

ORDER OF THE STATE OF WISCONSIN NATURAL RESOURCES BOARD  
REPEALING, RENUMBERING, RENUMBERING AND AMENDING, AMENDING,  
REPEALING AND RECREATING, AND CREATING RULES

The Wisconsin Natural Resources Board proposes an order to **repeal** NR 502.12(1)(a) to (f), (8)(a)4. and 6. and (9); **renumber** NR 502.12(8)(a)5., 7. and 8.; to **renumber and amend** NR 502.12(4)(e)3.(note); to **amend** NR 500.03(45), (185), (253) and (262), NR 502.12(title), (1)(intro.) and (note), (2), (3)(title), (intro.) and (a), (4)(title), (intro.), (c), (e)(intro.) and 3., (5)(title), (intro.), (b) to (e) and (f)(intro.), 1. and 2., (6)(title), (intro.), (b), (c) and (e), (7)(title), (intro.), (a) to (c), (8)(title) and (a)(intro.), (10)(intro.) and (a) to (e), (h)3. and (j)(note), (11)(intro.), (a) and (b), (12)(a) and(b), (13)(title), (intro.), (b), (e), (f), (g), (h) and (k), (14)(a) and NR 518.04(1)(intro.), (b) and (i); to **repeal and recreate** NR 502.12(4)(e)2., (7)(e) and (f), (8)(b), (11)(d), (15), (table 1) and (table 2); and to **create** NR 500.03(20r), (29), (30g), (30r), (44m), (86m), (88m), (155m), (219m) and (253m), NR 502.12(4)(e)4., (8)(c), (11)(e), (13)(m), (n), (o) and (p), and (16) relating to composting of solid waste.

WA-33-10

Analysis prepared by the Department of Natural Resources

1. Statutes Interpreted

ss. 287.05, 289.30 and 289.31, Stats.

2. Statutory Authority

ss. 227.11, 289.05, 289.06, 289.07 and 289.43, Stats.

3. Explanation of Agency Authority to Promulgate the Proposed Rule under the Statutory Authority

Section 227.11, Stats., confers general agency rule-making authority. Sections 289.05, 289.06 and 289.07, Stats., assign the duty and provide the authority to the Department to promulgate rules implementing ch. 289, Stats. Section 289.43, Stats., gives the Department the authority to specify by rule types of solid waste facilities that are not required to be licensed under ss. 289.21 to 289.32 or types of solid waste that need not be disposed of at a licensed solid waste disposal facility.

4. Related Rule or Statute

None

5. Plain Language Analysis of the Proposed Rule

Composting is regulated as a form of solid waste processing that converts decomposable organic materials to a substance with many beneficial uses and avoids the adverse environmental impacts of landfill disposal or incineration. The proposed rule revisions would (1) expand the types and quantities of decomposable organic materials that could be composted with minimal regulation, and (2) provide a voluntary set of quality standards for certain finished compost products,

allowing commercial and municipal composters to distinguish their high-quality compost products in the marketplace.

6. Summary of and Preliminary Comparison of Existing or Proposed Federal Regulations Intended to Address the Activity to be Regulated by the Proposed Rule

None.

7. Comparison of Similar Rules in Adjacent States (MN, IA, IL and MI)

Adjacent states' compost regulations have a number of basic similarities to those of Wisconsin, but vary significantly from each other in their details. Note that Michigan, Minnesota and Illinois, like Wisconsin, are in various stages of revising their composting regulations, in large part as a response to burgeoning interest among food residuals generators nationwide in diverting their material from landfills. Iowa's compost regulations are relatively new, and Iowa's DNR is considering proposals to revise them to facilitate larger-scale food residuals composting.

**Minnesota** regulations establish two categories of composting facilities: (a) yard material facilities, which are subject to a permit-by-rule system similar in effect to Wisconsin's exemption for yard material compost sites with less than 20,000 cubic yards' capacity, and (b) facilities for composting all other materials, which must obtain individual permits. Minnesota requires all composting facilities to file an annual report with the state regulatory agency. Facilities accepting decomposable material other than yard residuals for composting are subject to design and other permit requirements that were developed for municipal solid waste composting. These have been criticized as being overly strict when applied to materials like food scraps and non-recyclable paper—hence the effort underway to revise the composting rules to establish a “middle” category of composting facility that would avoid some of the current regulatory impediments to composting food and other source-separated decomposable materials. For non-yard facilities, Minnesota's rules require testing of the compost product, and imposes quality standards under a classification system that distinguishes between high quality (Class I) compost suitable for unrestricted use, and Class II compost, the use of which is restricted. The metals standards for the two compost classes are based on federal standards for landspreading sewage sludge, or biosolids, contained in Part 503 of the federal Clean Water Act. Minnesota does apply a more stringent limit to mercury content as well as a PCB limit.

In **Illinois**, composting is relatively highly restricted by the state. Composting facilities must be individually permitted similar to facilities such as landfills, except for facilities at which landscape material is composted and used on an agricultural crop farm. The practical implication of this regulatory system is that food scrap composting is not economically feasible in Illinois. Illinois legislators have recently proposed bills to remove the regulatory barriers to food scrap composting.

In **Michigan**, the composting rules are being revised to align composting of food scraps and other decomposable materials with composting of yard residuals. Current Michigan rules do not include general standards for composting materials other than yard residuals, and composters of more than 500 cubic yards are required to obtain a solid waste processing permit. The exception to this requirement is food scraps, which, because they are not considered solid waste in Michigan, are not subject to any composting requirements. In practice, Michigan has very few composting sites other than those for yard residuals in part because local authorities are hesitant to issue permits for food scrap composting in the absence of state rules. Michigan's proposed rules would allow source-separated compostable materials similar to Wisconsin's proposed

definition to be composted with yard residuals without plan review, a site-specific permit or an overall limit on the size of the site. The rule would impose operational standards on composting facilities that are comparable to Wisconsin's, with more stringent standards for liners and for control of liquids. Farm sites would be subject to fewer restrictions so long as they were not operating as a large commercial compost operation. The proposed compost facility standards include annual reporting requirements and requirements for testing and labeling of compost products, but do not impose numerical standards for chemical constituents in general-use composts made from yard residuals or source-separated compostable materials.

Iowa's compost regulations establish a tiered system similar to Wisconsin's in concept, with exemptions for small, on-premises and agricultural sites, a permit-by-rule provision for yard residual composting facilities, and an individual permit system for larger composting facilities accepting materials other than yard residuals. Permit-by-rule facilities as well as permitted facilities are required to report volumes annually. Iowa allows permit-by-rule composting of mixed food and yard materials up to 2 tons per week, as well as unlimited quantities of yard residuals and on-farm ag materials. Permit-by-rule and permitted facilities have operational and design requirements comparable to those in Wisconsin for exempt and non-exempt facilities, respectively. Compost from permitted facilities must be tested for pathogens and metals, and meet standards equivalent to federal Part 503 biosolids standards, in order to be applied to land or marketed. Permitted facilities receiving more than 5,000 cubic yards of feedstock annually are subject to financial assurance requirements.

8. Summary of the Factual Data and Analysis Methodologies that the Agency Used in Support of the Proposed Rule and How Any Related Findings Support the Regulatory Approach Chosen for the Proposed Rules

The Department developed the proposed rule in response to a petition for rulemaking brought by composters and recyclers through the Associated Recyclers of Wisconsin (AROW). To ensure sound and informed technical and policy analysis, the Department formed a technical advisory committee composed of stakeholders representing municipal and commercial composters, the University of Wisconsin, AROW, the environmental community, the Wisconsin Department of Transportation (a potential large-scale user of compost) and the Wisconsin Department of Agriculture, Trade and Consumer Protection. Department staff also consulted with a number of other external interested parties from municipal government, the waste disposal industry, compostable materials generators and other groups. Staff performed an extensive comparison of compost regulations and compost quality standards in other states, Canada and Europe, and reviewed the development of the current federal risk-based metals limits for biosolids.

9. Any Analysis and Supporting Documentation that the Agency Used in Support of the Determination of the Proposed Rule's Effect on Small Business

Small businesses were the driving force behind the petition for rulemaking that prompted the Department to develop these rules. The Department consulted directly with small businesses through the technical advisory committee during the development of the proposed rule language, and also worked closely with staff of the University of Wisconsin's Solid & Hazardous Waste Education Center, who are familiar with the concerns of small composting businesses and compostable materials generators.

10. Anticipated Cost Incurred by the Private Sector

Private sector impacts from the proposed rule revisions are expected to be neutral to positive. The proposed rules do not require generators of compostable materials to compost or to alter their current arrangements for waste disposal. However, many generators of compostable materials, including small-to-medium size groceries and large national food retailers, hospitals, event sponsors, restaurants and institutions, have encountered difficulties finding an outlet for diverting food scraps from landfill disposal. The proposed rule addresses this need. In facilitating the development of composting businesses and infrastructure, the proposed rule would provide generators with additional options for disposing of unwanted materials, some of which might cost less than landfill disposal. These generators believe it is in their long-term business interests to divert organic materials from landfilling.

Composters should benefit from being able to accept additional materials into their operations without complex permit requirements. Composters that choose to make Class A compost as defined under the proposed rule may incur additional costs for testing, although some of these composters already perform such testing on their own initiative. Private sector composters may also incur minor increased costs for recordkeeping and annual reporting, although these costs will be minimized by use of a simple, standard form, and may be mitigated by (1) the operational utility of the data that they will be generating, and (2) the larger array of materials that their facilities can accept under the rule while maintaining a relatively low level of regulatory oversight.

Waste hauling companies should still be able to enter into contracts and perform work hauling food and other compostable materials, even if the destination of those materials changes from the landfill to a composting facility. Waste disposal companies have expressed interest in operating their own compost facilities to accept yard and food materials, and several facilities in Wisconsin have already commenced operations. The economics of these waste disposal company activities are not clear, but the costs of operating a small compost facility are likely outweighed by the benefits to the landfill facility of the compost that is being produced to serve as topsoil, cover soils, or a marketable product.

#### 11. Effect on Small Business

The proposed rule is expected to have a small and generally positive impact on small businesses. Small businesses potentially affected by the rule include commercial composters, farmers that compost material brought in from offsite, small businesses that generate food and other compostable material, and small waste hauling businesses.

The rule does not mandate composting. It would make it easier for commercial and municipal composters as well as farmers to accept a variety of source-separated compostable materials, which may enable them to expand their businesses and find new customers. Some composters, such as those producing Class A compost, will have to comply with additional regulations regarding product testing. Most commercial and municipal composters (but not farm composters using only farm-derived inputs) will need to submit an annual estimate of the amount of compost they produce. This reporting requirement has been minimized as much as possible while still providing information needed by the agency to quantify composting activity in Wisconsin.

Small waste hauling businesses may see changes or increases in their businesses if source-separation of organic materials becomes more commonplace. Food scrap generators and other small businesses generating compostable materials may benefit from having a broader choice of options for managing their unwanted organic materials. Keeping organic materials separate from the waste stream may require changes in hauling contracts for those generators that choose to

send their material to be composted, and less frequent pickup of non-putrescible material would partly offset the additional cost associated with separate organics pickup. Eventually, split collection trucks may allow both simultaneous pickup of materials destined for composting and for landfilling.

12. Agency Contact Person

Brad Wolbert  
Brad.Wolbert@wisconsin.gov

13. Comments are Submitted to the Following Address and the Deadline for Submittal

Brad Wolbert  
Bureau of Waste and Materials Management  
Wisconsin Department of Natural Resources  
P.O. Box 7921  
Madison, WI 53707-7921  
Attention: Proposed Compost Rule

Deadline for comments will be set as part of the public hearing process.

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SECTION 1. NR 500.03(20r), (29), (30g), (30r), (44m), (86m), (88m), (155m), (219m) and (253m) are created to read:

NR 500.03(20r) “Botanical residuals” means compostable materials and associated mineral soils derived from commercial and noncommercial horticultural activities such as greenhouse and plant nursery operations.

NR 500.03(29) “Class A compost” means compost derived from source-separated compostable materials that has been produced according to the requirements of this subchapter and which meets the requirements of s. NR 502.12(16).

NR 500.03(30g) “Clean chipped wood” means unpainted, untreated and unlaminated wood that has been chipped, ground or shredded into small pieces and is free from contamination by bonding agents, dyes, finishes, chemical preservatives, or physical contaminants such as metal or plastic.

NR 500.03(30r) “Clean sawdust” means sawdust from processing of unpainted, untreated and unlaminated wood that is free from contamination by bonding agents, dyes, finishes, chemical preservatives or physical contaminants such as metal or plastic.

NR 500.03(44m) “Compostable” means susceptible to decomposition by biological processes during composting to yield carbon dioxide, water, inorganic compounds and biomass at a rate consistent with other compostable materials, leaving no visible, distinguishable or toxic residue.

NR 500.03(86m) “Finished compost” means compost that has been processed sufficiently to meet the maturity and stability criteria in Table 2 of s. NR 502.12, and that has been further screened or refined such that it is ready for sale, distribution or use.

NR 500.03(88m) “Food residuals” means unconsumed raw or cooked compostable material that results from handling, preparation, cooking, sale or consumption of food, and includes whole, ground and pulped food scraps, as well as compostable food packaging, utensils, tableware, kitchenware and food containers that meet either the ASTM – D-6400 (2004) or the D-6868 (2003) standard. “Food residuals” includes vegetable and non-vegetable food residuals.

**Note:** Copies of ASTM standards D-6400-04 and D-6868-03 may be obtained from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, (610) 832-9585, [www.astm.org](http://www.astm.org). Copies of the standard are available for inspection at the offices of the department of natural resources, the secretary of state and the revisor of statutes.

NR 500.03(155m) “Nonrecyclable compostable paper” means paper that is unrecyclable because it has been soiled or is not of a grade that is acceptable to the local recycling program serving the place of generation.

NR 500.03(219m) “Source-separated compostable material” means compostable materials that are separated from non-compostable material at the point of generation for use in composting and are kept separate from municipal solid waste. Source-separated compostable material includes food residuals; farm and non-farm crop residues; botanical residuals; aquatic plants; vegetative food processing residues such as those from cannery and brewing activities; fish harvesting and processing residuals; yard residuals; farm and herbivorous animal manure, excluding deer and elk manure, and associated animal bedding; clean chipped wood; clean sawdust; non-recyclable compostable paper; and other similar materials approved in writing by the department. This term does not include biosolids, domestic wastewater, sewage sludge or septage, high-volume industrial waste, other solid waste or hazardous waste.

NR 500.03(253m) “Vermicomposting” means the controlled and managed process by which live worms convert organic matter into dark, fertile granular excrement.

SECTION 2. NR 500.03(45), (185), (253) and (262) are amended to read:

NR 500.03(45) “Composting” means ~~an aerobic decomposition process by which microorganisms or soil invertebrates reduce materials into component compounds, producing carbon dioxide and water as primary by products~~ the biological degradation and transformation of organic solid waste under controlled conditions designed to promote aerobic decomposition. “Composting” includes vermicomposting.

NR 500.03(185) “Putrescible waste” means solid waste which contains organic matter capable of being decomposed by microorganisms and of such a character and proportion as to be capable of supporting a disease vector population or attracting or providing food for birds. It does not include high-volume industrial waste.

NR 500.03(253) “Vegetable food ~~waste~~ residuals” means food residuals consisting of raw or cooked waste fruit and vegetable material from residences, food establishments such as cafeterias, restaurants, food wholesalers, food retailers and food processors. It also includes food containers which are composed entirely of readily biodegradable materials, such as waxed or unwaxed paper products or corn starch, if the containers have been contaminated with vegetable food by virtue of use. It does not include food containers composed of materials which are not readily biodegradable, such as metal, glass or petroleum derived plastic used in container coatings, layers, or other components, and includes compostable packaging, utensils, tableware, kitchenware and containers that meet either the ASTM - D6400 (2004) or the D-6868 (2003) standard.

Note: Copies of ASTM standards D-6400-04 and D-6868-03 may be obtained from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, (610) 832-9585, [www.astm.org](http://www.astm.org). Copies of the standard are available for inspection at the offices of the department of natural resources, the secretary of state and the revisor of statutes.

NR 500.03(262) “~~Yard waste residuals~~” ~~has the meaning specified~~ means yard waste as defined in s. 287.01 (17), Stats., as well as incidental spoiled fruit and vegetables from noncommercial sources.

Note: Section 287.01 (17), Stats., defines “yard waste” to mean “leaves, grass clippings, yard and garden debris and brush, including clean woody vegetation material no greater than 6 inches in diameter. This term does not include stumps, roots or shrubs with intact root balls”.

SECTION 3. NR 502.12(title) is amended to read:

NR 502.12(title) **Yard, farm, vegetable food waste residuals and source-separated compostable material composting facilities.**

SECTION 4. NR 502.12(1)(intro.) is amended to read:

NR 502.12(1) GENERAL. No person may operate or maintain a ~~solid waste~~ composting facility for ~~yard waste, clean chipped wood residuals,~~ farm crop residue, farm animal manure, animal carcasses ~~or, food residuals including vegetable food waste residuals, or source-separated compostable material~~ except in accordance with the ~~following~~ requirements of this section.

SECTION 5. NR 502.12(1)(a) to (f) are repealed.

SECTION 6. NR 502.12(1)(note) is amended to read:

Note: Pursuant to s. NR 243.15(8), the Department may choose to regulate composting facilities associated with livestock operations that are subject to the requirements of ch. NR 243 under that operation’s Wisconsin Pollution Discharge Elimination System permit instead of under s. NR 502.12. Facilities for composting waste types other than ~~yard waste, clean chipped wood, residuals,~~ farm crop residue, farm animal manure, animal carcasses ~~or vegetable food waste, food residuals or source-separated compostable materials~~ are regulated under s. NR 502.08. Local ordinances may apply to facilities regulated under this section. ~~Tables summarizing applicable requirements are provided at the end of the section.~~

SECTION 7. NR 502.12(2) is amended to read:

NR 502.12(2) HOUSEHOLD EXEMPTION. Facilities for composting only ~~solid waste~~ source-separated compostable material from a single family or household, a member of which is the owner, occupant or lessee of the property where the facility is located, are exempt from ~~the requirements of s. NR 502.04, the licensing requirement and~~ all requirements of this chapter, provided the facility is operated in a nuisance-free and environmentally sound manner.

SECTION 8. NR 502.12(3)(title), (intro.) and (a) are amended to read:

NR 502.12(3)(title) LIMITED EXEMPTION FOR YARD AND VEGETABLE FOOD WASTE SOURCE-SEPARATED COMPOSTABLE MATERIAL COMPOSTING FACILITIES WITH CAPACITY OF 50 CUBIC YARDS OR LESS.

NR 502.12(3)(intro.) Facilities for composting ~~yard waste, clean chipped wood waste, vegetable food waste or manure~~ source-separated compostable materials ~~which that~~ do not exceed 50 cubic yards at one time, including collected raw materials and compost being processed but excluding finished compost less than 6 months old, are exempt from the requirements specified in s. NR 502.04 (2) to (6), locational criteria, plan of operation submittal, licensing and all other requirements of this chapter provided the following are met:

NR 502.12(3)(a) ~~The requirements~~ performance standards specified in s. NR 502.04 (1) and the minimum operational standards specified in sub. (10).

SECTION 9. NR 502.12(4)(title), (intro.) and (c) are amended to read:

NR 502.12(4)(title) LIMITED EXEMPTION FOR FARM CROP RESIDUE OR MANURE COMPOSTING FACILITIES.

NR 502.12(4)(intro.) Facilities for on site composting of farm crop residue or manure, except deer and elk manure, directly from agricultural operations are exempt from the requirements of s. NR 502.04 (2) to (6), locational criteria, plan of operation submittal, licensing and all other requirements of this chapter, provided all of the following requirements are met:

NR 502.12(4)(c) All the farm crop residue and manure composted are generated from agricultural operations either under common ownership, common management or located adjacent to each other, and the composting occurs on the property of one of these agricultural operations.

SECTION 10. NR 502.12(4)(e)intro. and 3. are amended to read:

NR 502.12(4)(e)intro. ~~If yard waste or clean chipped wood are~~ Source-separated compostable material other than farm crop residue and manure may be accepted from off site for use in the composting process; if the following requirements ~~shall be~~ are met:

NR 502.12(4)(e)3. The combined volume of farm crop residue, farm animal manure, and ~~yard waste and clean chipped wood~~ source-separated compostable material on site at one time may not exceed 10,000 cubic yards, including collected ~~feedstocks~~ raw materials, ~~the composting process~~ and compost being processed but excluding finished compost less than 6 months old. The volume of food residual inputs to the composting process may not exceed 25 percent of the total combined volume of raw material inputs. Inputs shall be mixed to achieve an initial carbon to nitrogen ratio of at least 20 to 1.

SECTION 11. NR 502.12(4)(e)2. is repealed and recreated to read:

NR 502.12(4)(e)2. The recordkeeping requirements of sub. (15) (a) 3.

SECTION 12. NR 502.12(4)(e)3.(note) is renumbered NR 502.12(4)(e)4.(note) and amended to read:

**Note:** ~~Animal manure management is also regulated under ch. NR 243.~~ Composting facilities that accept manure or are located at a livestock operation may be subject to additional state requirements in chs. NR 151 and 243 and in ch. ATCP 51, as well as local regulations for manure storage and shoreland and floodplain zoning. Local ~~Other local~~ ordinances may apply to facilities regulated under this section. Public distribution of the compost may be regulated by the department of agriculture, trade and consumer protection (DATCP). The following landspreading operations are exempt under s. NR 518.04 (1) (b), (h) and (i), respectively, provided the material is applied as a soil conditioner or



fertilizer in accordance with accepted agricultural practices and the facility is operated and maintained in a safe, nuisance-free manner:

- Farms on which only nonhazardous agricultural ~~solid wastes~~ residuals resulting from the operation of a farm, including farm animal manure, are ~~disposed~~ landspread.
- Landspreading of uncomposted yard ~~waste~~ residuals.
- Landspreading composted ~~leaves, grass, brush, vegetable food waste and other similar vegetable matter~~ source-separated compostable material.

SECTION 13. NR 502.12(4)(e)4. is created to read:

NR 502.12(4)(e)4. The reporting requirements in sub. (15)(b).

SECTION 14. NR 502.12(5)(title), (intro.), (b), (c), (d), and (e) are amended to read:

NR 502.12(5)(title) LIMITED EXEMPTION FOR ON SITE FARM ANIMAL CARCASS COMPOSTING FACILITIES.

NR 502.12(5)(intro.) Facilities for on site farm composting of animal carcasses other than deer or elk are exempt from the requirements in s. NR 502.04 (2) to (6), locational criteria, plan of operation submittal, licensing and all other requirements of this section, provided they are in compliance with s. 95.50 (1), Stats., and all of the following:

NR 502.12(5)(b) The minimum operational and design standards in subs. (10) and (11), excluding the size reduction requirements in sub. (10) (c).

NR 502.12(5)(c) Only animal carcasses, farm animal manure, farm crop residue, yard ~~waste~~ residuals and clean chipped wood are composted at the facility.

NR 502.12(5)(d) All the farm wastes composted are generated from agricultural operations either under common ownership, common management or located adjacent to each other, and the composting occurs on the property of one of these agricultural operations.

NR 502.12(5)(e) The compost is utilized for agricultural landspreading, at the same farm or at another farm, in accordance with s. NR 518.04 (1) (b) or (i), except that compost made using ruminant animal carcasses may not be utilized at another farm.

SECTION 15. NR 502.12(5)(f)intro., 1. and 2. are amended to read:

NR 502.12(5)(f)intro. If yard ~~waste~~ residuals or clean chipped wood are accepted from off site, the following requirements shall be met:

NR 502.12(5)(f)1. The yard ~~waste~~ residuals or clean chipped wood shall be mixed with farm wastes to increase the carbon to nitrogen ratio and porosity of the composting process.

NR 502.12(5)(f)2. The combined volume of animal carcasses, farm animal manure, farm crop residue, yard ~~waste~~ residuals and clean chipped wood on site at one time may not exceed 10,000 cubic yards, including collected ~~feedstocks raw materials, the composting process and compost being processed but excluding~~ finished compost less than 6 months old.

SECTION 16. NR 502.12(6)(title), (intro.), (b), (c) and (e) are amended to read:

NR 502.12(6)(title) LIMITED EXEMPTION FOR YARD WASTE RESIDUALS COMPOSTING FACILITIES WITH CAPACITY OF 20,000 CUBIC YARDS OR LESS.

NR 502.12(6)(intro.) Facilities for composting yard ~~waste~~ residuals and clean chipped wood ~~waste which~~ that do not exceed 20,000 cubic yards at one time, including raw materials and compost being processed, but excluding finished compost less than 6 months old, are exempt from the requirements in s. NR 502.04 (3) (c), (4), (5) and (6), plan of operation submittal and all other requirements of this chapter, provided all of the following requirements are met:

NR 502.12(6)(b) ~~New~~ For new or expanded facilities, shall comply with the initial site inspection requirements in s. NR 502.04 (2) and demonstrate compliance with the locational criteria in sub. (8). New or expanded facilities with a capacity greater than 1,000 cubic yards shall comply with the initial site inspection requirements in s. NR 502.04 (2).

NR 502.12(6)(c) The minimum operational and design standards in subs. (10) and (11), the recordkeeping requirements of sub. (15) (a) 3, and the reporting requirements in sub. (15) (b).

NR 502.12(6)(e) The compost is ~~utilized for landspreading~~ applied to land, either on site or off site, in accordance with s. NR 518.04 (1) (i), or is otherwise used for horticultural, landscaping or erosion control purposes.

SECTION 17. NR 502.12(7)(title), (intro.), (a), (b) and (c) are amended to read:

NR 502.12(7)(title) LIMITED EXEMPTION FOR VEGETABLE FOOD SOURCE-SEPARATED COMPOSTABLE MATERIAL COMPOSTING FACILITIES OF 500 5,000 CUBIC YARDS OR LESS.

NR 502.12(7)(intro.) Facilities for composting ~~vegetable food waste~~ source-separated compostable material which that exceed 50 cubic yards but do not exceed 500 5,000 cubic yards at one time, including raw materials and compost being processed, but excluding finished compost less than 6 months old, are exempt from the requirements in s. NR 502.04 (3) (c), (4), (5) ~~and (6), plan of operation submittal and all other requirements of this section, subs. (12) and (14), and the monitoring requirements of sub. (15) (a) 1 and 2,~~ provided all of the following requirements are met:

NR 502.12(7)(a) The performance standards and closure requirements in s. NR 502.04 (1) and (3) (a) and (b).

NR 502.12(7)(b) ~~New~~ For new or expanded facilities, shall comply with the initial site inspection requirements in s. NR 502.04 (2) and demonstrate compliance with the locational criteria in sub. (8).

NR 502.12(7)(c) The minimum operational and design standards in subs. (10) and (11), the plan submittal requirements in sub. (13), the recordkeeping requirements of sub. (15) (a) 3, and the reporting requirements in sub. (15) (b).

SECTION 18. NR 502.12(7)(e) and (f) are repealed and recreated to read:

NR 502.12(7)(e) For facilities that use animal manure as a raw material, the testing requirements of sub. (15) (a) 1. and 2.

NR 502.12(7)(f) The compost is utilized for landspreading applied to land, either on site or off site, in accordance with s. NR 518.04 (1) (i), or is otherwise used for horticultural, landscaping or erosion control purposes.

SECTION 19. NR 502.12(8)(title) and (a)(intro.) are amended to read:

NR 502.12(8)(title) ~~LOCATIONAL CRITERIA FOR EXEMPT YARD-WASTE COMPOSTING FACILITIES AND EXEMPT VEGETABLE FOOD-WASTE COMPOSTING FACILITIES.~~

NR 502.12(8)(a)(intro.) ~~Facilities described in sub. (6) or (7)~~ Unless exempt under sub. (2), (3), (4) or (5), new or expanded compost facilities regulated under this section may not be located in any of the following areas unless an exemption has been granted in writing by the department under par. ~~(b)~~ (c):

SECTION 20. NR 502.12(8)(a)4. and 6. are repealed.

SECTION 21. NR 502.12(8)(a)5., 7. and 8. are renumbered to NR 502.12(8)(a)4., 5. and 6.

SECTION 22. NR 502.12(8)(b) is repealed and recreated to read:

NR 502.12(8)(b) In addition to the restrictions in par. (a):

1. Facilities exempt under sub. (6) or (7) may not be located within 250 feet of any navigable lake, pond or flowage, or within 100 feet of land owned by a person other than the owner or operator of the facility, and

2. Facilities not exempt under sub. (2), (3), (4), (5), (6) or (7) may not be located within 500 feet of any navigable lake, pond or flowage, or within 250 feet of land owned by a person other than the owner or operator of the facility.

SECTION 23. NR 502.12(8)(c) is created to read:

NR 502.12(8)(c) The department may grant exemptions from par. (a) 2. to 6. only upon demonstration by the applicant of circumstances which warrant the exemption. Exemption from compliance with par. (a) 1. may not be granted.

**Note:** Compost facilities associated with livestock operations that are required to have a wastewater discharge permit under the Wisconsin Pollution Discharge Elimination System and that handle manure, animal feed or other agricultural materials may be subject to additional locational requirements in chs. NR 151, NR 243 or ATCP 51.

SECTION 24. NR 502.12(9) is repealed.

SECTION 25. NR 502.12(10)(intro.) and (a) to (e) are amended to read:

NR 502.12(10)(intro.) Unless exempt under sub. (2), ~~(3)~~ or (4), no person may operate or maintain a composting facility regulated under this section except in accordance with the following minimum operational requirements:

(a) ~~Wastes~~ Raw materials accepted for composting shall be source separated at the point of generation so that ~~the wastes~~ they have not been mixed or otherwise contaminated with

nonapproved waste types, particularly materials which are not readily ~~biodegradable~~ compostable. Prior to incorporation into the composting process, the ~~wastes raw materials~~ shall be sorted as needed to ensure that materials which are not readily ~~biodegradable~~ compostable are removed unless alternate operational methods are used in conjunction with equipment to produce a compost product virtually free of physical and chemical contaminants.

**Note:** Compost product which contains physical or chemical contaminants ~~of concern~~, such as plastic, glass, metal scraps or regulated concentrations of heavy metals or organic compounds, may require controlled disposal under an approved landspreading plan or at a landfill.

(b) ~~Wastes~~ Raw materials in noncompostable bags shall be debagged within 24 hours of receipt at the facility. Raw materials in compostable bags shall be processed such that the contents of the bags are exposed to air within 24 hours of receipt at the facility. Stored waste shall be managed in accordance with the requirements applicable to the composting process. The following operational standards shall also be met for the wastes specified:

1. Grass clippings, ~~manure~~ and food ~~waste~~ residuals from canned, frozen or preserved fruit or vegetable processing operations shall be incorporated into windrows or ~~other~~ another composting process within 72 hours of receipt at the facility, unless odor becomes a problem at the facility in which case these ~~wastes~~ materials shall be incorporated within 24 hours.

2. Animal carcasses, fish harvesting and processing residuals, manure and food ~~waste~~ residuals which ~~is~~ are not from canned, frozen or preserved fruit or vegetable processing operations shall be incorporated into windrows or another composting process on the same operating day as received at the facility. Upon initial incorporation of ~~animal carcasses or these food wastes~~ residuals, composting windrows or piles shall be covered with a minimum 6 inch layer of compost, high carbon material such as wood chips, or other suitable material to control odor and vectors.

3. All animal carcasses and food ~~waste~~ residuals shall be managed to prevent access by dogs and wild animals ~~from reaching the wastes~~.

(c) ~~Yard waste residuals, wood waste, vegetable food waste, animal carcasses and crop residue~~ Compost raw materials shall be size reduced if necessary to provide adequate particle surface area for effective composting.

(d) Materials within the composting process shall be thoroughly mixed and aerated as frequently as necessary, and windrow height, structure and porosity shall be designed and maintained, to ensure that adequate oxygen is available at all times within the ~~waste~~ windrow or pile to prevent the process from becoming anaerobic.

**Note:** To maintain aerobic composting and prevent odor, aeration is needed whenever the process temperature rises to 150°F or more, or when the oxygen level drops to 15% or less. Windrows consisting primarily of leaves and wood waste are likely to require turning at least monthly from spring through fall.

(e) Materials shall be mixed into the composting process to provide a minimum initial carbon to nitrogen ratio of ~~12:1~~ 20:1.

**Note:** For aerobic composting, the optimum carbon to nitrogen ratio ranges from approximately 20:1 to 40:1.

SECTION 26. NR 502.12(10)(h)3. is amended to read:

NR 502.12(10)(h)3. Free of toxins in amounts or concentrations which could cause detrimental impacts to public health or the environment.

SECTION 27. NR 502.12(10)(j)(note) is amended to read:

NR 502.12(10)(j)(note) **Note:** Landspreading of composted leaves, grass, brush, ~~vegetable food waste~~ and other ~~similar vegetable matter~~ source-separated compostable material is exempt from department landspreading regulations under s. NR 518.04(1)(i) provided the material is applied as a soil conditioner or fertilizer in accordance with accepted agricultural practices and the facility is operated and maintained in a safe, nuisance-free manner. Public distribution of the compost may be regulated by the department of agriculture, trade and consumer protection (DATCP).

SECTION 28. NR 502.12(11)(intro.), (a) and (b) are amended to read:

NR 502.12(11)(intro.) Unless exempt under sub. (2), ~~(3) or (4)~~ or (3), no person may construct or maintain a composting facility regulated under this section except in accordance with the following minimum design standards:

NR 502.12(11)(a) Run-off from the composting area shall be discharged to a ~~gentle~~ gently sloping grassed vegetated area of sufficient size to prevent erosion and any discernible confined and discrete discharge of liquids or suspended solids to surface water ~~discharge~~ from the composting area.

NR 502.12(11)(b) Slope, vegetation and surface water containment ditches and retention basins shall be used at the facility as needed to minimize erosion and maintain diffused surface drainage.

SECTION 29. NR 502.12(11)(d) is repealed and recreated to read:

NR 502.12(11)(d) If inspections performed under sub. (15) (a) 4. indicate improvements in stormwater controls are needed to meet the requirements of pars. (a) through (c), the owner and operator of the facility shall make the needed improvements as soon as practicable.

SECTION 30. NR 502.12(11)(e) is created to read:

NR 502.12(11)(e) The overall composting facility shall be of sufficient size to allow processing of materials as necessary to avoid nuisance conditions, and shall have adequate room for material stockpiles, windrows of manageable dimensions for maintaining aerobic conditions, curing piles, staging of finished compost, and equipment.

**Note:** Composting facilities that accept manure or are located at a livestock operation may be subject to additional state requirements in chs. NR 151 and 243 and in ATCP 51, as well as local regulations for manure storage and shoreland and floodplain zoning. Other local ordinances may apply to facilities regulated under this section.

SECTION 31. NR 502.12(12)(a) and (b) are amended to read:

NR 502.12(12)(a) All run-off that contacts waste compost, materials being composted or raw materials staged for composting shall be managed as leachate and shall be directed to either a collection basin or a tank. Leachate may be used in the composting operation for moisture

addition. All other leachate shall be treated at a wastewater treatment facility permitted to accept it.

NR 502.12(12)(b) All composting, and all storage of ~~waste uncomposted raw materials and compost~~, other than leaves, clean chipped wood, clean sawdust and other raw materials with initial carbon-to-nitrogen ratios greater than 30:1 shall take place on a low permeability pad constructed of ~~either~~ asphalt, concrete, recompacted clay or other material approved by the department.

SECTION 32. NR 502.12(13)(title), (intro.), (b), (e), (f), (g), (h) and (k) are amended to read:

NR 502.12(13)(title) PLAN SUBMITTAL REQUIREMENTS FOR NONEXEMPT AND CERTAIN EXEMPT COMPOSTING FACILITIES. Unless the facility is exempt under sub. (2), (3), (4), (5), ~~or (6) or (7)~~, applicants for all new or expanded composting facilities regulated under this section shall submit a plan of operation report and obtain department approval of the plan of operation report prior to construction of the new or expanded facility. Unless an exemption is granted by the department in writing, the plan shall be submitted in accordance with s. NR 500.05, except that facilities exempt under sub. (7) need not comply with s. NR 500.05 (4). The plan shall provide a design which complies with subs. (10), (11) and, as applicable, (12), and contain the following minimum information:

(b) A brief description of the project, including the area served, an estimate of the ~~total annual tonnage and volume of material to be processed and identification of the types of waste feedstocks materials~~ total annual tonnage and volume of material to be processed and identification of the types of waste feedstocks materials to be ~~composted~~ used in the compost process.

(e) For each ~~waste~~ raw material proposed to be composted, either laboratory or literature data documenting the carbon, nitrogen ~~and moisture, phosphorus and potassium~~ and moisture content and pH.

(f) A proposed raw material mix for composting, with calculations or laboratory data documenting the carbon, nitrogen, ~~phosphorus and potassium~~ moisture content ~~and pH~~ of the mix.

(g) A specification of the maximum size, including volume, height and width, for staging piles, composting windrows or other composting processes, curing piles, and finished compost storage. If the ~~waste materials~~ waste residuals on site at any one time will exceed either 40,000 cubic yards of ~~waste residuals~~ waste residuals and clean chipped wood, 10,000 cubic yards of source-separated compostable materials other than yard residuals and clean chipped wood, or ~~1,000~~ 5,000 cubic yards of ~~vegetable food waste residuals~~ vegetable food waste residuals, an estimate of closure costs shall be provided with the plan of operation report, and prior to licensure, proof of financial responsibility in accordance with ss. NR 520.06 through 520.13 shall be provided for the closure costs, including the removal, transport and ultimate disposal of all waste material and compost at the site.

(h) A specification of the methods of measuring critical parameters within the windrow and other composting processes, and a description of methods that will be used to ensure the critical parameters are met. Critical parameters addressed shall include carbon to nitrogen ratio, temperature, moisture content, oxygen content, pH and stability. ~~Actions to be taken in response to odors, shall be specified. Frequency of turning and residence times shall be specified. The specification shall describe methods to be used for maintaining aerobic conditions during the composting process, including turning equipment and frequency for passive ventilation, and equipment and residence time for mechanical ventilation, as well as actions to be taken in response to odors and composting process upsets.~~

(k) Identification of any noncompostable waste, such as bags, which will be generated from the composting operation, and the name and location of solid waste disposal facilities at which any waste generated from the composting operation will be disposed of.

SECTION 33. NR 502.12(13)(m), (n), (o) and (p) are created to read:

NR 502.12(13)(m) A description of the planned sampling frequency and testing parameters for the finished compost.

(n) A stormwater pollution prevention plan that meets the requirements of s. NR 216.27 for a tier 2 facility and, if construction or expansion of a composting facility will involve one acre or more of land disturbance, a construction erosion control plan that meets the requirements of s. NR 216.46 to 216.49.

(o) Identification of local zoning and permit requirements that apply to the proposed facility.

(p) Proposed procedures for amending the plan in the event changes to the approved plan are needed.

SECTION 34. NR 502.12(14)(a) is amended to read:

NR 502.12(14)(a) ~~Unless exempt~~ For facilities other than those exempt under sub. (2), (3), (4), (5), (6) or (7), the department may require owners and operators of new or expanded composting facilities regulated under this section ~~shall to~~ submit a construction documentation report to the department and obtain department approval of the construction documentation report prior to operation of the facility.

SECTION 35. NR 502.12(15) is repealed and recreated to read:

NR 502.12(15) MONITORING, RECORDKEEPING AND REPORTING. (a) Unless exempt under sub. (2), (3), (4), (5), (6) or (7), owners and operators of composting facilities regulated under this section shall complete monitoring and reporting in accordance with the plan of operation approval and the following requirements:

1. Samples of the finished compost shall be collected every 2,000 tons or 4,000 cubic yards, with a minimum of one sample per year, unless a different frequency is approved in writing by the department. Samples of finished compost shall be tested for the parameters in Tables 1 and 2.

**Note:** Only class A compost under sub. NR 502.12 (16) is subject to the limits in Tables 1 and 2.

a. Samples shall be collected, handled and analyzed in accordance with methods listed in “Test Methods for Evaluation of Compost and Composting” published in 2002 by the United States Composting Council or other methods approved in writing by the department. Samples shall be tested at a laboratory certified under the United States Composting Council’s Seal of Testing Assurance program or at another laboratory approved in writing by the department.

**Note:** “Test Methods for Evaluation of Compost and Composting” (2002) and a list of laboratories certified under the Seal of Testing Assurance program are available from the United States Composting Council, 1 Comac Loop 14 B1, Ronkonkoma, NY 11779, (631) 737-4931, [www.compostingcouncil.org](http://www.compostingcouncil.org).

b. Test results shall be made available upon request to the department, potential users of the compost, and to the general public.

2. Unfiltered leachate samples shall be taken from the collection basin or tank, and tested quarterly for the first 4 quarters and annually thereafter for BOD<sub>5</sub>, COD, field pH, field conductivity corrected to 25°C, nitrates+nitrite-nitrogen, and total dissolved solids.

3. Compost pile turning frequency and temperature readings as appropriate to the composting method used shall be documented and maintained to demonstrate pathogen reduction and odor control activities.

4. The facility shall be visually inspected by the owner or operator quarterly to evaluate stormwater discharge quality and performance of discharge controls, and twice per year to identify non-stormwater discharges.

(b) Unless exempt under sub. (2), (3), (4), or (5), the owner and operator of a composting facility regulated under this section shall prepare and submit an annual report to the department by March 1 on forms supplied by the department. The annual report shall include at least the following information:

1. Name and address of the facility.
2. Calendar year covered by the report.
3. Annual quantities and types of raw materials received and compost produced, in tons. Tonnage estimates may be based on volume records where scale weights are not available.
4. Annual quantity of compost sold, distributed or used, in tons.
5. Copies of laboratory analyses of composted material.
6. Any additional information required as a condition of the plan of operation approval.

**Note:** Copies of the annual reporting form may be obtained from the department of natural resources, bureau of waste and materials management, 101 South Webster Street, P.O. Box 7921, Madison, Wisconsin 53707-7921, (608) 266-2111, DNRwastematerials@wisconsin.gov, or online at <http://dnr.wi.gov/org/aw/wm/publications/>.

SECTION 36. NR 502.12(16) is created to read:

NR 502.12(16) CLASS A COMPOST. Finished compost may be designated and distributed as class A compost if it meets all of the following requirements:

(a) Composed entirely of materials meeting the definition of “source-separated compostable materials” in s. 500.03 (219m).

(b) Produced by one of the processes to reduce pathogens described in subd. 1 to 3, with temperature and retention time monitored and recorded each day until the temperature and retention time criteria are met:



1. Windrow method consisting of an unconfined composting process utilizing periodic aeration and mixing. Aerobic conditions shall be maintained during the composting process. A temperature of 55°C, or 131F shall be maintained in the windrow for at least fifteen days. The windrow shall be turned at least five times during the high-temperature period.

2. Mechanically aerated static pile method consisting of an unconfined composting process utilizing mechanically forced aeration of insulated compost piles. Aerobic conditions shall be maintained during the composting process. The temperature of the compost pile shall be maintained at a continuous minimum of 55°C, or 131°F, for at least three consecutive days.

3. In-vessel method consisting of a confined compost process utilizing mechanical mixing of compost under controlled conditions. The minimum retention time in the vessel shall be 72 hours with the temperature maintained at 55°C, or 131F.

(c) Tested in accordance with sub. (15) (a) 1. a. and b.

(d) Does not exceed any of the limits specified in Tables 1 or 2.

SECTION 37. NR 502.12 (table 1) and (table 2) are repealed and recreated to read:

**Table 1.**  
**Test parameters for nonexempt compost facilities and class A compost**

<b>Parameter</b>	<b>Limit for class A compost (mg/kg dry weight)</b>
Arsenic	14
Cadmium	6.1
Chromium	120
Copper	400
Lead	95
Mercury	1.2
Molybdenum	15
Nickel	49
Selenium	4.9
Zinc	820
Physical contaminants	< 1 percent
Fecal Coliform	Either 1000 MPN/g of total solids (dry wt) fecal coliform or 3 MPN/4g of total solids (dry wt) salmonella
Salmonella	

**Table 2.**  
**Maturity and stability testing for nonexempt facilities and class A compost**

<b>Characteristic</b>	<b>Test procedure</b>	<b>Limit for Class A compost</b>
Maturity (both methods)	Carbon:Nitrogen ratio	10 – 20:1
	Seedling emergence and vigor bioassay	Indices above 80%

Stability (one of the following methods)	Respirometry (carbon dioxide evolution) Dewar self-heating test Solvita test	Up to 5 mg CO <sub>2</sub> -C/g volatile solids/day 0 – 20°C temperature rise Index value 6 or greater
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SECTION 38. NR 518.04(1)(intro.), (b) and (i) are amended to read:

NR 518.04(1)(intro.) GENERAL. The following landspreading facilities are exempt from the requirements of this chapter provided the solid waste or solid waste derived product is ~~applied~~ utilized as a soil conditioner or fertilizer in accordance with accepted agricultural practices and the facility is operated and maintained in a safe, nuisance-free manner:

NR 518.04(1)(b) Farms on which only nonhazardous agricultural solid wastes resulting from the operation of a farm, including farm animal manure, are disposed of.

NR 518.04(1)(i) Facilities used for the landspreading of composted ~~leaves, grass, brush, vegetable food waste and other similar composted vegetable matter~~ source-separated compostable material.

SECTION 39. Effective dates. This rule shall take effect on the first day of the month following publication in the Wisconsin Administrative Register as provided in s. 227.22(2)(intro.), Stats.

SECTION 40. Board adoption. This rule order was approved and adopted by the State of Wisconsin Natural Resources Board on \_\_\_\_\_.

Dated at Madison, Wisconsin \_\_\_\_\_.

STATE OF WISCONSIN  
DEPARTMENT OF NATURAL RESOURCES

By \_\_\_\_\_  
Matthew J. Frank, Secretary

(SEAL)