of 45°C (113°F).

(d) Tier Three Facility Design and Operating Standards

1. Tier Three composting facilities may process Types 1, 2 and/or 3 feedstocks.
2. Tier Three composting facilities shall comply with design standards for Tier 2 composting facilities and the additional design standards listed below:
  - (i) 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 have a hydraulic conductivity of  $1 \times 10^{-5}$  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 soil, 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.
3. Tier Three composting facilities shall meet the operational standards for Tier Two composting facilities and the additional operational standard listed below:
  - (i) Facilities that compost biosolids or sewage sludge shall comply with all applicable regulations regarding biosolids and sewage sludge in Rule Chapter 0400-40-15.

(3) Testing – Tier 2 and 3 facilities shall meet the following test standards and requirements:

- (a) 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.
- (b) 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.

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

<sup>1</sup> Either the amount of finished compost applied to the land or prepared for sale or give away for application to the land (on as “as is” (wet weight) basis).

<sup>2</sup> For facilities without scales use 800 lb/yd<sup>3</sup> conversion factor.

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.

- (c) All compost shall be tested for stability using one of the methods listed in TMECC 5.08, Respirometry. The stability results must be recorded.
- (d) All compost shall be tested for the presence of pathogens using the methods in TMECC 7.00, Pathogens. Before the compost may be sold, given away or applied to the land, either:

1. 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
  2. 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).
- (e) 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.

METAL CONSTITUENT	TOTAL METAL CONCENTRATION (mg/kg)
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2800

- (f) Prior to being sold, given away or applied to the land, compost produced from feedstocks containing industrial by-products, sewage sludge or biosolids shall be analyzed for the metals listed in Table 1 of subparagraph (3)(e) of Rule 0400-12-01-.02 to verify that the compost does not exhibit the hazardous waste toxicity characteristic for those metals. This analysis shall be conducted on the first batch of compost produced and, thereafter, at the same frequency required by subparagraph (b) of this paragraph. Compost that exhibits the characteristic of hazardous waste shall be managed under the requirements of Chapter 0400-12-01.
- (g) Compost which fails to meet the criteria of subparagraphs (d) and (e) of this paragraph must be managed as solid waste.
- (4) Records - Facility owner or operators shall record and maintain at the facility for three years the following information regarding their activities for each month of operation of the facility. Records shall be available for inspection by Department personnel during normal business hours and shall be sent to the Department upon request to include:
- (a) Analytical results on composting testing;
  - (b) The type and quantity of feedstock and the source of feedstock received;
  - (c) The quantity of compost produced;
  - (d) The quantity of compost removed for use or for disposal, and the market or permitted disposal facility. The operator must identify the market for compost removed for use. The operator must identify the permitted disposal facility for compost removed for disposal; and
  - (e) Temperatures measurements throughout the composting process demonstrating that PFRP has been met is applicable.
- (5) Design and Construction Plans
- (a) Master Plan - A master plan shall be provided that is drawn at a scale of not less than 1" = 400' with not more than 20 foot contour interval and which clearly depicts:

1. The boundary of the proposed facility;
  2. The existing drainage pattern of all site runoff;
  3. Runoff monitoring stations;
  4. Primary access roads;
  5. Wells within one quarter mile of the site boundary;
  6. The location of all 100-year floodplain boundaries; and
  7. All residences within one quarter mile of the site boundary (If in an urban area residential properties may be delineated).
- (b) Design Plans - Design plans shall be provided that are drawn at a suitable scale of not less than 1" = 50 feet and with contour intervals of not greater than five feet, which clearly depicts:
1. All structures;
  2. Proposed waste processing areas;
  3. Proposed waste storage areas;
  4. All drainage appurtenances that control run-on/run-off and the direction of flow;
  5. The location of all existing and proposed utilities and roads (defining surface material); and
  6. The location of all contact water collection/treatment structures, piping, storage appurtenances, and any other associated unit.
- (c) Narrative Description of the Facility and Operation - A narrative description of the facility and operation shall be provided that defines all procedures and activities pertinent to the design and operation of the facility. This narrative shall include, but not necessarily be limited to:
1. A description of how the facility will achieve the compliance of all standards defined in paragraphs (2), (3), (4), and (5) of this rule;
  2. A description of the waste handling and processing equipment to be used;
  3. A description of the management of run-on/runoff with design calculations of all structures designed to meet the 24hr – 25 yr storm event;
  4. A description of the management of the contact water system and the disposition of the contact water;
  5. A description of the odor control measures; and
  6. A description of the procedures for the final closure of the facility.
- (6) Annual Report
- Owners and operators of facilities producing compost shall submit to the Department an annual report by March 1 of each year. The report and shall include at a minimum:
- (a) The facility name, address and permit number;
  - (b) The reporting year with all quantities expressed in tons (sludge expressed in dry weight);

- (c) The total quantity and type of feedstock received at the facility during the year covered by the report;
- (d) The total quantity of compost produced during the year covered by the report; and
- (e) The total quantity of compost removed for use or for disposal, and the market(s) or permitted disposal facility(s). The operator must identify the market for compost removed for use. The operator must identify the permitted disposal facility for compost removed for disposal.

Authority: T.C.A. §§ 68-211-101 et seq., 68-211-701 et seq. and 4-5-201 et seq.

\* If a roll-call vote was necessary, the vote by the Agency on these rulemaking hearing rules was as follows:

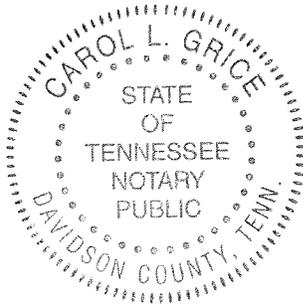
Board Member	Aye	No	Abstain	Absent	Signature (if required)
<b>Marty Calloway</b> (Petroleum Business with at least 15 Underground Storage Tanks)	X				
<b>Stacey Cothran</b> (Solid/Hazardous Waste Management Industry)	X				
<b>Kenneth L. Donaldson</b> (Municipal Government)				X	
<b>Dr. George Hyfantis, Jr.</b> (Institution of Higher Learning)	X				
<b>Bhag Kanwar</b> (Single Facility with less than 5 Underground Storage Tanks)	X				
<b>Alan M. Leiserson</b> Environmental Interests	X				
<b>Jared L. Lynn</b> (Manufacturing experienced with Solid/Hazardous Waste)	X				
<b>David Martin</b> (Working in a field related to Agriculture)	X				
<b>Beverly Philpot</b> (Manufacturing experienced with Underground Storage Tanks/Hazardous Materials)	X				
<b>DeAnne Redman</b> (Petroleum Management Business)	X				
<b>Mayor A. Franklin Smith, III</b> (County Government)				X	
<b>Mark Williams</b> (Small Generator of Solid/Hazardous Materials representing Automotive Interests)	X				

I certify that this is an accurate and complete copy of rulemaking hearing rules, lawfully promulgated and adopted by the Underground Storage Tanks and Solid Waste Disposal Control Board on 08/05/2015, and is in compliance with the provisions of T.C.A. § 4-5-222.

I further certify the following:

Notice of Rulemaking Hearing filed with the Department of State on: 12/08/14

Rulemaking Hearing(s) Conducted on: (add more dates). 02/10/15



Date: August 5, 2015

Signature: Stacey Cothran

Name of Officer: Stacey Cothran

Title of Officer: Board Chair

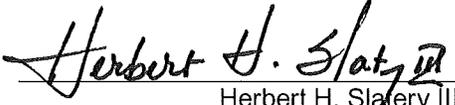
Subscribed and sworn to before me on: August 5, 2015

Notary Public Signature: Carol L. Grice

My commission expires on: June 21, 2016

Rules of the Board of Underground Storage Tanks and Solid Waste Disposal Control Board  
Chapter 0400-11-01 Solid Waste Processing and Disposal  
Rule 0400-11-01-.01 Solid Waste Disposal Control System: General  
Rule 0400-11-01-.02 Permitting of Solid Waste Storage, Processing, and Disposal Facilities  
Rule 0400-11-01-.11 Requirements for Compost and Composting Facilities

All rulemaking hearing rules provided for herein have been examined by the Attorney General and Reporter of the State of Tennessee and are approved as to legality pursuant to the provisions of the Administrative Procedures Act, Tennessee Code Annotated, Title 4, Chapter 5.

  
Herbert H. Slatery III  
Attorney General and Reporter  
4/6/2016  
Date

**Department of State Use Only**

Filed with the Department of State on: 4/8/16

Effective on: 7/7/16

  
Tre Hargett  
Secretary of State

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PUBLICATIONS

## Public Hearing Comments

One copy of a document containing responses to comments made at the public hearing must accompany the filing pursuant to T.C.A. § 4-5-222. Agencies shall include only their responses to public hearing comments, which can be summarized. No letters of inquiry from parties questioning the rule will be accepted. When no comments are received at the public hearing, the agency need only draft a memorandum stating such and include it with the Rulemaking Hearing Rule filing. Minutes of the meeting will not be accepted. Transcripts are not acceptable.

1. Comment: The analysis and testing should be expanded to include such common constituents of mixed solid wastes and biosolids as antibiotics, hormone mimicking compounds, pesticides, and hydrocarbons. Such materials occur not infrequently in the afore-mentioned waste categories and would not be suitable for land application to home environments.

Response: The Department does not agree. Testing for antibiotics, hormone mimicking compounds, pesticides, hydrocarbons and several other constituents are not referenced in the US Composting Council's Model Compost Rule Template from which much of this rule revision was derived. However, the Department of Environment and Conservation (Department) has examined these issues and concluded that antibiotics degradation is sped up through the composting process while uptake of these compounds from food crops is limited. Similar conclusions were found for hormone mimicking compounds and pesticides. Some herbicides are persistent through the composting process but are not readily found in municipal solid waste and biosolids. Composting also neutralizes many of the hydrocarbons in contaminated feedstocks as the microorganisms are able to use limited amounts of the carbon as an energy source.

2. Comment: We find the proposed rule changes to conflict with both the Water Quality Control Act and the Tennessee's Right-To-Farm Act in T.C.A. §§ 43-26-101 et seq. and ask that the proposed amendments reflect those allowances as already established for agriculture in these statutes. Noise, dust, and odors from a compost operation on a farm cannot be separated from the rest of the farm operation. All farm operations have noise, dust, and odors. This language is ambiguous regarding farm operations and provides very little guidance for farmers or department staff regulating solid waste. We would ask the department to leave the current language in the rules which reflects that normal farming operations are not included in a solid waste regulation that is clearly designed for a different purpose.

Response: The Department agrees and has concluded that Rule 0400-11-01-.11(1)(b)3(ii)(III): "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" should be deleted to further clarify the Department's intent to exempt agricultural operations.

3. Comment: We are concerned about the language and potential interpretations regarding dust and odors which could constitute a nuisance. Specifically the threshold levels have been or will be outlined and given as guidance to TDEC employees who are called to do a site visit due to a complaint? When would an operation be determined to be categorized as operating or managing composting materials in such a way that it be considered a nuisance? What acceptable level of dust and or odors would constitute a nuisance?

Response: Dust control is universally addressed for all permitted composting operations in Rule 0400-11-01-.11(2)(a)2(iv). A description of odor control measures is required within the Narrative Description of the Facility and Operation during the permitting process, Rule 0400-11-01-.11(5)(c). If an odor or dust issue is reported to the Tennessee Department of Environment and Conservation (TDEC) through a complaint, the Department will conduct an inspection of the facility to determine if the complaint is valid. If the inspector determines the complaint has merit, the inspector will examine the facility to make sure it is operating within its permitted conditions and will also determine the reason for the odor or dust problem. Often odor problems will arise with improper composting operations that produce anaerobic rows or piles of wet materials that have insufficient bulking material. It is generally cost prohibitive to require composting facilities to track odors with scientific instruments, while the accuracy is complicated by changing wind direction and intensity. Dust management is not typically an issue associated with composting facilities except from those associated with wood grinding operations and from dry roads.

4. Comment: Rule 0400-11-01-.11(2)(a)1(x) Buffer Zone Standards for Siting New Facilities - All waste management areas shall be located so as to conform to the distance standards at subparagraph (3)(a) of Rule 0400-11-01-.04. The buffer standards for compost facilities are the same for Class I, II, III, and IV landfills, but compost facilities do not present the same degree of risk to human health and the environment as do solid waste landfills. Could buffer distances specific to compost facilities be considered? Could the waste management areas of compost facilities be more specifically defined as including such areas as raw feedstock receiving areas and the windrow area but not include stockpiles of mulch? There should be a tiered approach to set back requirements in alignment with the Tier 1, 2 and 3 type feedstocks. A tier 3 facility may require the current setback requirements, where as a Tier 2 and Tier 1 facility would be correspondingly less stringent.

Response: Rule 0400-11-01-.04 states that the buffers zones be measured from the fill area, where fill area is defined as the "area containing waste..." In a composting operation this area would be measured from the footprint of the composting rows or piles and feedstock staging areas. The buffer would not be measured from the location of the curing piles or the location of the finished compost product. The Department feels the buffer conditions are appropriate.

5. Comment: Current financial assurance requirements are based on landfill regulations. Requirements for financial assurance and facility closure in this scenario could be improved to be more commensurate with a compost facility operation versus a solid waste landfill. We propose that the type of facility operations dictates the time frame for continuous operation following default or departure of the facility operator. For example an open windrow system would require 4 months of operational capital to process raw materials into a stable product that can be land applied. This would eliminate the need to landfill a valuable material. The material could also be sold, used by the state on state property or given away to the public. This is a more cost effective and more environmentally friendly method than hauling material in various stages of processing to a landfill.

Response: Financial assurance for each permit will be calculated based on closure plans and cost estimates provided by the applicant. The Department cannot depend on locating and funding an operations team to work compost for four months in the event of a permit default. In the event of a permit default, the Department would look for the lowest cost solution most in line with the Department's goals of sound environmental stewardship. However, the financial assurance amount must take into consideration the worst case scenario where the material would need to be hauled offsite and properly disposed of.

6. Comment: A time line should be given in the curing process.

Response: The time it takes for compost to cure can be highly variable based on issues such as quantity, feedstock, location, and climatological factors, among others. The Department feels that mandating a timeline for the curing process is too prescriptive to encompass all types of composting operations and conditions.

7. Comment: The definition of windrow should be changed from piles to rows.

Response: The Department agrees and has changed the definition to include rows instead of piles.

8. Comment: Local fire departments should be trained on how to extinguish a fire at such facilities. Distance from the closest fire station to such a facility should be documented.

Response: The rule package carries over language from the existing rules stating that the facility shall acquire local firefighting services if available; this can be found in subpart (2)(a)2(ii) of Rule 0400-11-01-.11, "Fire Safety". This includes ensuring that the local firefighting services are aware of the nature of the ongoing operations at the permitted facility. Adding training requirements for fire departments is outside of TDEC's jurisdiction.

9. Comment: Certification should have expiration. One should have to keep up his or her earned credits.

Response: At this time, we feel the number of composting certification opportunities are limited enough that a strict certification program is not feasible for all operations. Therefore, Rule 0400-11-01-.11(2)(a)2(vi) only requires operators to go through a training program.

10. Comment: Nothing states that managers are required to show documentation of non-finished compost. Compost facility managers should have to keep records of their temps to prove PFRP has been completed.

Response: The Department agrees and has added this requirement to subparagraph (4)(e) of Rule 0400-11-01-.11, "Temperatures measurements throughout the composting process demonstrating that PFRP has been met is applicable."

11. Comment: In regard to tier three operations the rules should distinguish between Class A biosolid and proper application verses Class B biosolid and proper application.

Response: As long as the finished product contains pathogen and metal concentration levels that are below the listed maximums then the classification of the initial material has negligible bearing. Generally Class A biosolids are a designation for dewatered and treated sewage sludge that meets U.S. EPA guidelines for land application with no restrictions, so these are rarely composted. The Department consciously placed any operation processing biosolids into the Tier Three category with stricter requirements due to the diverse nature of the feedstock.

12. Comment: In regard to tier three operations and sewage sludge; what percentage of this feedstock is acceptable for the composting purposes? To what application will this product be used for?

Response: Feedstock ratios are individually determined by each permitted facility. The Department is concerned with the composition of the finished product, which must be below the listed maximums for metals and pathogens found in the testing requirements under Rule 0400-11-01-.11(3). If the finished product comes in under the maximum concentrations, then there are no restrictions for the initial feedstock percentages. Regarding application of the product, if the finished compost produced from sludge feedstock components is stable and fully matured; meaning that microbial activity and decay are complete, and if the metal and pathogen levels are in compliance with Rule 0400-11-01-.11(3), then there is no specific restriction on compost use/application provided it does not violate any other environmental laws or regulations.

13. Comment: We are very concerned that encouraging composting of non-organic waste including televisions, radios, and e-waste will compromise the quality and reputation of compost from the State of Tennessee. This has already happened in Sevierville which is a massive composting facility which is basically a composting landfill. The presence of glass severely compromises the quality and marketability of the compost.

Response: The Sevierville operation is a Tier III composting facility, but the vast majority of compost operations will not qualify for Tier III status. Operations that both qualify and choose to compost waste streams that have the potential for contamination from either e-scrap or glass must specifically outline, in their permit conditions, how they will manage that waste so that it does not end up in the finished product or contaminating the finished product.

14. Comment: We support exclusive use of decomposing organic material in compost produced in our state. Industrial by-products and "Mixed solid waste" should be avoided. Under current policy, there is very little "source separated organics" in Tennessee.

Response: The Department agrees that the best composting operations will use only organic feedstocks with nutrient ratios that will produce usable products without contaminants and pathogens. Composting waste streams, such as mixed solid waste, that contain organics can offer an environmentally sensible approach to reducing materials that contribute to landfill leachate generation.

15. Comment: Biosolids are allowed in Tier 3. We question use of chemically laden human waste.

Response: While Class A biosolids require no further treatment before land application, composting is a

viable method to reduce pathogens in Class B biosolids. According to the EPA, the use of biosolids in the production of crops for human consumption when practiced in accordance with federal guidelines presents negligible risks to the consumer.

16. Comment: Tier 1 has temperature requirements, Tier 2 and 3 do not. Should they?

Response: "Facility Standards", Rule 0400-11-01-.11(2) states that Tier Two and Tier Three composting facilities have all the requirements of a Tier One composting facility, including all Tier One temperature conditions.

17. Comment: Tier 1 has no record keeping requirements but should since we are require such items as proper temperature.

Response: Tier 1 record requirements are outlined in Rule 0400-11-01-.11(4) "Records".

18. Comment: Temperatures should be stated in Fahrenheit, not Celsius to avoid confusion.

Response: The Department agrees and Fahrenheit conversions have been included.

19. Comment: Definition of biosolids is less stringent than definition in Biosolids Rule 0400-40-15-.01.

Response: The Department agrees and has adopted the definition of Biosolids consistent with Rule 0400-40-15-.01(8).

20. Comment: In Rule 0400-11-01-.11(1)(b)1, the last sentence appears to allow no fee for facilities that change their operation in the future.

Response: The Department agrees that this should only apply to current operations. The phrase "facilities which already have permit-by-rule" has been added to clarify this point.

21. Comment: In Rule 0400-11-01-.11(1)(b)1, change cross reference to paragraph (1) of Rule 0400-11-01-.02.

Response: The Department feels that cross referencing paragraph (3) is more applicable to Rule 0400-11-01-.11(1)(b)1 since it relates to permit application requirements.

22. Comment: In Rules 0400-11-01-.11(1)(b)4 and 5, add "only" in first sentence of both.

Response : The Department agrees that this clarification is appropriate and has added the word "only" to the first sentence in both part 4 and part 5 of Rule 0400-11-01-(1)(b)..

23. Comment: In Rule 0400-11-01-.11(1)(b)6, the use of the terms lower level of risk and higher level of risk seems contradictory.

Response: The Department agrees and has modified the language by removing the term "higher level of risk". In addition, part 6 was restructured to better explain what types of materials may be processed at a facility.

24. Comment: In Rule 0400-11-01-.11(2)(a)2(v), change cross reference to paragraph (1) of Rule 0400-11-01-.02.

Response: The Department agrees and has changed the cross reference.

25. Comment: In rule 0400-11-01-.11(2)(a)2(v), change second sentence to read: "Such financial assurance shall be in an amount determined by the Commissioner to be adequate to insure 30 days operation and proper closure of the facility."

Response: The Department agrees with this clarification and has modified subpart (2)(a)2(v) of Rule 0400-11-01-.11 to read, "Such financial assurance shall be in an amount determined by the Commissioner to be adequate to insure 30 days operation and proper closure of the facility".

26. Comment: In Rule 0400-11-01-.11(2)(a)2(vii), add requirement to submit CFOP to TDEC 30 days prior to making change in feedstock.

Response: The Department agrees that including language requiring the submittal of a Composting Facility Operations Plan will make it clear that changes in operation or feedstock must be evaluated by the Department and has modified the subpart to reflect this. However, a timeframe was not included to allow for some latitude in operations.

27. Comment: In Rule 0400-11-01-.11(2)(a)2(xv), should closure process include release of financial assistance?

Response: The process for release of financial assurance is found in subparagraph (3)(i) of Rule 0400-11-01-.03 "Maintenance/Release of Financial Assurance, and does not need to be repeated here.

28. Comment: In Rule 0400-11-01-.11(2)(b)2(ii), require all composting at Type 1 facilities to be conducted on the all-weather pad. The language now states, "All composting at Tier One composting facilities shall be conducted on an all-weather composting pad".

Response: The Department agrees and has modified the language to clarify the use of an all- weather pad for Tier I facilities.

29. Comment: In Rule 0400-11-01-.11(2)(b)2(ii)(I), clarify that item (III) is an exception to item (I) by starting in item (I) with, "Except as provided in item (III),..."

Response: The Department agrees and has modified item (I) to state: "Except as provided in item (III) of this subpart".

30. Comment: In Rule 0400-11-01-.11(2)(d)3(i), cite Chapter 0400-40-15 rather than federal rules on biosolids.

Response: The Department agrees that the recent State rules are more appropriate to cite and has modified the language to reflect this recommendation.

31. Comment: In Rule 0400-11-01-.11(2)(d)3(i), since there are applicable requirements in the biosolids rules that concern more than "sludge management", this sentence should be changed to, "Facilities that compost biosolids or sewage sludge shall comply with all applicable regulations regarding biosolids and sewage sludge in Rule Chapter 0400-40-15."

Response: The Department agrees and has modified the language to reflect this recommendation.

32. Comment: In Rule 0400-11-01-.11(1)(b)4, change "clean wood" to "woody material" to match definitions

Response: The Department agrees and has replaced "clean wood" with "woody material".

33. Comment: In Rule 0400-11-01-.11(2)(b)2(ii)(II), clarify the "the first 5 feet" by adding "of the surface"

Response: The Department agrees and has modified the language to "the first 5 feet of the surface".

### Regulatory Flexibility Addendum

Pursuant to T.C.A. §§ 4-5-401 through 4-5-404, prior to initiating the rule making process as described in T.C.A. § 4-5-202(a)(3) and T.C.A. § 4-5-202(a), all agencies shall conduct a review of whether a proposed rule or rule affects small businesses.

This proposed rule revision is based on the Model Compost Rule Template as set forth by the U.S. Composting Council, 5400 Grosvenor Lane, Bethesda, MD 20814. The template is a compilation of composting information submitted by industry and regulatory leaders across the nation, including the U.S. EPA, who participated in the development of the model rule template. The revision is based on a three-tier facility classification with specific feedstocks that are used at the different tier levels. This revision provides better composting practices and composting opportunities for our State on a local level.

- (1) The type or types of small business and an identification and estimate of the number of small businesses subject to the proposed rule that would bear the cost of, or directly benefit from the proposed rule.

Small business which compost large quantities of materials from outside sources as part of their operations will be required to obtain a permit. There are currently five or fewer of these businesses identified.

- (2) The projected reporting, recordkeeping, and other administrative costs required for compliance with the proposed rule, including the type of professional skills necessary for preparation of the report or record.

Permitted facilities under these rule changes will have to maintain a Composting Facility Operations Plan in addition to the initial permit application. The facility will also be required to document such items as feedstocks and windrow temperatures. The documents can be maintained without specialty professional skill by a qualified composting facility manager.

- (3) A statement of the probable effect on impacted small businesses and consumers.

The proposed rules have minimal effect on small business. Some small businesses will qualify for exemptions. Small business operations that require permits under these rule changes would require a permit under existing rules. Fee structures have not changed.

- (4) A description of any less burdensome, less intrusive or less costly alternative methods of achieving the purpose and objectives of the proposed rule that may exist, and to what extent the alternative means might be less burdensome to small business.

There are no less burdensome, less intrusive or less costly alternatives to achieving the purpose and objectives of this proposed rule.

- (5) A comparison of the proposed rule with any federal or state counterparts.

These rules are based on the Model Compost Rule Template as set forth by the U.S. Composting Council. Currently three other states; Maryland, Georgia and South Carolina have adopted rules based on the template. Other states are expected to follow in the future.

- (6) Analysis of the effect of the possible exemption of small businesses from all or any part of the requirements contained in the proposed rule.

Agricultural small businesses are exempt under most conditions. Small businesses that compost their own waste streams on site will often be exempted. Small businesses that compost 400 cubic yards of type one feedstock, or 50 cubic yards of type two feedstock openly, or 100 cubic yards in-vessel will be exempted.

## **Impact on Local Governments**

Pursuant to T.C.A. §§ 4-5-220 and 4-5-228 “any rule proposed to be promulgated shall state in a simple declarative sentence, without additional comments on the merits of the policy of the rules or regulation, whether the rule or regulation may have a projected impact on local governments.” (See Public Chapter Number 1070 (<http://state.tn.us/sos/acts/106/pub/pc1070.pdf>) of the 2010 Session of the General Assembly)

The Department anticipates that there will be a positive impact on local governments.

## Additional Information Required by Joint Government Operations Committee

All agencies, upon filing a rule, must also submit the following pursuant to T.C.A. § 4-5-226(i)(1).

- (A) A brief summary of the rule and a description of all relevant changes in previous regulations effectuated by such rule;

This rulemaking primarily revises Rule 0400-11-01-.11 Requirements for Compost and Composting Facilities. This proposed rule revision is based on the Model Compost Rule Template as set forth by the U.S. Composting Council, 5400 Grosvenor Lane, Bethesda, MD 20814. The template is a compilation of composting information submitted by industry and regulatory leaders across the nation who participated in the development of the model rule template. The revision is based on a three-tier facility classification with specific feedstocks that are used at the different tier levels. This revision provides better composting practices and composting opportunities for our State on a local level. Revisions to Rules 0400-11-01-.01 and 0400-11-01-.02 are being made to support the changes in Rule 0400-11-01-.11.

- (B) A citation to and brief description of any federal law or regulation or any state law or regulation mandating promulgation of such rule or establishing guidelines relevant thereto;

These rules are being promulgated under the authority of T.C.A. §§ 68-211-101 et seq.

- (C) Identification of persons, organizations, corporations or governmental entities most directly affected by this rule, and whether those persons, organizations, corporations or governmental entities urge adoption or rejection of this rule;

Environmental citizen groups, neighborhood food co-ops and some educational institutions have urged adoption of this rule as it allows for permit exemptions for small scale composting operations which take in feedstocks from multiple locations. Currently permitted composting facilities will have to modify existing permits to come into line with these new regulations; however less than five facilities will be affected. Most local governments that wish to begin operations that fall into Tier One and Tier Two categories should find obtaining a permit to be less difficult than in the past.

- (D) Identification of any opinions of the attorney general and reporter or any judicial ruling that directly relates to the rule;

The Department is not aware of any opinions or judicial rulings that directly relate to this rule.

- (E) An estimate of the probable increase or decrease in state and local government revenues and expenditures, if any, resulting from the promulgation of this rule, and assumptions and reasoning upon which the estimate is based. An agency shall not state that the fiscal impact is minimal if the fiscal impact is more than two percent (2%) of the agency's annual budget or five hundred thousand dollars (\$500,000), whichever is less;

The Department will collect \$1000 in application processing fees for each new permit. The permits will also net an additional \$3000 in annual maintenance fees for each facility; however many facilities are expected to qualify for an annual maintenance fee exemption if they beneficially use 75% of their feedstock and request the exemption. The Department expects only 1 to 3 new permit applications per year. The Department expects a mix of government and private sector applicants. The Department expects any local government sponsored permitted facility to experience some cost saving from their normally incurred disposal expenses by diverting material towards composting operations and possibly generate some revenue from the sale of finished compost.

- (F) Identification of the appropriate agency representative or representatives, possessing substantial knowledge and understanding of the rule;

Nick Lytle  
Division of Solid Waste Management  
William R. Snodgrass Tennessee Tower  
312 Rosa L. Parks Avenue, 14th Floor  
Nashville, Tennessee 37243  
[nickolaus.lytle@tn.gov](mailto:nickolaus.lytle@tn.gov)

- (G) Identification of the appropriate agency representative or representatives who will explain the rule at a scheduled meeting of the committees;

Jenny Howard  
Deputy General Counsel  
Office of General Counsel

- (H) Office address, telephone number, and email address of the agency representative or representatives who will explain the rule at a scheduled meeting of the committees; and

Office of General Counsel  
Tennessee Department of Environment and Conservation  
William R. Snodgrass Tennessee Tower  
312 Rosa L. Parks Avenue, 2nd Floor  
Nashville, Tennessee 37243  
(615) 532-8685  
[Jenny.Howard@tn.gov](mailto:Jenny.Howard@tn.gov)

- (I) Any additional information relevant to the rule proposed for continuation that the committee requests.

The Department is not aware of any additional relevant information.

Redline

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Nashville, TN 37243  
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For Department of State Use Only

Sequence Number: \_\_\_\_\_  
Rule ID(s): \_\_\_\_\_  
File Date: \_\_\_\_\_  
Effective Date: \_\_\_\_\_

## Rulemaking Hearing Rule(s) Filing Form

Rulemaking Hearing Rules are rules filed after and as a result of a rulemaking hearing (Tenn. Code Ann. § 4-5-205).

Pursuant to Tenn. Code Ann. § 4-5-229, any new fee or fee increase promulgated by state agency rule shall take effect on July 1, following the expiration of the ninety (90) day period as provided in § 4-5-207. This section shall not apply to rules that implement new fees or fee increases that are promulgated as emergency rules pursuant to § 4-5-208(a) and to subsequent rules that make permanent such emergency rules, as amended during the rulemaking process. In addition, this section shall not apply to state agencies that did not, during the preceding two (2) fiscal years, collect fees in an amount sufficient to pay the cost of operating the board, commission or entity in accordance with § 4-29-121(b).

<b>Agency/Board/Commission:</b>	Environment and Conservation
<b>Division:</b>	Solid Waste Management
<b>Contact Person:</b>	Nick Lytle
<b>Address:</b>	William R. Snodgrass Tennessee Tower 312 Rosa L. Parks Avenue, 14th Floor Nashville, Tennessee
<b>Zip:</b>	37243
<b>Phone:</b>	(615) 532-8004
<b>Email:</b>	<a href="mailto:nickolaus.lytle@tn.gov">nickolaus.lytle@tn.gov</a>

**Revision Type (check all that apply):**

- Amendment
- New
- Repeal

**Rule(s) Revised (ALL chapters and rules contained in filing must be listed here. If needed, copy and paste additional tables to accommodate multiple chapters. Please enter only ONE Rule Number/Rule Title per row)**

Chapter Number	Chapter Title
0400-11-01	Solid Waste Processing and Disposal
Rule Number	Rule Title
0400-11-01-.01	Solid Waste Disposal Control System: General
0400-11-01-.02	Permitting of Solid Waste Storage, Processing, and Disposal Facilities
0400-11-01-.11	Requirements for Compost and Composting Facilities

(Place substance of rules and other info here. Statutory authority must be given for each rule change. For information on formatting rules go to <http://state.tn.us/sos/rules/1360/1360.htm>)

## Amendments

### Chapter 0400-11-01 Solid Waste Processing and Disposal

Paragraph (2) of Rule 0400-11-01-.01 Solid Waste Disposal Control System: General is amended by deleting the definitions for "Board," "Compost disinfection," "Foreign matter," "Manure," "Mesophilic stage," "Normal farming operations," "Stabilized" and Thermophilic stage."

~~"Board" means the Tennessee Solid Waste Disposal Control Board established by T.C.A. § 68-211-111.~~

~~"Compost disinfection" means the selective destruction of pathogens indicated by a reduction in indicator organisms to less than or equal to 1000 fecal coliform most probable number per gram of volatile suspended solid where the organic solid waste was maintained at or above 55° C (= 131° F) for three consecutive days in a mechanical composter or in an aerated, insulated static pile, or for 15 cumulative days in an aerated windrow with at least one turning or a nonaerated windrow with at least four turnings of the windrow.~~

~~"Foreign matter" means the inorganic and organic constituents in a solid waste stream that are not readily decomposed and that may be present in the compost. For purposes of this rule, foreign matter is metals, glass, plastics, rubber, bones, leather, and other similar materials, but does not include sand, grit, rocks or other similar materials.~~

~~"Manure" means a solid waste composed of excreta of herbivorous domestic animals, and residual materials that have been used for bedding, sanitary or feeding purposes for such animals.~~

~~"Mesophilic stage" means a biological stage in the composting process characterized by active bacteria which favor a moderate temperature range of 20° C to 45° C. It occurs later in a composting process after the thermophilic stage and is associated with a moderate rate of decomposition.~~

~~"Normal farming operations" means the customary and generally accepted activities, practices and procedures that farmers adopt use or engage in during the production and preparation for market of poultry, livestock, and associated farm products; and in the production and harvesting of agricultural crops which include agronomic, horticultural, and silvicultural crops. Included is the management, collection, storage, composting, transportation and use of organic agricultural waste, manure, and wastes solely derived from agricultural crops.~~

~~"Stabilized" means that the compost has at least passed through the thermophilic stage, and that biological decomposition of the solid waste has occurred to a sufficient degree that will allow beneficial use.~~

~~"Thermophilic stage" means a biological stage in the composting process characterized by active bacteria which favor a high temperature range of 45° C to 75° C. It occurs early in a composting process before the mesophilic stage and is associated with a high rate of decomposition.~~

Authority: T.C.A. §§ 68-211-101 et seq., 68-211-701 et seq., 68-211-801 et seq. and 4-5-201 et seq.

Paragraph (2) of Rule 0400-11-01-.01 Solid Waste Disposal Control System: General is amended by deleting the definition of "Compostable material" in its entirety and substituting instead the following:

"Compostable material" means solid organic waste that may be decomposed under controlled conditions by micro-organisms under aerobic or anaerobic conditions which result in a stable humus-like material free of pathogenic organisms (e.g., food wastes, yard wastes, and low moisture content wastewater sludge).

Authority: T.C.A. §§ 68-211-101 et seq., 68-211-701 et seq., 68-211-801 et seq. and 4-5-201 et seq.

Paragraph (2) of Rule 0400-11-01-.01 Solid Waste Disposal Control System: General is amended by adding the following definitions in alphabetical order:

"Aerated static pile composting" means a 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 (131°F) for a minimum of 3 days.

"Agricultural residuals" means 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.

"Biosolids" means treated sewage sludge that have contaminant concentrations less than or equal to the contaminant concentrations listed in Table 1 of subparagraph (3)(b) of Rule 0400-40-15-.02, meet any one of the ten vector attraction reduction options listed in part (4)(b)1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 of Rule 0400-40-15-.04, and meet either one of the six pathogen reduction alternatives for Class A listed in part (3)(a)3, 4, 5, 6, 7, or 8, or one of the three pathogen reduction alternatives for Class B listed in part (3)(b)2, 3, or 4 of Rule 0400-40-15-.04.

"Board" means the Tennessee Underground Storage Tanks and Solid Waste Disposal Control Board established by T.C.A. § 68-211-111.

"Capacity" means the amount of material, in tons or cubic yards, a compost facility can hold at any one time. Includes feedstocks, actively composting and curing material, and final product storage.

"Certificate of completion" means a document issued by a certifying organization stating that the compost facility operations manager has met the requirements for the specified operations manager program.

"Composting pad" means the 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.

"Contact water" means 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.

"Crop residues" means 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" means 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.

"Food processing residuals" means 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.

"Industrial by-product" means materials generated by manufacturing or industrial processes that are non-toxic, non-hazardous, contain no domestic wastewater, and pass the paint filter test (Method 9095B).

"In-vessel composting" means a 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.

"Mixed solid waste" means a mixture of organic and inorganic discards and may contain household and other municipal solid wastes that are excluded from regulation as hazardous wastes.

"Source separated organics" means 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" means the 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.

"Throughput" means the amount of material, not to include bulking agents, in tons or cubic yards, a facility can process in a given amount of time.

"Windrow composting" means a process in which decomposing organic materials are placed in long rows for the purpose of producing compost. The rows are periodically turned or agitated to assure all parts of the decomposing material reach the desired stability.

"Woody material" means 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.

"Yard trimmings" means 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.

Authority: T.C.A. §§ 68-211-101 et seq., 68-211-701 et seq., 68-211-801 et seq. and 4-5-201 et seq.

Subparagraph (a) of paragraph (2) of Rule 0400-11-01-.02 Permitting of Solid Waste Storage, Processing, and Disposal Facilities is amended by adding a new part 7 to read as follows:

7. A Tier One composting facility, if:
- (i) The operator complies with the notification requirements of subparagraph (b) of this paragraph;
  - (ii) The operator attaches to his notification all attachments required in the Composting Facility Operation Plan by subpart (2)(a)2(vii) of Rule 0400-11-01-.11; and
  - (iii) The facility is designed and operated in compliance with Rule 0400-11-01-.11.

Authority: T.C.A. §§ 68-211-101 et seq., 68-211-701 et seq., 68-211-801 et seq. and 4-5-201 et seq.

Rule 0400-11-01-.11 Requirements for Compost and Composting Facilities is amended by deleting it in its entirety and substituting instead the following:

#### Rule 0400-11-01-.11 Requirements for Compost and Composting Facilities

(1) General

(a) Purpose - The purpose of this rule is to establish procedures, documentation, and other requirements which must be met in order for a person to operate a composting facility ~~or offer for sale compost~~ in Tennessee.

(b) Scope/Applicability

1. The requirements of this rule apply as specified to operators of composting facilities in Tennessee. Except as specifically provided elsewhere in these rules, no facility may

compost solid waste without a permit as provided in paragraph (3) of Rule 0400-11-01-.02. Composting facilities, subject to a full permit on the effective date of this rule, must submit a part I and part II permit application to describe how it will comply with this rule. The application must be filed within 180 days of the effective date of this rule and implemented upon approval. The Division will not charge an application fee, nor require public notice of the application for facilities which already have permit-by-rule for composting.

~~2. Compost produced from the solid waste classification criteria outside the State of Tennessee, which is used or sold for use within the state, shall comply with subparagraphs (4)(a), (b) and (c) of this rule.~~

~~3.2. Composting facilities that process domestic biosolids or sewage sludge as a feedstock shall also comply with all other applicable federal or state laws regarding sludge management.~~

~~4.3. The following facilities or activities are not subject to the requirement to have a permit.~~

~~(i) Backyard composting and the resulting compost;~~

~~(ii) Normal farming operations. For the purpose of this rule, composting of only landscaping/land clearing waste, hereafter referred to as landscaping waste, or manure by persons on their own property for their own use on that property as part of agronomic or horticultural operations will be considered normal farming operations; Animal and crop production operations that compost yard trimmings, agricultural residuals, mortalities, woody materials, and/or food scraps provided that the following conditions are met:~~

~~(I) 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, mortalities, food scraps, and woody materials are generated;~~

~~(II) The composting facility is located on property owned or leased by the animal or crop production operation;~~

~~(III) All compost produced is utilized exclusively at an animal or crop production operation;~~

~~(iii) Any composting facility with a throughput of less than 400 cubic yards of Type 1 feedstock during any calendar year;~~

~~(iv) Any composting facility with a throughput of less than 50 cubic yards of Type 2 feedstock during any calendar year; and~~

~~(v) Any composting facility with a throughput of less than 100 cubic yards of Type 2 feedstock in any calendar year using an in-vessel composting method.~~

~~4. A Tier One composting facility may only process Type 1 feedstocks. Type 1 feedstocks include source separated yard trimmings, woody material, 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.~~

~~5. A composting facility processing up to 10,000 cubic yards per year of only landscaping waste and manure may receive a permit pursuant to paragraph (2) of Rule 0400-11-01-.02 Permits by Rule, for Solid Waste Processing. A Tier Two composting facility may only process Type 1 and/or Type 2 feedstocks. Type 2 feedstocks include agricultural residuals, source-separated organics, and food processing residuals and industrial by-products as approved by the Department. Type 2 feedstocks are materials that the Department determines to pose a low level of risk to human health and the environment~~

despite having more physical contaminants and human pathogens than Type 1 feedstocks.

6. A composting facility processing only landscaping waste may receive a permit pursuant to paragraph (2) of Rule 0400-11-01-.02 Permits by Rule, for Solid Waste Processing. A Tier Three composting facility may process Type 1, Type 2 and/or Type 3 feedstocks. Type 3 feedstocks include mixed solid waste, diapers, sewage sludge, biosolids, and industrial by-products and food processing residuals not covered in Type 2. They also include other materials the Department determines to pose a low level of risk to human health and the environment despite having more physical contaminants and human pathogens than Types 1 and Type 2 feedstocks.
7. A processing facility composting sewage sludge that is one acre or less in size may apply for a permit by rule pursuant to paragraph (2) of Rule 0400-11-01-.02. Tier One composting facilities may apply for a permit by rule pursuant to part (2)(a)7 of Rule 0400-11-01-.02.
8. No waste defined as hazardous waste under subparagraph (1)(c) of Rule 0400-12-01-.02 may be received for composting. Feedstocks containing industrial by-products, sewage sludge or biosolids are subject to a hazardous waste determination, in accordance with subparagraph (1)(b) of Rule 0400-12-01-.03, and must be approved in writing by the Division before being accepted at the facility.

(2) General Facility Standards - Unless specifically noted otherwise, the standards of this paragraph shall apply to all compost facilities subject to a permit as provided at paragraph (3) of Rule 0400-11-01-.02 and Tier One permit by rule facilities.

(a) Performance General Facility Design and Operating Standards —The facility must be located, designed, constructed, and maintained, and closed in such a manner as to minimize to the extent practicable:

1. The propagation, harborage, or attraction of birds, flies, rodents, or other vectors; All compost facilities shall meet the following design standards in order to operate in a manner that is protective of human health and the environment:

(i) The feedstock receiving, processing and storage areas must be clearly defined and the maximum throughput and capacity specified.

(ii) 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.

(iii) Contact Water Collection

(I) The facility shall have a contact water collection system that is properly managed.

(II) Contact water shall be reused in the process or otherwise properly managed as per all applicable laws and rules.

(f)(iv) Litter Control - Fencing and/or other control shall be provided to confine loose waste to the area designated for storage or processing; Accidental dispersal from the designated areas shall be recovered daily.

(g)(v) Personnel Facilities - There shall be provided:

4.(I) A building or other shelter which is accessible to facility personnel which has adequate heating and light.

~~2.~~(ll) Potable water for washing and drinking.

~~3.~~(lll) Toilet facilities.

~~(+)~~(vi) Operating Equipment - The facility shall have on-site operational and monitoring equipment capable of maintaining the waste processing as designed.

~~(+)~~(vii) Endangered Species - Facilities shall be located, designed, constructed, operated, maintained, closed, and cared for during the post-closure care period in a manner that does not:

~~4.~~(l) Cause or contribute to the taking of any endangered or threatened species of plants, fish, or wildlife; or

~~2.~~(ll) Result in the destruction or adverse modification of the critical habitat of endangered or threatened species.

~~(m)~~(viii) Location in Floodplains- Facilities shall not be located in a 100-year floodplain, unless the demonstration is made to the Commissioner as required at subparagraph (2)(n) of Rule 0400-11-01-.04.

~~(n)~~(ix) Wetlands - The facility shall not be located in a wetland unless the demonstration is made to the Commissioner as required at subparagraph (2)(p) of Rule 0400-11-01-.04.

~~(3)~~(x) Buffer Zone Standards for Siting New Facilities - All waste management areas shall be located so as to conform to the distance standards at subparagraph (3)(a) of Rule 0400-11-01-.04.

2. ~~The potential for releases of solid waste, solid waste constituents, or other potentially harmful material to the environment except in a manner authorized by state law; All compost facilities shall meet the following operational standards:~~

~~(i)~~ Contingency operations shall identify proper management of all waste in the event of equipment failure, facility disaster, or receipt of unauthorized material such as oil, hazardous waste, etc.

~~(e)~~(ii) Fire Safety

~~4.~~(l) No open burning is allowed.

~~2.~~(ll) The facility shall have, on-site and continuously available, properly maintained fire suppression equipment capable of controlling accidental fires. If available, local firefighting service shall be acquired.

~~(h)~~(iii) Communication - The facility shall have available during operating hours equipment capable of summoning emergency assistance as needed.

~~(+)~~(iv) Dust Control - The operator must take dust control measures as necessary to prevent dust from creating a nuisance or safety hazard to adjacent landowners or to persons engaged in supervising, operating, and using the site. The use of any dust suppressants (other than water) must be approved in writing beforehand by the Department.

~~(p)~~(v) The owner/operator of a compost facility permitted pursuant to paragraph ~~(3)~~ (1) of Rule 0400-11-01-.02 shall file with the Commissioner a performance bond or equivalent cash or securities, payable to the State of Tennessee. Such financial assurance is intended to ensure that adequate financial resources are available to the Commissioner shall be in an amount determined by the Commissioner to be adequate to insure 30 days operation and proper closure of the facility. The

types of financial assurance instruments that are acceptable are those which are specified in subparagraph (3)(d) of Rule 0400-11-01-.03. Such financial assurance shall meet the criteria set forth in T.C.A. § 68-211-116 and at subparagraph (3)(b) of Rule 0400-11-01-.03.

- (vi) Facility operations manager, person responsible for the day-to-day operation, 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 Department.
- (vii) Facilities must follow a Composting Facility Operations Plan (CFOP) — reviewed and approved as part of the 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, provisions for the annual maintenance of the all-weather composting pads, 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. The Department shall be informed in writing of any proposed changes to the CFOP for approval prior to implementation.
- (viii) Facilities shall be maintained in a clean and sanitary condition, e.g., free of unsecured trash at end of each operating day.
- (ix) Operators of composting facilities shall comply with all local rules, regulations, and ordinances pertaining to their facilities.
- (x) 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.
- (xi) Storage of finished compost on site is limited to 12 months of production, unless approved by the Department on a case-specific basis.
- (xii) No material may be stored in excess of the designated capacity.
- (xiii) 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.
- (xiv) The composting area shall be maintained and repaired, as needed.
- ~~(xv)~~ Closure - The facility must meet closure requirements described herein. The facility is finally closed by removal of all solid wastes and solid waste residues for proper disposal. The operator must notify the Commissioner in writing of his completion of closure of the facility. Such notification must include a certification by the operator that the facility has been closed by removal of all the solid waste and residues. Within 21 days of the receipt of such notice the Commissioner shall inspect the facility to verify that closure has been completed. Within 10 days of such verification, the Commissioner shall approve the closure in writing to the operator. Closure shall not be considered final and complete until such approval has been made.

(xvi) 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.

(xvii) The facility must manage and process feedstocks in a timeframe that minimizes odors, contact water, release of feedstock liquids, fire and scavenging by vectors.

~~3. The exposure of the public to potential health and safety hazards through uncontrolled or unauthorized public access;~~

~~4. The presence of odors that constitute a nuisance.~~

(b) Control of Access and Use Tier One Facility Design and Operating Standards

~~1. The facility shall have a natural or an artificial barrier which completely surrounds the active portion of the facility and must have a means to control entry, at all times, through the gate or other entrances to the active portion of the facility. Tier One composting facilities may process Type 1 feedstocks only.~~

~~2. If open to the public, the facility shall have clearly visible and legible signs at the points of public access which indicate the hours of operation, the types of waste materials that either will or will not be accepted, emergency telephone numbers, schedules of charges (if applicable), and any other necessary information. 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:~~

~~(i) The composting area should have run on and run off control and slope of 1 to 6 percent as determined by site conditions to direct contact water to the appropriate collection, storage and treatment system.~~

~~(ii) All composting at Tier One composting facilities shall be conducted on an all-weather composting pad, except for those facilities operating on a seasonal basis only (e.g., fall leaves and spring yard cleanouts). The all-weather pad must meet the following criteria:~~

~~(I) Except as provided in item (III) of this subpart, the pad surface shall be 5 feet or more from the top of the seasonal high water table of the uppermost aquifer or the top of the formation of a confined aquifer;~~

~~(II) Soils within the first 5 feet of the surface shall exhibit hydraulic conductivity of  $1.0 \times 10^{-6}$  cm/s. If soil depth to seasonal high water table is 10 feet or greater, a geologic buffer consisting of 10 feet of clay with a maximum hydraulic permeability of  $1.0 \times 10^{-5}$  may be used;~~

~~(III) If less than 5 feet from the top of the seasonal high water table an improved low permeability surface is required for tipping, mixing and active composting areas. The improved low permeability surface shall consist of concrete, asphalt or other approved material capable of withstanding heavy equipment and preventing contamination of the uppermost aquifer; and~~

~~(IV) All weather pad shall be of sufficient slope to direct contact water to the appropriate collection, storage and treatment system. The pad shall also be constructed in such a manner as to prevent run-on of storm water to the extent practicable.~~

~~3. The facility shall have paved (paved includes compacted stone) access roads and parking areas. Traffic control signs shall be provided as necessary. Tier One facilities shall meet the following operational standards:~~

(i) 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. Pathogen and vector attraction reduction compliance achieved as follows:

(I) Windrow composting: the compost material must be maintained at a minimum average temperature of 55°C (131°F) or higher for 15 days or longer. During the period when the compost is maintained at 55°C (131°F) 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 (131°F) do not have to be continuous; and

(II) Aerated static pile or in-vessel composting process: Material maintained at a minimum average temperature of 55°C (131°F) or higher for three continuous days, followed by at least 14 days with a minimum of 45°C (113°F).

~~4. The facility shall have trained personnel present and on duty during operating hours to assure compliance with operational requirements and to prevent entry of unauthorized wastes.~~

~~5. There shall be no scavenging.~~

~~6. Scales for weighing all waste received at the facility shall be provided, unless the Commissioner approves an alternative method of measurement.~~

(c) Leachate Collection Tier Two Facility Design and Operating Standards

~~1. The facility shall have a leachate collection and removal system that is designed, constructed, and maintained such that all leachate from the waste receiving, storage, processing, and curing areas is collected. All washdown, stormwater or other water coming into contact with solid waste or compost must be collected and properly managed. Tier Two composting facilities shall process Types 1 and/or 2 feedstocks only.~~

~~2. Leachate shall be reused in the process or otherwise properly managed as per all applicable laws and rules. 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:~~

~~(i) Owner or operator must submit an engineering design report for approval with facility application.~~

~~(ii) Tipping, mixing, active composting, curing, screening and finished compost storage areas must be on an all-weather pad as described at (b)2(ii) of this paragraph.~~

~~(iii) 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.~~

~~(iv) 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.~~

~~3. Tier Two facilities shall meet the following operational standards:~~

- (i) Feedstocks with free liquid shall be mixed with drier feedstocks, bulking material or compost so that the liquid is promptly adsorbed and not allowed to flow as free liquid from the compost piles or windrows. Free liquid that is not adsorbed shall be managed as contact water and directed to a containment or treatment system.
- (ii) By the end of each operating day, all incoming 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.
- (iii) 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. Pathogen and vector attraction reduction compliance is achieved as follows:
  - (I) Windrow composting: the compost material must be maintained at a minimum average temperature of 55°C (131°F) or higher for 15 days or longer. During the period when the compost is maintained at 55°C (131°F) 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 (131°F) do not have to be continuous; and
  - (II) Aerated static pile or in-vessel composting process: Material maintained at a minimum average temperature of 55°C (131°F) or higher for three continuous days, followed by at least 14 days with a minimum of 45°C (113°F).

(d) Waste Management Tier Three Facility Design and Operating Standards

- 1. The type [defined at part (4)(a)1 of this rule] and source of solid waste to be received shall be determined and categorized for review. This listing shall be updated as appropriate. Tier Three composting facilities may process Types 1, 2 and/or 3 feedstocks.
- 2. The type and source of any additives to be used in the production of compost shall be specified. Tier Three composting facilities shall comply with design standards for Tier 2 composting facilities and the additional design standards listed below:
  - (i) 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 have a hydraulic conductivity of  $1 \times 10^{-5}$  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 soil, 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.
- 3. The facility's waste inspection procedures shall be established to prevent the receipt of unauthorized or unacceptable waste. Inspection of all loads received is required. Tier Three composting facilities shall meet the operational standards for Tier Two composting facilities and the additional operational standard listed below:

~~(i) Facilities that compost biosolids or sewage sludge shall comply with all applicable regulations regarding biosolids and sewage sludge in Rule Chapter 0400-40-15.~~

~~4. Contingency operations shall identify proper management of all waste in the event of equipment failure, facility disaster, or receipt of unauthorized material such as oil, hazardous waste, etc.~~

~~5. The surfaces for all waste receiving areas, storage areas, and processing and curing areas shall be paved to minimize release of any contaminants to the groundwater. The paved areas shall be capable of withstanding wear and tear during normal operations. The standards for surfaces for facilities shall be as follows:~~

~~(i) Facilities receiving waste types categorized as solid waste or landscaping waste and manure shall utilize a surface of asphalt or concrete or other surface approved by the Commissioner.~~

~~(ii) Facilities receiving only the landscape waste type may utilize a surface of compacted gravel or the surfaces authorized in subpart (i) of this part.~~

~~6. Landscaping waste shall be stored separately from other solid waste at the facility. Solid waste shall be stored in a manner to prevent vectors. Unusable material must be identified and removed within 48 hours.~~

~~7. Recovered materials removed from the solid waste stream shall be stored in a manner that prevents vector problems and shall be sent to a vendor or processor at least every thirty (30) days.~~

~~(k) Run-on/Run-off Control~~

~~1. The operator shall design, construct, and maintain a run-on control system capable of preventing the 25 year, 24 hour storm from flowing onto all operational and storage areas.~~

~~2. The operator shall design, construct, and maintain a run-off management system capable of minimizing impact to adjoining properties during the 25 year, 24 hour storm.~~

~~3. Run-off shall be managed separately from leachate unless otherwise approved by the Commissioner.~~

~~(q) Compost from facilities subject to a full permit in this rule must meet the appropriate criteria for "compost disinfection" as defined in definitions at Rule 0400-11-01-.01.~~

(3) Testing – Tier 2 and 3 facilities shall meet the following test standards and requirements:

(a) 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.

(b) 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<sup>1</sup></u>	<u>Frequency</u>
<u>1 – 2500 tons<sup>2</sup></u>	<u>1 per quarter (or less for seasonal operation)</u>
<u>2501 – 6200 tons</u>	<u>1 per quarter</u>
<u>6201 – 17500 tons</u>	<u>1 per 2 months</u>
<u>17501 tons and above</u>	<u>1 per month</u>

<sup>1</sup> Either the amount of finished compost applied to the land or prepared for sale or give away for application to the land (on as "as is" (wet weight) basis).

<sup>2</sup> For facilities without scales use 800 lb/yd<sup>3</sup> conversion factor.

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.

(c) All compost shall be tested for stability using one of the methods listed in TMECC 5.08, Respirometry. The stability results must be recorded.

(d) All compost shall be tested for the presence of pathogens using the methods in TMECC 7.00, Pathogens. Before the compost may be sold, given away or applied to the land, either:

1. 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

2. 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).

(e) 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.

<u>METAL CONSTITUENT</u>	<u>TOTAL METAL CONCENTRATION (mg/kg)</u>
<u>Arsenic</u>	<u>41</u>
<u>Cadmium</u>	<u>39</u>
<u>Copper</u>	<u>1500</u>
<u>Lead</u>	<u>300</u>
<u>Mercury</u>	<u>17</u>
<u>Nickel</u>	<u>420</u>
<u>Selenium</u>	<u>100</u>
<u>Zinc</u>	<u>2800</u>

(f) Prior to being sold, given away or applied to the land, compost produced from feedstocks containing industrial by-products, sewage sludge or biosolids shall be analyzed for the metals listed in Table 1 of subparagraph (3)(e) of Rule 0400-12-01-.02 to verify that the compost does not exhibit the hazardous waste toxicity characteristic for those metals. This analysis shall be conducted on the first batch of compost produced and, thereafter, at the same frequency required by subparagraph (b) of this paragraph. Compost that exhibits the characteristic of hazardous waste shall be managed under the requirements of Chapter 0400-12-01.

(g) Compost which fails to meet the criteria of subparagraphs (d) and (e) of this paragraph must be managed as solid waste.

~~(4) Classification of Compost — Compost shall be classified based on type of waste processed, product maturity, amount of foreign material, and the concentration of heavy metals.~~

~~(a) Classification Criteria~~

~~1. Type of waste processed~~

~~(i) Landscaping waste only~~

- (ii) Landscaping waste and manure
- (iii) Solid waste (may include sewage, sludge, and other solid waste)

2. Product maturity

- (i) Mature compost is a highly stabilized compost material that has been exposed to prolonged periods of decomposition. It will not reheat upon standing to greater than 20° C above ambient temperature. The material should be brown to black in color. This level of maturity is indicated by a reduction of organic matter of greater than 60 percent.
- (ii) Semi-mature compost is compost material that is at the mesophilic stage. It will reheat upon standing to greater than 20° C above ambient temperature. The material should be light to dark brown in color. This level of maturity is indicated by a reduction of organic matter of greater than 40 percent but less than or equal to 60 percent.
- (iii) Fresh compost is compostable material that has been through the thermophilic stage and has undergone partial decomposition. The material will reheat upon standing to greater than 20° C above ambient temperature. It has beneficial use, but proper care is needed as further decomposition and stabilization will occur. This level of maturity is indicated by a reduction of organic matter of greater than 20 percent but less than or equal to 40 percent.

3. Compost shall be classified as either Type A Compost or Type B Compost according to its metal content characterization as shown in this part. Metal concentrations in finished compost shall not exceed the concentrations shown in Type B Compost below:

METAL CONSTITUENT	TYPE A COMPOST TOTAL METAL CONCENTRATION (PPM)	TYPE B COMPOST TOTAL METAL CONCENTRATION (PPM)
Arsenic	10	16
Cadmium	3	39
Chromium	210	1200
Cobalt	200	200
Copper	300	1500
Lead	100	250
Mercury	1.0	17
Molybdenum	10	18
Nickel	50	420
Selenium	3.0	36
Zinc	500	2800

4. Foreign matter shall be expressed as a percent as provided at part (c)4 of this paragraph.

(b) Labeling Requirements.

Compost shall be labeled in accordance with the classification criteria of subparagraph (a) of this paragraph. This label shall be prominently displayed on individually packaged material, or a written statement providing the classification criteria and certifying its accuracy will be deemed sufficient on all bulk sales. This label shall be of sufficient contrast to the packaging to be easily visible and shall be a bordered label with dimensions of three inches by five inches. The lettering shall be one quarter inch block characters.

(c) Testing

1. ~~Compost shall be sampled and analyzed as follows:~~

(i) ~~A composite sample of the compost produced at each composting facility shall be analyzed at intervals of every 20,000 tons of compost produced or every three months, whichever comes first, for:~~

Parameter	Unit	Method
Moisture	%	EPA 160.3
Total Nitrogen	% by dry weight	EPA 351 and 353
Total Phosphorus	% by dry weight	EPA 365
Total Potassium	% by dry weight	EPA 3050/7610
Reduction in Organic Matter	%	EPA 160.4
PH	Standard Units	EPA 9045

(ii) ~~In addition to subpart (i) of this part all compost utilizing the solid waste classification at subpart (a)1(iii) of this paragraph, shall be analyzed at intervals of every 20,000 tons of compost produced or every three months, whichever comes first, for:~~

Parameter	Unit	Method
All metals of part (a)3 of this paragraph.	mg/kg of dry Weight	SW-846 Method
Foreign Matter	%	See part 4 of this subparagraph.**
Fecal Coliform	most probable number	SM 9221***
Volatile Residue	mg/l	See part 5 of this subparagraph.**
PCB	part per million*	SW-846 Method

\* (detection above 1 ppm, the Commissioner shall be immediately notified by the operator and the source identified)

\*\* Methods for Chemical Analysis of Water and Wastes (EPA 600/4-79-020), 1983.

\*\*\* Standard Methods For the Examination of Waste and Wastewater, 21<sup>st</sup> Edition, 2005.

2. ~~The Department may decrease or increase the parameters to be analyzed for or the frequency of analysis based on monitoring data, changes in the waste stream or processing, or the potential presence of toxic substances. Sample collection, preservation, and analysis shall assure valid and representative results pursuant to a Department approved quality assurance plan.~~

3. ~~Composite samples shall consist of at least three individual samples of equal volume taken from separate areas along the side of the pile of the compost produced. Each sampling point shall be at a depth of two feet into the pile and four feet from the outside edge of the pile.~~

4. ~~Foreign matter content shall be determined by passing a dried, weighed sample of the compost product through a one-quarter inch or six millimeter screen. EPA Method 160.3 shall be used to dry the sample. The material remaining on the screen shall be visually inspected, and the foreign matter that can be clearly identified shall be separated and weighed. The weight of the separated foreign matter divided by the weight of the total sample multiplied by 100 shall be the percent dry weight of the foreign matter content.~~

5. ~~The organic matter reduction is determined by measuring the volatile solids content using EPA method 160.4.~~

(d)(4) Reporting Records - Facility owner or operators shall record and maintain at the facility for three years the following information regarding their activities for each month of operation of the facility. Records shall be

available for inspection by Department personnel during normal business hours and shall be sent to the Department upon request to include:

- 1.(a) Analytical results on composting testing;
  - 2.(b) ~~The quantity, type [described at part (a)1 of this paragraph] and~~ quantity of feedstock and the source of waste feedstock received;
  - 3.(c) ~~The quantity and type of waste [described at part (a)1 of this paragraph] processed into compost produced;~~
  - 4.(d) ~~The quantity and type of compost Type A or Type B [described at part (a)3 of this paragraph] produced; and 5. The quantity and type of compost Type A or Type B [described at part (a)3 of this paragraph] removed for use or for disposal, and the market or permitted disposal facility. The operator must identify the market for compost removed for use. The operator must identify the permitted disposal facility for compost removed for disposal; and~~
  - (e) Temperatures measurements throughout the composting process demonstrating that PFRP has been met is applicable.
- (5) Design and Construction Plans
- (a) Master Plan - A master plan shall be provided that is drawn at a scale of not less than 1" = 400' with not more than 20 foot contour interval and which clearly depicts:
    1. The boundary of the proposed facility;
    2. The existing drainage pattern of all site runoff;
    3. Runoff monitoring stations;
    4. Primary access roads;
    5. Wells within one quarter mile of the site boundary;
    6. The location of all 100-year floodplain boundaries; and
    7. All residences within one quarter mile of the site boundary (If in an urban area residential properties may be delineated).
  - (b) Design Plans - Design plans shall be provided that are drawn at a suitable scale of not less than 1" = 50 feet and with contour intervals of not greater than five feet, which clearly depicts:
    1. All structures;
    2. Proposed waste processing areas;
    3. Proposed waste storage areas;
    4. All drainage appurtenances that control run-on/run-off and the direction of flow;
    5. The location of all existing and proposed utilities and roads (defining surface material); and
    6. The location of all ~~leachate~~ contact water collection/treatment structures, piping, storage appurtenances, and any other associated unit.
  - (c) Narrative Description of the Facility and Operation - A narrative description of the facility and operation shall be provided that defines all procedures and activities pertinent to the design and operation of the facility. This narrative shall include, but not necessarily be limited to:

1. A description of how the facility will achieve the compliance of all standards defined in paragraphs (2), (3), (4), and ~~(6)~~ (5) of this rule;
2. A description of the waste handling and processing equipment to be used;
3. A description of the management of run-on/runoff with design calculations of all appurtenances structures designed to meet the 24hr – 25 yr storm event;
4. A description of the management of the leachate contact water system and the disposition of the leachate contact water;
5. A description of the odor control measures; and
6. A description of the procedures for the final closure of the facility.

~~(6)~~ Technological Standards / Best Available Technology

In order to assure that the public health and environment of the State of Tennessee is provided the optimum protection from unwarranted releases of metals, as restricted by part (4)(a)3 of this rule, these rules shall require that any facility permit incorporate the best available technology. This requirement is restricted to facility processing standards and shall not be interpreted to include source management of the waste stream. The applicant shall submit to the Department documentation of the most technologically advanced system that is currently in operation and is compatible with the proposed design criteria. Representative product analysis shall be provided in accordance with the testing requirements of subparagraph (4)(c) of this rule.

~~(e)~~(6) Annual Report

Owners and operators of facilities producing compost made from solid waste shall submit to the Department an annual report by March 1 of each year. The report and shall include at a minimum:

- 4.(a) The facility name, address and permit number;
- 2.(b) The reporting year with all quantities expressed in tons (sludge expressed in dry weight);
- 3.(c) The total quantity and type of waste ~~[described at part (a)1 of this paragraph]~~ feedstock received at the facility during the year covered by the report;
- 4.(d) The total quantity and type of waste ~~[described at part (a)1 of this paragraph]~~ processed at the compost facility of compost produced during the year covered by the report; and
5. ~~The total quantity and types of compost Type A or Type B [described at part (a)3 of this paragraph] produced during the year covered by the report; and~~
- 6.(e) The total quantity and types of compost Type A or Type B ~~[described at part (a)3 of this paragraph]~~ removed for use or for disposal, and the market(s) or permitted disposal facility(s). The operator must identify the market for compost removed for use. The operator must identify the permitted disposal facility for compost removed for disposal.

Authority: T.C.A. §§ 68-211-101 et seq., 68-211-701 et seq. and 4-5-201 et seq.

\* If a roll-call vote was necessary, the vote by the Agency on these rulemaking hearing rules was as follows:

Board Member	Aye	No	Abstain	Absent	Signature (if required)
<b>Marty Calloway</b> (Petroleum Business with at least 15 Underground Storage Tanks)	X				
<b>Stacey Cothran</b> (Solid/Hazardous Waste Management Industry)	X				
<b>Kenneth L. Donaldson</b> (Municipal Government)				X	
<b>Dr. George Hyfantis, Jr.</b> (Institution of Higher Learning)	X				
<b>Bhag Kanwar</b> (Single Facility with less than 5 Underground Storage Tanks)	X				
<b>Alan M. Leiserson</b> Environmental Interests	X				
<b>Jared L. Lynn</b> (Manufacturing experienced with Solid/Hazardous Waste)	X				
<b>David Martin</b> (Working in a field related to Agriculture)	X				
<b>Beverly Philpot</b> (Manufacturing experienced with Underground Storage Tanks/Hazardous Materials)	X				
<b>DeAnne Redman</b> (Petroleum Management Business)	X				
<b>Mayor A. Franklin Smith, III</b> (County Government)				X	
<b>Mark Williams</b> (Small Generator of Solid/Hazardous Materials representing Automotive Interests)	X				

I certify that this is an accurate and complete copy of rulemaking hearing rules, lawfully promulgated and adopted by the Underground Storage Tanks and Solid Waste Disposal Control Board on 08/05/2015, and is in compliance with the provisions of T.C.A. § 4-5-222.

I further certify the following:

Notice of Rulemaking Hearing filed with the Department of State on: 12/08/14

Rulemaking Hearing(s) Conducted on: (add more dates). 02/10/15

Date: August 5, 2015

Signature: \_\_\_\_\_

Name of Officer: Stacey Cothran

Title of Officer: Board Chair

Subscribed and sworn to before me on: \_\_\_\_\_

Notary Public Signature: \_\_\_\_\_

My commission expires on: \_\_\_\_\_

Rules of the Board of Underground Storage Tanks and Solid Waste Disposal Control Board  
Chapter 0400-11-01 Solid Waste Processing and Disposal  
Rule 0400-11-01-.01 Solid Waste Disposal Control System: General  
Rule 0400-11-01-.02 Permitting of Solid Waste Storage, Processing, and Disposal Facilities  
Rule 0400-11-01-.11 Requirements for Compost and Composting Facilities

All rulemaking hearing rules provided for herein have been examined by the Attorney General and Reporter of the State of Tennessee and are approved as to legality pursuant to the provisions of the Administrative Procedures Act, Tennessee Code Annotated, Title 4, Chapter 5.

\_\_\_\_\_  
Herbert H. Slatery III  
Attorney General and Reporter

\_\_\_\_\_  
Date

**Department of State Use Only**

Filed with the Department of State on: \_\_\_\_\_

Effective on: \_\_\_\_\_

\_\_\_\_\_  
Tre Hargett  
Secretary of State

## Public Hearing Comments

One copy of a document containing responses to comments made at the public hearing must accompany the filing pursuant to T.C.A. § 4-5-222. Agencies shall include only their responses to public hearing comments, which can be summarized. No letters of inquiry from parties questioning the rule will be accepted. When no comments are received at the public hearing, the agency need only draft a memorandum stating such and include it with the Rulemaking Hearing Rule filing. Minutes of the meeting will not be accepted. Transcripts are not acceptable.

1. Comment: The analysis and testing should be expanded to include such common constituents of mixed solid wastes and biosolids as antibiotics, hormone mimicking compounds, pesticides, and hydrocarbons. Such materials occur not infrequently in the afore-mentioned waste categories and would not be suitable for land application to home environments.

Response: The Department does not agree. Testing for antibiotics, hormone mimicking compounds, pesticides, hydrocarbons and several other constituents are not referenced in the US Composting Council's Model Compost Rule Template from which much of this rule revision was derived. However, the Department of Environment and Conservation (Department) has examined these issues and concluded that antibiotics degradation is sped up through the composting process while uptake of these compounds from food crops is limited. Similar conclusions were found for hormone mimicking compounds and pesticides. Some herbicides are persistent through the composting process but are not readily found in municipal solid waste and biosolids. Composting also neutralizes many of the hydrocarbons in contaminated feedstocks as the microorganisms are able to use limited amounts of the carbon as an energy source.

2. Comment: We find the proposed rule changes to conflict with both the Water Quality Control Act and the Tennessee's Right-To-Farm Act in T.C.A. §§ 43-26-101 et seq. and ask that the proposed amendments reflect those allowances as already established for agriculture in these statutes. Noise, dust, and odors from a compost operation on a farm cannot be separated from the rest of the farm operation. All farm operations have noise, dust, and odors. This language is ambiguous regarding farm operations and provides very little guidance for farmers or department staff regulating solid waste. We would ask the department to leave the current language in the rules which reflects that normal farming operations are not included in a solid waste regulation that is clearly designed for a different purpose.

Response: The Department agrees and has concluded that Rule 0400-11-01-.11(1)(b)3(ii)(III): "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" should be deleted to further clarify the Department's intent to exempt agricultural operations.

3. Comment: We are concerned about the language and potential interpretations regarding dust and odors which could constitute a nuisance. Specifically the threshold levels have been or will be outlined and given as guidance to TDEC employees who are called to do a site visit due to a complaint? When would an operation be determined to be categorized as operating or managing composting materials in such a way that it be considered a nuisance? What acceptable level of dust and or odors would constitute a nuisance?

Response: Dust control is universally addressed for all permitted composting operations in Rule 0400-11-01-.11(2)(a)2(iv). A description of odor control measures is required within the Narrative Description of the Facility and Operation during the permitting process, Rule 0400-11-01-.11(5)(c). If an odor or dust issue is reported to the Tennessee Department of Environment and Conservation (TDEC) through a complaint, the Department will conduct an inspection of the facility to determine if the complaint is valid. If the inspector determines the complaint has merit, the inspector will examine the facility to make sure it is operating within its permitted conditions and will also determine the reason for the odor or dust problem. Often odor problems will arise with improper composting operations that produce anaerobic rows or piles of wet materials that have insufficient bulking material. It is generally cost prohibitive to require composting facilities to track odors with scientific instruments, while the accuracy is complicated by changing wind direction and intensity. Dust management is not typically an issue associated with composting facilities except from those associated with wood grinding operations and from dry roads.

4. Comment: Rule 0400-11-01-.11(2)(a)1(x) Buffer Zone Standards for Siting New Facilities - All waste management areas shall be located so as to conform to the distance standards at subparagraph (3)(a) of Rule 0400-11-01-.04. The buffer standards for compost facilities are the same for Class I, II, III, and IV landfills, but compost facilities do not present the same degree of risk to human health and the environment as do solid waste landfills. Could buffer distances specific to compost facilities be considered? Could the waste management areas of compost facilities be more specifically defined as including such areas as raw feedstock receiving areas and the windrow area but not include stockpiles of mulch? There should be a tiered approach to set back requirements in alignment with the Tier 1, 2 and 3 type feedstocks. A tier 3 facility may require the current setback requirements, where as a Tier 2 and Tier 1 facility would be correspondingly less stringent.

Response: Rule 0400-11-01-.04 states that the buffers zones be measured from the fill area, where fill area is defined as the "area containing waste..." In a composting operation this area would be measured from the footprint of the composting rows or piles and feedstock staging areas. The buffer would not be measured from the location of the curing piles or the location of the finished compost product. The Department feels the buffer conditions are appropriate.

5. Comment: Current financial assurance requirements are based on landfill regulations. Requirements for financial assurance and facility closure in this scenario could be improved to be more commensurate with a compost facility operation versus a solid waste landfill. We propose that the type of facility operations dictates the time frame for continuous operation following default or departure of the facility operator. For example an open windrow system would require 4 months of operational capital to process raw materials into a stable product that can be land applied. This would eliminate the need to landfill a valuable material. The material could also be sold, used by the state on state property or given away to the public. This is a more cost effective and more environmentally friendly method than hauling material in various stages of processing to a landfill.

Response: Financial assurance for each permit will be calculated based on closure plans and cost estimates provided by the applicant. The Department cannot depend on locating and funding an operations team to work compost for four months in the event of a permit default. In the event of a permit default, the Department would look for the lowest cost solution most in line with the Department's goals of sound environmental stewardship. However, the financial assurance amount must take into consideration the worst case scenario where the material would need to be hauled offsite and properly disposed of.

6. Comment: A time line should be given in the curing process.

Response: The time it takes for compost to cure can be highly variable based on issues such as quantity, feedstock, location, and climatological factors, among others. The Department feels that mandating a timeline for the curing process is too prescriptive to encompass all types of composting operations and conditions.

7. Comment: The definition of windrow should be changed from piles to rows.

Response: The Department agrees and has changed the definition to include rows instead of piles.

8. Comment: Local fire departments should be trained on how to extinguish a fire at such facilities. Distance from the closest fire station to such a facility should be documented.

Response: The rule package carries over language from the existing rules stating that the facility shall acquire local firefighting services if available; this can be found in subpart (2)(a)2(ii) of Rule 0400-11-01-.11, "Fire Safety". This includes ensuring that the local firefighting services are aware of the nature of the ongoing operations at the permitted facility. Adding training requirements for fire departments is outside of TDEC's jurisdiction.

9. Comment: Certification should have expiration. One should have to keep up his or her earned credits.

Response: At this time, we feel the number of composting certification opportunities are limited enough that a strict certification program is not feasible for all operations. Therefore, Rule 0400-11-01-.11(2)(a)2(vi) only requires operators to go through a training program.

10. Comment: Nothing states that managers are required to show documentation of non-finished compost. Compost facility managers should have to keep records of their temps to prove PFRP has been completed.

Response: The Department agrees and has added this requirement to subparagraph (4)(e) of Rule 0400-11-01-.11, "Temperatures measurements throughout the composting process demonstrating that PFRP has been met is applicable."

11. Comment: In regard to tier three operations the rules should distinguish between Class A biosolid and proper application verses Class B biosolid and proper application.

Response: As long as the finished product contains pathogen and metal concentration levels that are below the listed maximums then the classification of the initial material has negligible bearing. Generally Class A biosolids are a designation for dewatered and treated sewage sludge that meets U.S. EPA guidelines for land application with no restrictions, so these are rarely composted. The Department consciously placed any operation processing biosolids into the Tier Three category with stricter requirements due to the diverse nature of the feedstock.

12. Comment: In regard to tier three operations and sewage sludge; what percentage of this feedstock is acceptable for the composting purposes? To what application will this product be used for?

Response: Feedstock ratios are individually determined by each permitted facility. The Department is concerned with the composition of the finished product, which must be below the listed maximums for metals and pathogens found in the testing requirements under Rule 0400-11-01-.11(3). If the finished product comes in under the maximum concentrations, then there are no restrictions for the initial feedstock percentages. Regarding application of the product, if the finished compost produced from sludge feedstock components is stable and fully matured; meaning that microbial activity and decay are complete, and if the metal and pathogen levels are in compliance with Rule 0400-11-01-.11(3), then there is no specific restriction on compost use/application provided it does not violate any other environmental laws or regulations.

13. Comment: We are very concerned that encouraging composting of non-organic waste including televisions, radios, and e-waste will compromise the quality and reputation of compost from the State of Tennessee. This has already happened in Sevierville which is a massive composting facility which is basically a composting landfill. The presence of glass severely compromises the quality and marketability of the compost.

Response: The Sevierville operation is a Tier III composting facility, but the vast majority of compost operations will not qualify for Tier III status. Operations that both qualify and choose to compost waste streams that have the potential for contamination from either e-scrap or glass must specifically outline, in their permit conditions, how they will manage that waste so that it does not end up in the finished product or contaminating the finished product.

14. Comment: We support exclusive use of decomposing organic material in compost produced in our state. Industrial by-products and "Mixed solid waste" should be avoided. Under current policy, there is very little "source separated organics" in Tennessee.

Response: The Department agrees that the best composting operations will use only organic feedstocks with nutrient ratios that will produce usable products without contaminants and pathogens. Composting waste streams, such as mixed solid waste, that contain organics can offer an environmentally sensible approach to reducing materials that contribute to landfill leachate generation.

15. Comment: Biosolids are allowed in Tier 3. We question use of chemically laden human waste.

Response: While Class A biosolids require no further treatment before land application, composting is a

viable method to reduce pathogens in Class B biosolids. According to the EPA, the use of biosolids in the production of crops for human consumption when practiced in accordance with federal guidelines presents negligible risks to the consumer.

16. Comment: Tier 1 has temperature requirements, Tier 2 and 3 do not. Should they?

Response: "Facility Standards", Rule 0400-11-01-.11(2) states that Tier Two and Tier Three composting facilities have all the requirements of a Tier One composting facility, including all Tier One temperature conditions.

17. Comment: Tier 1 has no record keeping requirements but should since we are require such items as proper temperature.

Response: Tier 1 record requirements are outlined in Rule 0400-11-01-.11(4) "Records".

18. Comment: Temperatures should be stated in Fahrenheit, not Celsius to avoid confusion.

Response: The Department agrees and Fahrenheit conversions have been included.

19. Comment: Definition of biosolids is less stringent than definition in Biosolids Rule 0400-40-15-.01.

Response: The Department agrees and has adopted the definition of Biosolids consistent with Rule 0400-40-15-.01(8).

20. Comment: In Rule 0400-11-01-.11(1)(b)1, the last sentence appears to allow no fee for facilities that change their operation in the future.

Response: The Department agrees that this should only apply to current operations. The phrase "facilities which already have permit-by-rule" has been added to clarify this point.

21. Comment: In Rule 0400-11-01-.11(1)(b)1, change cross reference to paragraph (1) of Rule 0400-11-01-.02.

Response: The Department feels that cross referencing paragraph (3) is more applicable to Rule 0400-11-01-.11(1)(b)1 since it relates to permit application requirements.

22. Comment: In Rules 0400-11-01-.11(1)(b)4 and 5, add "only" in first sentence of both.

Response : The Department agrees that this clarification is appropriate and has added the word "only" to the first sentence in both part 4 and part 5 of Rule 0400-11-01-(1)(b)..

23. Comment: In Rule 0400-11-01-.11(1)(b)6, the use of the terms lower level of risk and higher level of risk seems contradictory.

Response: The Department agrees and has modified the language by removing the term "higher level of risk". In addition, part 6 was restructured to better explain what types of materials may be processed at a facility.

24. Comment: In Rule 0400-11-01-.11(2)(a)2(v), change cross reference to paragraph (1) of Rule 0400-11-01-.02.

Response: The Department agrees and has changed the cross reference.

25. Comment: In rule 0400-11-01-.11(2)(a)2(v), change second sentence to read: "Such financial assurance shall be in an amount determined by the Commissioner to be adequate to insure 30 days operation and proper closure of the facility."

Response: The Department agrees with this clarification and has modified subpart (2)(a)2(v) of Rule 0400-11-01-.11 to read, "Such financial assurance shall be in an amount determined by the Commissioner to be adequate to insure 30 days operation and proper closure of the facility".

26. Comment: In Rule 0400-11-01-.11(2)(a)2(vii), add requirement to submit CFOP to TDEC 30 days prior to making change in feedstock.

Response: The Department agrees that including language requiring the submittal of a Composting Facility Operations Plan will make it clear that changes in operation or feedstock must be evaluated by the Department and has modified the subpart to reflect this. However, a timeframe was not included to allow for some latitude in operations.

27. Comment: In Rule 0400-11-01-.11(2)(a)2(xv), should closure process include release of financial assistance?

Response: The process for release of financial assurance is found in subparagraph (3)(i) of Rule 0400-11-01-.03 "Maintenance/Release of Financial Assurance, and does not need to be repeated here.

28. Comment: In Rule 0400-11-01-.11(2)(b)2(ii), require all composting at Type 1 facilities to be conducted on the all-weather pad. The language now states, "All composting at Tier One composting facilities shall be conducted on an all-weather composting pad".

Response: The Department agrees and has modified the language to clarify the use of an all-weather pad for Tier I facilities.

29. Comment: In Rule 0400-11-01-.11(2)(b)2(ii)(I), clarify that item (III) is an exception to item (I) by starting in item (I) with, "Except as provided in item (III),..."

Response: The Department agrees and has modified item (I) to state: "Except as provided in item (III) of this subpart".

30. Comment: In Rule 0400-11-01-.11(2)(d)3(i), cite Chapter 0400-40-15 rather than federal rules on biosolids.

Response: The Department agrees that the recent State rules are more appropriate to cite and has modified the language to reflect this recommendation.

31. Comment: In Rule 0400-11-01-.11(2)(d)3(i), since there are applicable requirements in the biosolids rules that concern more than "sludge management", this sentence should be changed to, "Facilities that compost biosolids or sewage sludge shall comply with all applicable regulations regarding biosolids and sewage sludge in Rule Chapter 0400-40-15."

Response: The Department agrees and has modified the language to reflect this recommendation.

32. Comment: In Rule 0400-11-01-.11(1)(b)4, change "clean wood" to "woody material" to match definitions

Response: The Department agrees and has replaced "clean wood" with "woody material".

33. Comment: In Rule 0400-11-01-.11(2)(b)2(ii)(II), clarify the "the first 5 feet" by adding "of the surface"

Response: The Department agrees and has modified the language to "the first 5 feet of the surface".

## Regulatory Flexibility Addendum

Pursuant to T.C.A. §§ 4-5-401 through 4-5-404, prior to initiating the rule making process as described in T.C.A. § 4-5-202(a)(3) and T.C.A. § 4-5-202(a), all agencies shall conduct a review of whether a proposed rule or rule affects small businesses.

This proposed rule revision is based on the Model Compost Rule Template as set forth by the U.S. Composting Council, 5400 Grosvenor Lane, Bethesda, MD 20814. The template is a compilation of composting information submitted by industry and regulatory leaders across the nation, including the U.S. EPA, who participated in the development of the model rule template. The revision is based on a three-tier facility classification with specific feedstocks that are used at the different tier levels. This revision provides better composting practices and composting opportunities for our State on a local level.

- (1) The type or types of small business and an identification and estimate of the number of small businesses subject to the proposed rule that would bear the cost of, or directly benefit from the proposed rule.

Small business which compost large quantities of materials from outside sources as part of their operations will be required to obtain a permit. There are currently five or fewer of these businesses identified.

- (2) The projected reporting, recordkeeping, and other administrative costs required for compliance with the proposed rule, including the type of professional skills necessary for preparation of the report or record.

Permitted facilities under these rule changes will have to maintain a Composting Facility Operations Plan in addition to the initial permit application. The facility will also be required to document such items as feedstocks and windrow temperatures. The documents can be maintained without specialty professional skill by a qualified composting facility manager.

- (3) A statement of the probable effect on impacted small businesses and consumers.

The proposed rules have minimal effect on small business. Some small businesses will qualify for exemptions. Small business operations that require permits under these rule changes would require a permit under existing rules. Fee structures have not changed.

- (4) A description of any less burdensome, less intrusive or less costly alternative methods of achieving the purpose and objectives of the proposed rule that may exist, and to what extent the alternative means might be less burdensome to small business.

There are no less burdensome, less intrusive or less costly alternatives to achieving the purpose and objectives of this proposed rule.

- (5) A comparison of the proposed rule with any federal or state counterparts.

These rules are based on the Model Compost Rule Template as set forth by the U.S. Composting Council. Currently three other states; Maryland, Georgia and South Carolina have adopted rules based on the template. Other states are expected to follow in the future.

- (6) Analysis of the effect of the possible exemption of small businesses from all or any part of the requirements contained in the proposed rule.

Agricultural small businesses are exempt under most conditions. Small businesses that compost their own waste streams on site will often be exempted. Small businesses that compost 400 cubic yards of type one feedstock, or 50 cubic yards of type two feedstock openly, or 100 cubic yards in-vessel will be exempted.

### **Impact on Local Governments**

Pursuant to T.C.A. §§ 4-5-220 and 4-5-228 "any rule proposed to be promulgated shall state in a simple declarative sentence, without additional comments on the merits of the policy of the rules or regulation, whether the rule or regulation may have a projected impact on local governments." (See Public Chapter Number 1070 (<http://state.tn.us/sos/acts/106/pub/pc1070.pdf>) of the 2010 Session of the General Assembly)

The Department anticipates that there will be a positive impact on local governments.

**Additional Information Required by Joint Government Operations Committee**

All agencies, upon filing a rule, must also submit the following pursuant to T.C.A. § 4-5-226(i)(1).

- (A)** A brief summary of the rule and a description of all relevant changes in previous regulations effectuated by such rule;

This rulemaking primarily revises Rule 0400-11-01-.11 Requirements for Compost and Composting Facilities. This proposed rule revision is based on the Model Compost Rule Template as set forth by the U.S. Composting Council, 5400 Grosvenor Lane, Bethesda, MD 20814. The template is a compilation of composting information submitted by industry and regulatory leaders across the nation who participated in the development of the model rule template. The revision is based on a three-tier facility classification with specific feedstocks that are used at the different tier levels. This revision provides better composting practices and composting opportunities for our State on a local level. Revisions to Rules 0400-11-01-.01 and 0400-11-01-.02 are being made to support the changes in Rule 0400-11-01-.11.

- (B)** A citation to and brief description of any federal law or regulation or any state law or regulation mandating promulgation of such rule or establishing guidelines relevant thereto;

These rules are being promulgated under the authority of T.C.A. §§ 68-211-101 et seq.

- (C)** Identification of persons, organizations, corporations or governmental entities most directly affected by this rule, and whether those persons, organizations, corporations or governmental entities urge adoption or rejection of this rule;

Environmental citizen groups, neighborhood food co-ops and some educational institutions have urged adoption of this rule as it allows for permit exemptions for small scale composting operations which take in feedstocks from multiple locations. Currently permitted composting facilities will have to modify existing permits to come into line with these new regulations; however less than five facilities will be affected. Most local governments that wish to begin operations that fall into Tier One and Tier Two categories should find obtaining a permit to be less difficult than in the past.

- (D)** Identification of any opinions of the attorney general and reporter or any judicial ruling that directly relates to the rule;

The Department is not aware of any opinions or judicial rulings that directly relate to this rule.

- (E)** An estimate of the probable increase or decrease in state and local government revenues and expenditures, if any, resulting from the promulgation of this rule, and assumptions and reasoning upon which the estimate is based. An agency shall not state that the fiscal impact is minimal if the fiscal impact is more than two percent (2%) of the agency's annual budget or five hundred thousand dollars (\$500,000), whichever is less;

The Department will collect \$1000 in application processing fees for each new permit. The permits will also net an additional \$3000 in annual maintenance fees for each facility; however many facilities are expected to qualify for an annual maintenance fee exemption if they beneficially use 75% of their feedstock and request the exemption. The Department expects only 1 to 3 new permit applications per year. The Department expects a mix of government and private sector applicants. The Department expects any local government sponsored permitted facility to experience some cost saving from their normally incurred disposal expenses by diverting material towards composting operations and possibly generate some revenue from the sale of finished compost.

- (F)** Identification of the appropriate agency representative or representatives, possessing substantial knowledge and understanding of the rule;

Nick Lytle  
Division of Solid Waste Management  
William R. Snodgrass Tennessee Tower  
312 Rosa L. Parks Avenue, 14th Floor  
Nashville, Tennessee 37243  
[nickolaus.lytle@tn.gov](mailto:nickolaus.lytle@tn.gov)

- (G) Identification of the appropriate agency representative or representatives who will explain the rule at a scheduled meeting of the committees;

Jenny Howard  
Deputy General Counsel  
Office of General Counsel

- (H) Office address, telephone number, and email address of the agency representative or representatives who will explain the rule at a scheduled meeting of the committees; and

Office of General Counsel  
Tennessee Department of Environment and Conservation  
William R. Snodgrass Tennessee Tower  
312 Rosa L. Parks Avenue, 2nd Floor  
Nashville, Tennessee 37243  
(615) 532-8685  
[Jenny.Howard@tn.gov](mailto:Jenny.Howard@tn.gov)

- (I) Any additional information relevant to the rule proposed for continuation that the committee requests.

The Department is not aware of any additional relevant information.