

Compost Study Committee
Report to the Vermont Legislature

January 14, 2009

Prepared on behalf of the Compost Study Committee by:

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I. Authority and Scope of This Report

Sec. 10(f) of No. 130 of the Acts of the 2007 (2008 Adj. Sess.) required a committee to examine:

- Recommended rules for the construction, alteration, or operation of a composting facility;
- Recommendations for increasing public awareness of the benefits of composting;
- Recommendations for increasing awareness within the composting community and those interested in initiating a composting operation of the existing regulations governing composting; and
- The contact information of an individual or department at the Agency of Natural Resources (ANR) that can assist interested persons in understanding and complying with the Agency's regulations for composting.

This report of the Compost Study Committee (committee members– see Appendix A) is a summary of the Committee's recommendations. The report does not address broader issues related to the direction of solid waste management in Vermont, such as: the economics of a project, greenhouse gas emissions, how to improve the diversion of organics, including biosolids; the role of anaerobic digestion and waste to energy; or solid waste management concepts and trends surrounding organics management. Many of these broader issues have been and will continue to be examined by other groups. Consistent with Act 130, this report addresses education, assistance, and regulatory modifications for composting facilities, with a focus on recommended legislative changes.

There was strong consensus on the Committee that good composting projects are very beneficial and should be encouraged. Well managed waste, particularly organic materials, can become a valuable resource capturing organic matter and nutrients for beneficial uses. Much of the discussion involved how to encourage good composting projects in a manner that protects the environment and the rights of affected parties. The committee agreed that very small ("de minimis" or "backyard") projects should require no regulation, while large projects should continue to require full regulation. As such, the discussion focused on appropriate regulatory triggers for small, medium, and on-farm facilities, although large facilities are recognized as having a role in managing organic materials. Section II addresses the proposed regulatory structure.

II. Recommendations on Composting Regulatory Structure

A. Overview

Numerous regulatory programs in Vermont could apply to composting facilities. One of the goals of the Committee was to streamline the regulatory process to encourage composting in ways that protect the environment and public health. Many federal substantive and procedural requirements cannot be altered by state agencies or the Vermont General Assembly. In addition, the Committee did not discuss or make recommendations on municipal regulation of composting.

The Committee focused on three regulatory programs: the Agency of Agriculture, Food and Markets' (AAFM) Acceptable Agricultural Practices (AAPs); Act 250, administered by the Natural Resources Board; and the Agency of Natural Resources' (ANR) Solid Waste Management Program. The Committee agreed to several new Act 250 exemptions for de minimis and certain on-farm composting projects, as discussed below. No consensus was reached on whether additional Act 250 exemptions should be created for on-farm composting or whether small and medium facilities should be fully exempt from the Act 250 review. The provisions upon which the Committee has reached agreement have been drafted and presented in Section IV.

The Committee proposes a five-tiered structure to regulate compost, set forth below (see Summary Table in Appendix D).

B. Regulatory Structure Recommendations

1. Exemption for De Minimis or Backyard Composting: less than 100 Cubic Yards per Year

The Committee proposes a level of composting that does not need to be regulated by Act 250 or ANR. Defining that level as less than 100 cubic yards per year would allow de minimis residential and commercial composting to take place without state regulatory oversight, because the risk presented from such activities would be minimal. This would be a new Act 250 exemption, which can be accomplished through the language proposed at the end of this report. This would also be a new exemption from the solid waste management rules, which ANR can administer through rulemaking.

2. Regulation of "On-farm" Composting

The Committee is proposing new exemptions to Act 250 to provide greater flexibility for certain types of on-farm composting. Composting operations on farms would be exempt if the compost is: (1) principally produced on the farm; (2) principally used on the farm where it was produced; or, (3) made only of manure produced on the farm and clean, high-carbon bulking agents from any source. In addition, existing law prohibits Act 250 from regulating parts of the farm that are not used to support the development (10 V.S.A. § 6001(3)(E)).

The Committee also proposes that the AAFM would have jurisdiction over certain composting operations on farms. Farm residuals, manures, and clean, high-carbon bulking agents could be composted on farm under On-farm and Small-Scale Facility Acceptable Composting Practices (FSACPs) to be developed jointly between ANR and AAFM, and administered and enforced by AAFM when composting takes place "on-farm". FSACPs are discussed in greater detail in section II.3 below.

The Committee could not reach consensus on three areas with respect to on-farm composting: (1) whether certain pre-consumer¹ or post-consumer² food residuals could be composted onfarm under AAFM oversight; (2) whether compost incorporating composted ruminant³ animals (animal mortalities) can be sold commercially; (3) whether there should be broader Act 250 exemptions for on-farm composting.

The AAFM and other Committee members agreed that up to 1,000 cubic yards of food processing residuals⁴ can be composted on a farm without losing "On-farm" status. The AAFM currently does not support the composting of other pre-consumer food wastes and post-consumer food wastes under 'On-farm' status because of the potential for plastics and other residual contamination. The AAFM noted that a farm would not be prohibited from composting these food residuals, however, ANR would have regulatory jurisdiction over the management of the facility. Other members of the Committee believed that residual contamination is not a concern that should bar "On-farm" status for those farms wishing to compost these materials.

The AAFM expressed concerns about the distribution of compost off farm when that compost was produced from ruminant mortalities that could be exposed to transmissible spongiform encephalopathies (TSEs or prions). While TSEs are not currently known to occur in Vermont livestock their persistence is such that compost produced on the farm with ruminant mortalities should remain on the farm so as to prevent any off farm exposure or spread of prions in the future.

Other Committee members believed that there was insufficient scientific information to support the restriction and that there were limited means of transmissibility through composted materials. These Committee members believed that disclosure that the materials were created with composted animals and an emergency response system would be sufficient to protect human and animal health. There was general agreement that state agencies and the involved stakeholders should keep abreast of new research and developments concerning prions.

Other than the Act 250 exemptions, the proposals under this section do not require statutory changes. Presently, ANR plans to adopt FSACPs under existing solid waste authorities and enter into a memorandum of understanding with AAFM for the administration of those FSACPs in this "On-farm" category.

¹ Pre-consumer food residuals are compostable food materials that have not been distributed to consumers. This can include: unused produce at a grocer or market, remainders from food preparation, and other similar materials.

² Post consumer food residuals are compostable food materials, leftover meal portions and other similar materials.

³ Ruminant includes any member of the order of animals which has a stomach with four chambers (rumen, reticulum, omasum, and abomasum) through which feed passes in digestion. The order includes, but is not limited to, cattle, buffalo, sheep, goats, deer, elk, and antelopes.

⁴ Food processing residuals is the remaining organic material from a food processing plant and can include whey and other dairy, cheese making, and ice cream residuals. It would not include materials from markets, groceries, or restaurants.

3. Regulation of Small-Scale Composting Facilities

The Committee proposes that small-scale composting facilities would be regulated by ANR. If small-scale composting occurs on a farm, the proposed Act 250 exemptions described in the On-farm section would apply. No agreement was reached on whether a new Act 250 exemption should be created for small-scale facilities located on farms.

Composting facilities eligible for regulation in the small-scale category must meet the following:

- Manage 100 or more but less than 2,000 cubic yards of food residuals per year;
- Manage less than 5,000 cubic yards of total organics; and
- The area involved with any portion of the composting activities must be four acres or less, not including the acreage required for liquid nutrient management.

Facilities classified as small-scale composting would be governed under new On-farm and Small-Scale Facility Accepted Composting Practices (FSACPs), to be promulgated by ANR.⁵ FSACPs would be modeled on AAFM's existing AAP program. A more detailed listing of topical areas identified for FSACPs is attached to this report (see Appendix B). These facilities would have a streamlined regulatory process in return for a prescriptive facility design and limited management options. This program would be structured with the following considerations in mind:

- FSACPs would be multi-media (water, air, waste) and use siting, prohibitions, and engineering standards to ensure protection of health and the environment. Facility siting and design would either preclude the need to obtain other ANR permits or proscribe practices that would ensure that the facility conforms to the requirements of other regulatory programs.
- If facilities meet the FSACPs, they would not be required to obtain a solid waste certification; they would only be required to register on a form provided by the ANR. This registration would require a certification of compliance with FSACPs.
- Staff time savings from reduction in permitting would be focused on outreach and compliance for composting facilities.
- The FSACPs would allow ANR to impose more stringent standards and require an applicant or operator to comply with a more stringent regulatory tier under appropriate circumstances. For example, an operator who after registering for a small-scale operation, either does not comply with the FSACPs and/or exceeds the amount of organics for that class, would be required to obtain a medium-scale categorical certification.

⁵ Facilities that do not meet FSACPs and which are "small-scale" or that wish to have more flexibility in design may apply for a medium-scale permit. If the ANR Secretary determines that the proposed small-scale facility size, processes, disposal activities, or the nature of the solid wastes require additional review and oversight not provided by the smallscale permitting section, the Secretary may require that the person apply for a medium-scale certification.

Statutory changes would be necessary to create a new class of solid waste registrations. The requirements for small-scale composting activities would require modifications to the Solid Waste Management Rules.

4. Regulation of Medium-Scale Composting Operations

The Committee proposes that medium-scale composting facilities would continue to be regulated by the ANR. If composting occurs on a farm, the same Act 250 exemptions described in the on-farm section would apply. No agreement was reached on whether a new Act 250 exemption should be created for medium-scale composting facilities on farms.

Composting facilities eligible for regulation as medium-scale must meet the following:

- Manage 100 or more but less than 5000 cubic yards of food residuals per year;
- Manage less than 40,000 cubic yards of total organics; and
- The area involved with any portion of the composting activities, excluding liquid nutrient management, must be less than 10 acres.

These facilities would be treated as categorically certified solid waste facilities.⁶ These certifications would be considered “minor” ANR permits and have established standards for the siting, design, and operations of the facility. The categorical certification would require that the facility operator apply to the ANR for a permit, and there would be a regulatory review of the project. In addition to solid waste jurisdiction, a facility operator would be required to apply for any other applicable permits (including stormwater, underground injection control, and indirect discharge).

No statutory modifications would be required to implement this class of solid waste certification. Amendments to the solid waste management rules would be needed to conform to the scope of this section.

5. Regulation of Large-Scale Composting Operations

The Committee proposes that large-scale composting facilities would continue to be regulated by ANR and Act 250. Composting facilities regulated as large-scale composting are those which:

- Manage 5,000 or more cubic yards of food residuals per year;
- Manage more than 40,000 cubic yards of total organics; and
- The area involved with any portion of the composting activities, excluding liquid nutrient management, is 10 acres or more.

Large composting facilities would be required to obtain a full solid waste certification, as well as any other permit required by ANR, and an Act 250 permit. No significant modifications are

⁶ Facilities that do not meet FSACPs and which are “small-scale” or that wish to have more flexibility in design may apply for a medium-scale permit. If the secretary determines that the proposed medium-scale facility size, processes, disposal activities, or the nature of the solid wastes require additional review and oversight not provided by the medium-scale permitting section, the secretary may require that the person apply for a large-scale certification.

planned for the management of large-scale composting facilities. No statutory modifications are required to implement any changes this class of solid waste certification.

Two areas were identified for continued work and clarification:

- The Solid Waste Management Rules would be modified to better address the management of leachate from a composting facility. Leachate, for purposes of this report, is defined as any water that comes into contact with organic residuals. Currently, fields used for the application of leachate would be required to obtain an individual solid waste permit. In the future, this would be part of a compost facility permit. Rule amendments would modify this requirement to ensure that those fields were managed in accordance with a nutrient management plan approved by the ANR.
- The ANR needs to clarify how stormwater requirements apply to composting facilities and the interrelationship between stormwater requirements and solid waste requirements.

Amendments to the Solid Waste Management Rules would be needed to clarify some requirements to these types of facilities.

III. Composting Education and Outreach

A. Background

Education and outreach for composting awareness and technical assistance are conducted by state agencies and solid waste districts in conjunction with several groups. Current programs are diverse yet unevenly distributed throughout Vermont. They include:

- | | | |
|--|---|---|
| ➤ Master Composter Program | ➤ School presentations | ➤ Backyard composting demonstration sites |
| ➤ Composting Listserver | ➤ Worm composting programs for schools and classrooms | ➤ Drop-off organics collection |
| ➤ Information Booths | ➤ School curricula | ➤ Business on-site organics collection |
| ➤ Website compost pages | ➤ Community sustainability fairs | ➤ Compost collection container loaners for community and private events |
| ➤ Hotlines | ➤ Tours of composting facilities | ➤ Sale of discount compost bins |
| ➤ Direct mailings | ➤ Technical assistance by phone, email, meetings, and site visits | ➤ Promotion of use of compost |
| ➤ E-newsletters | ➤ Business assistance | ➤ On-farm composting demonstration sites & technical assistance |
| ➤ Press releases | ➤ Waste audits | ➤ On-farm composting including mortality composting workshops |
| ➤ Paid print and radio ads | ➤ Carbon Lite Lunch program for businesses | |
| ➤ Vermont Organics Recycling Summit (VORS) | ➤ Free and discounted kitchen compost collectors or pails | |
| ➤ Stakeholder and legislative planning efforts | | |
| ➤ E&O publication creation and distribution | | |
| ➤ Compost book and video borrow libraries | | |

B. Recommendations for Increasing Public Awareness of the Benefits of Composting

1. Umbrella Recommendation

The Committee recommends the State provide increased coordination of interested groups to share resources and create a multi-year statewide campaign (running 5-10 years). The campaign needs to be recognizable via print materials/logo /tag lines, etc., allow modification for individual groups, and incorporation into current programs. The state and districts should also coordinate with other groups that are working on similar issues: such as, the Governor's Climate Change Collaborative, the Waste Prevention Working Group, etc.

2. Specific Recommendations

- Develop better, more interactive web pages (ANR, AAFM,, and the Composting Association of Vermont (CAV)), to include more links to other sites, online directories, and compost grant reports
- ANR continues support of composting classes, such as Vermont Master Composter
- ANR and CAV continue support to present Vermont Organics Recycling Summit
- Distribute info, brochures. Develop high-quality brochures.
- Develop PSAs and distribute to media, including radio, TV and internet
- Work with local cable
- Create challenges with monetary rewards supported by businesses
- Improve curricula for schools
- Increase advertisement of the Compost Loan Library for schools
- Toolkits for schools, businesses, community groups
- Increase # of demonstration sites
- State lead by example

3. Possible Partners

- DEC WM and WQ Divisions
- Association of Vermont Recyclers (AVR)
- Solid Waste Districts & Alliances
- Composting Association of Vermont
- Vermont League of Cities and Towns & local officials
- Colleges
- Businesses / Generators
- Waste Prevention Working Group- Interested Stakeholders
- Sustainability Groups
- Climate Change Groups
- Natural Resource Conservation Districts
- USDA and EPA
- Watershed Associations
- Local Conservation Associations
- Nature Groups
- Natural History Museums Gardening Clubs/Horticulture Societies
- Co-ops
- Trade Associations
- Electric Utilities

C. Recommendations for Increasing Awareness Within the Composting Community...

- Host workshops and training sessions
 - Daylong or half-day workshops on a particular topic for targeted audiences.
 - 45-minute general workshops, possible venues: the Vermont Farm Show, NOFA Winter Conference.
- ANR to coordinate efforts with others, AAFM, NRB, CAV, USDA Natural Resource Conservation Service, Natural Resource Conservation Districts, consultants (The Highfields Institute, Waste Not Resource Solutions, etc), VT Earth Institute, AVR, solid waste districts and alliances, and local conservation districts, watershed associations. etc.

IV. Recommended statutory modifications

Sec. __. 10 V.S.A. § 6001(3)(D) is amended to read:

(D) The word "development" does not include:

* * *

(vi) The construction of improvements below the elevation of 2,500 feet for the on-site storage, preparation, and sale of compost provided that:

(I) The compost is produced from no more than 100 cubic yards of material per year;

(II) The compost is principally produced on the farm;

(III) The compost is principally used on the farm where it was produced; or

(IV) The compost is made only from manure produced on the farm and clean, high-carbon bulking agent.

Sec. __. 10 V.S.A. § 6001(31) is added to read:

(31) "Compost" means a stable humus-like material produced by the controlled biological decomposition of organic matter through active management, but shall not mean sewage or septage or materials derived from sewage or septage.

Sec. __. 10 V.S.A. § 6605h is added to read:

§ 6605h. SOLID WASTE REGISTRATION

(a) Notwithstanding sections 6605, 6605f, and 6611 of this title, no person may construct, substantially alter, or operate registered solid waste facility without registering the facility with the secretary.

(b) The secretary may, by rule, list certain solid waste categories as eligible for registration pursuant to this section and the standards for the construction, operation, and maintenance of those facilities eligible for registration under this section.

(c) This section shall not apply to the storage, treatment, or disposal of:

(1) municipal solid waste;

(2) sludge;

(3) septage; or

(4) mineral processing waste. For purposes of this section, mineral processing waste means solid waste from an industrial or manufacturing facility that processes materials from a mining activity and where chemicals, as defined by the secretary by rule, are intentionally added as a part of that processing.

V. Contact Information for an Individual or Department

All inquiries can be directed to ANR, Department of Environmental Conservation, Solid Waste Management Program. Mail address: 103 South Main Street, West Office, Waterbury, Vermont 05671-0404. Phone: 802-241-3444.

Appendix A: Compost Study Committee Membership

Agency of Natural Resources:	Cathy Jamieson, Solid Waste Program Manager
Agency of Agriculture, Food, and Markets:	James Leland, ARMES, Lab & Standards Director, or Phil Benedict, retired Director
Composting Association of Vermont:	Pat O'Neill, Program Director Brian Jerosé, Treasurer, also Partner, Waste Not Resource Solutions,
Vermont League of Cities and Towns:	Karen Horn, Director of Public Policy and Advocacy
Interested Environmental Group:	Amy Shollenburger, Executive Director, Rural Vermont
Vermont Association of Solid Waste Managers	Teri Kuczynski, District Manager, Addison County Solid Waste Management District
State Historic Preservation Officer:	Scott Dillon, State Survey Archeologist, Vermont Division for Historic Preservation
Natural Resources Board:	Melanie Kehne, Associate General Counsel

Link to Compost Study Committee (H.873, Act 130) Website

http://www.anr.state.vt.us/dec/wastediv/solid/Compost_Work_Group.htm

Appendix B: On-Farm and Small-Scale Facility Acceptable Composting Practices

(FSACP)

Composting facilities that meet the On-farm composting criteria with food processing residuals or the Small-Scale Facility criteria will meet the FSACP's by using a prescriptive design that would include requirements such as minimum set back or a specific compost pad design. The following is a list of topics that should be evaluated and included in developing the FSACP's:

Standards

Acceptable feedstock
Quantities
Facility Siting

Facility Operations

Feedstock receiving
Record Keeping
Active composting
Compost curing
Finished compost storage area
Bagging or processing area
Vector Management
Odors
Noise
Safety considerations
Daily checklist
Operator Training/qualifications
Litter Control
Contaminant management
Sales area
Roads and parking areas
Office building
Equipment storage and maintenance building
or area
Traffic

Composting Process

Target C:N ratios/compost recipe
PFRP Requirements/temperature and time
requirements for compost piles
Process for managing compost piles
Process for determining when compost
process is complete
Pile size
Monitoring

Run-off Management

Liquids management from the feedstock
storage area
Liquids management from the active
composting area
Liquids management from the curing area
Liquids management from the finished
composting storage area
Swales or stormwater management around or
within facility
Vegetative buffer requirements
Run-off management from tipping and
storage areas

Appendix C: Flow Chart of Existing Regulations

FLOW CHARTS OF SOLID WASTE, WATER QUALITY, ACT 250 (NATURAL RESOURCE BOARD LAND USE PANEL), AND AGRICULTURE REGULATIONS THAT APPLY TO COMPOSTING. EFFECTIVE JULY 1, 2008As is standard in most flow charts:

- diamonds are questions with a yes and no answer.
- rectangles are actions that need to be taken
- circles are instructions to go to the beginning of another section of the chart.

For ease of understanding, in color copies of these charts, the following is true.

Diamonds with colored borders are questions from just one set of regulations.

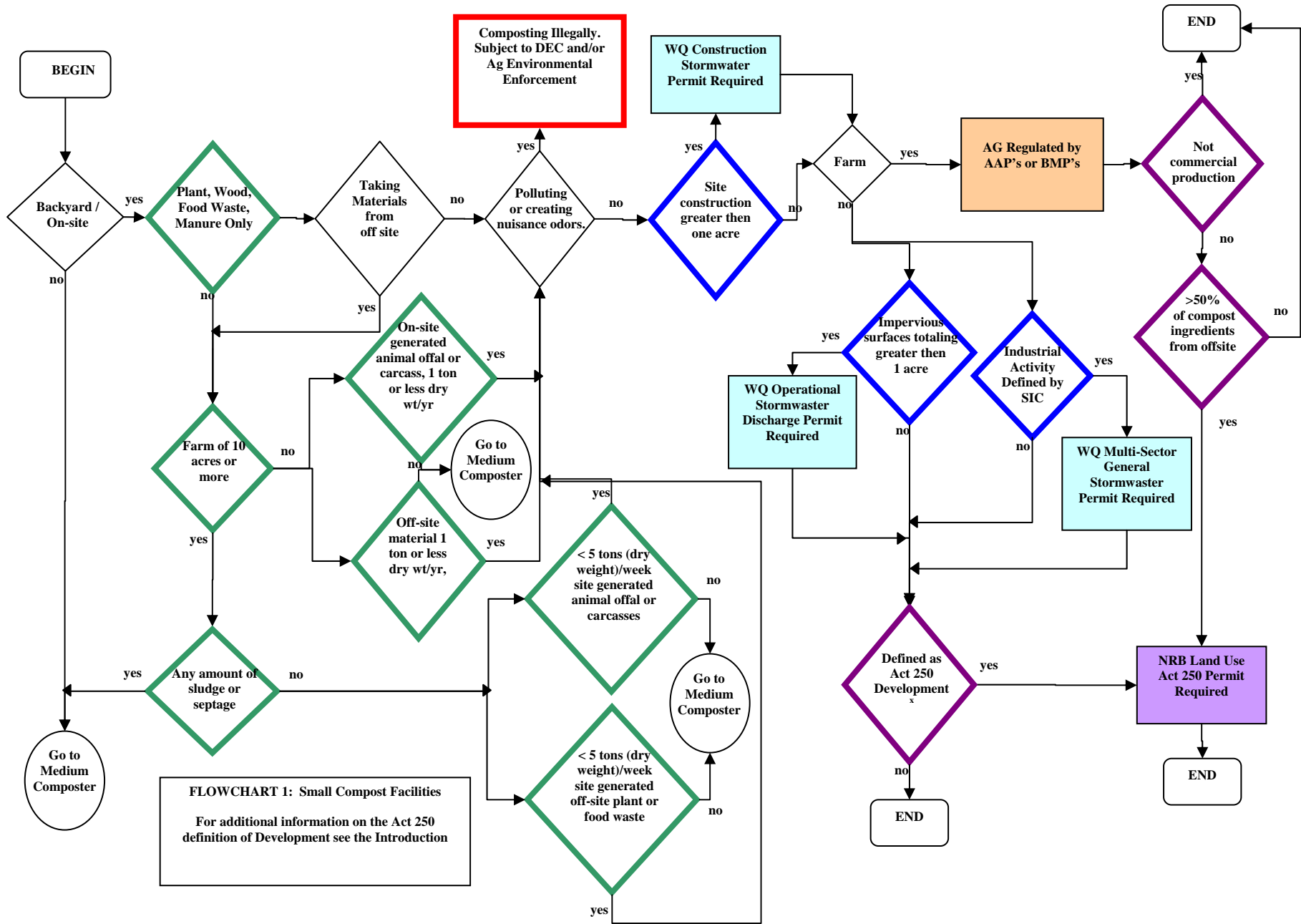
- Green bordered diamonds are from Solid Waste Regulations
- Blue colored diamonds are from Water Quality Regulations
- Purple Colored Regulations are from Act 250 Regulations

Colored Rectangles represent certain types of permits or rules.

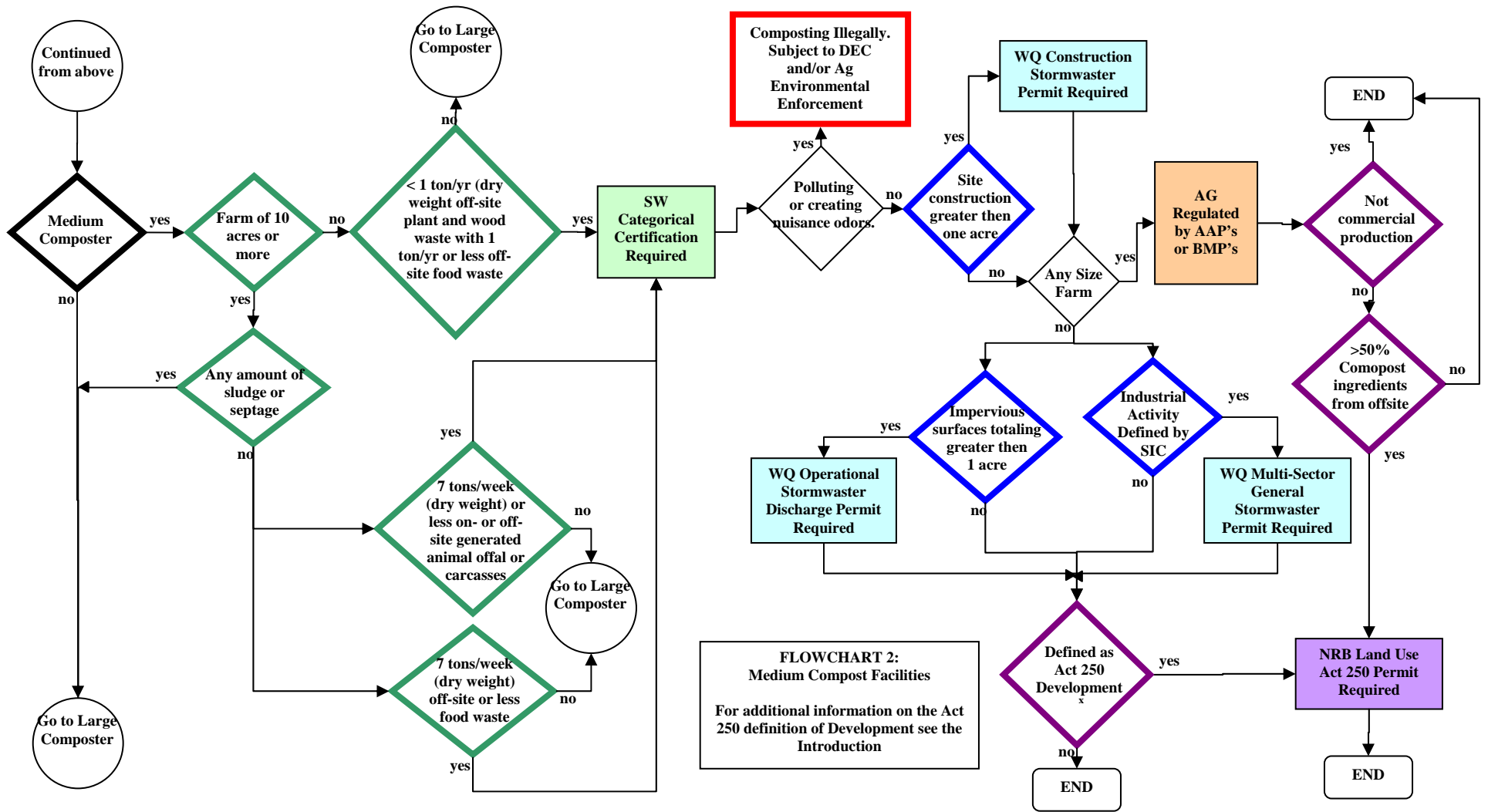
- Green colored rectangles indicate Solid Waste Permits.
- Blue colored rectangles indicate Water Quality Permits.
- Purple colored rectangles indicate an Act 250 Permit.
- Tan colored rectangles indicate Agriculture Rules.

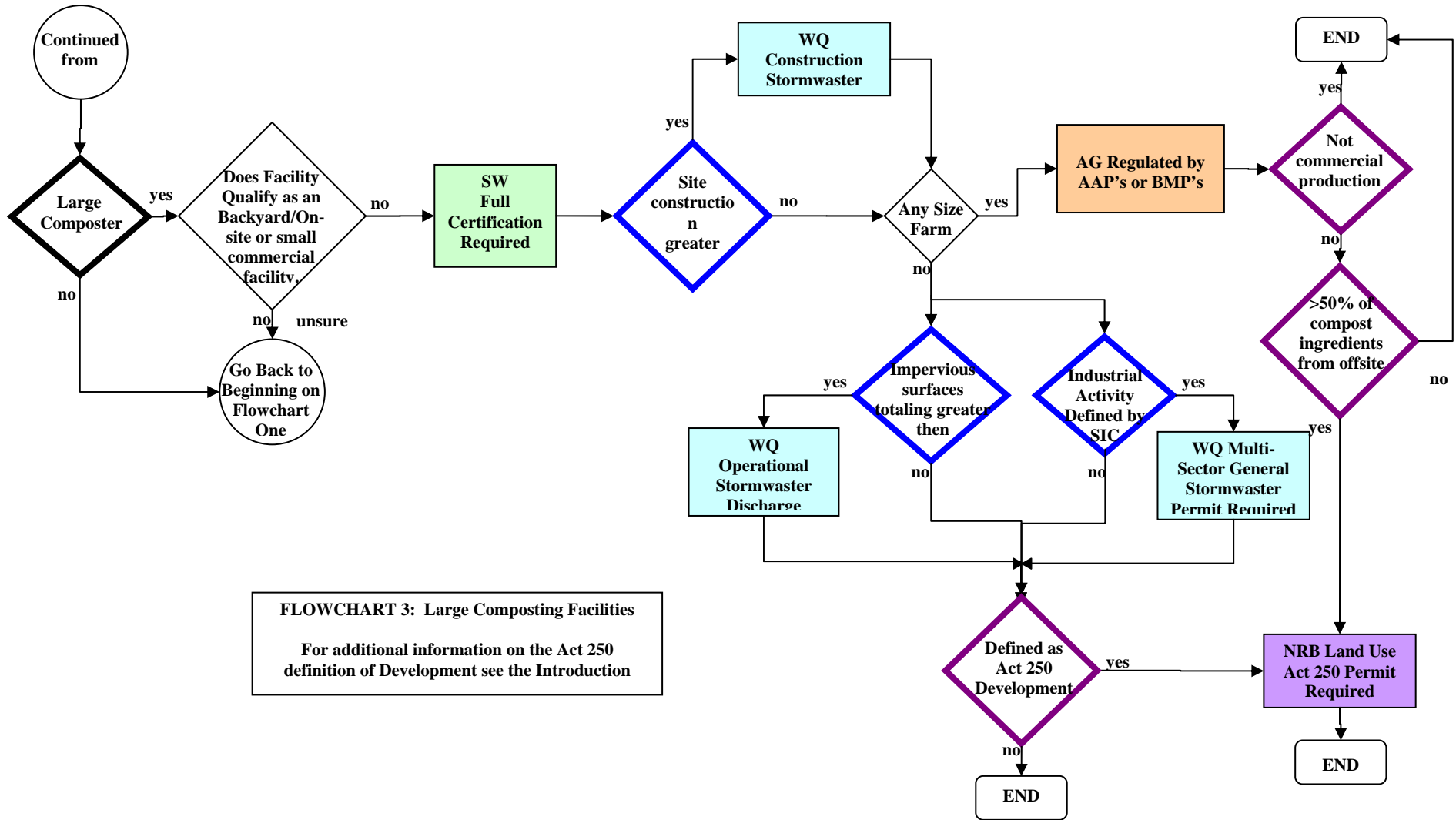
When the ‘yes’ or ‘no’ arrow branches from a single box, it means both branches must be taken to determine if a permit is required. This is known as an ‘and’ branch.

With one exception, this draft of the flow chart only shows when permits are needed, not when they are not needed. This could be added if the committee feels it is warranted.



FLOWCHART 1: Small Compost Facilities
 For additional information on the Act 250 definition of Development see the Introduction





Appendix D: Summary Table of Five Tier Regulatory Proposal

De Minimis or “Backyard” Composting	<ul style="list-style-type: none"> • Less than 100 cubic yards per year of combined organic material. Exempt from ANR regulation • New Act 250 exemption;.
On-Farm Composting	<ul style="list-style-type: none"> • AAFM has oversight if compost is made with farm wastes, manures, bulking agents, and up to 1000 cubic yards per year food processing residuals. • Act 250 – not triggered if compost is principally produced or principally used on the farm, or made only with manure produced on the farm and unlimited bulking agents. Existing law limits Act 250 jurisdiction on farms – 10 V.S.A § 6001(3)(E).
Small-Scale Composting	<ul style="list-style-type: none"> • Manage between 101 and 2000 cubic yards per year of food residuals • Manage less than 5000 cubic yards of total organics per year • No more than 4 acres involved with the composting activity, not including acreage required for liquid nutrients management • Must follow FSACPs • Solid Waste approval via registration process
Medium-Scale Composting	<ul style="list-style-type: none"> • Manage less than 5000 cubic yards per year food residuals and less than 40,000 cubic yards of combined organics • No more than 10 acres involved with the composting activity, not including acreage required for liquid nutrients management • Solid Waste approval via categorical certification process
Large-Scale Composting	<ul style="list-style-type: none"> • Manage greater than 5000 cubic yards per year food residuals and/or greater than 40,000 cubic yards of combined organics • Greater than 10 acres, not including acreage required for liquid nutrients management • Requires Full Solid Waste Certification • Act 250 – subject to triggers currently established

Note: Conversion factors: Multiply cy by 0.45 for post consumer food waste; 0.45 for combined organics; 0.175 for leaf and yard waste; 0.7 for manure and bedding; 0.6 for pre consumer or process food waste sludge; and 0.25 for wood waste to get wet tons of material.

To convert liquids: Multiply gallons by 0.0042 ($8.337/2000 = 0.0042$) to get tons of liquid.