COMMONWEALTH of VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY
Solid Waste Guidance Memorandum

Subject: Waste Guidance Memo No. 02-2009
On-Site Composting of Routine Animal Mortality

To: Regional Waste Program Managers
Regional Water and Agriculture Program Managers
Regional Solid Waste Inspectors
Regional Agricultural Inspectors

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Summary:
This guidance is being provided in response both to new Federal Food and Drug Administration (FDA) requirements restricting cattle rendering and to biosecurity concerns within the poultry industry. This guidance provides for on-site composting as an alternative disposal method for routine livestock, poultry and aquaculture mortality.

Electronic Copy: An electronic copy of this guidance is available on DEQ's website at http://www.deq.virginia.gov/ .

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Disclaimer: *This document is provided as guidance and, as such, sets forth standard operating procedures for the agency. However, it does not mandate any particular method nor does it prohibit any alternative method. If alternative proposals are made, such proposals should be reviewed and accepted or denied based on their technical adequacy and compliance with appropriate laws and regulations.*

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

On-Site Composting of Routine Livestock, Poultry and Aquaculture Mortality

I. Background and Introduction

Due to inaccessibility, regulatory restrictions, expense, and biosecurity concerns, many farmers no longer can obtain or afford rendering services. Other disposal options such as landfilling, incineration and uncontrolled burial each have their own economic and environmental limitation. As a result, there has been an increased interest in composting routine animal mortality as an alternative disposal option. Based on this interest, the Virginia Department of Environmental Quality (DEQ) has developed this guidance document in cooperation with the Virginia Cooperative Extension (VCE) and the Virginia Department of Agriculture and Consumer Services(VDACS).

Due to the FDA's new rule change, rendering facilities in Virginia have notified their customers that they will cease acceptance of cattle mostly because of the requirement to remove brains and spinal cords from cattle 30 months of age and older. This FDA rule applies only to cattle and not to other livestock species such as sheep, swine, or horses. However, the combination of limited distribution of rendering plant facilities and cost of rendering services has further reduced the use of this process. Small-scale on-farm composting has proven very successful for poultry mortality management, and the Virginia Cooperative Extension (VCE) has successfully demonstrated large animal composting as a preferred option for livestock. DEQ has developed this guidance for on-site composting as an alternative method for the disposal of routine animal mortality. This guidance provides criteria for the siting and operation of on–site mortality composting in such a manner as to not create an open dump, hazard or nuisance.

II. Authority

§ 10.1-1402 of the Virginia Waste Management Act, Chapter 14 (§ 10.1-1400 *et seq.*) of Title 10.1 of the Code of Virginia, authorizes the Virginia Waste Management Board to promulgate regulations necessary to carry out its powers and duties and the intent of the Act.

III. Definitions

The definitions in the Virginia Waste Management Act and the Virginia Solid Waste Management Regulations, 9 VAC 20-80 *et seq.* (VSWMR) apply to this policy. However, for clarification, some VSWMR definitions are included below:

"Nuisance" means an activity which unreasonably interferes with an individual's or the public's comfort, convenience or enjoyment such that it interferes with the rights of others by causing damage, annoyance, or inconvenience.

"Open dump" means a site on which any solid waste is placed, discharged, deposited, injected, dumped or spilled so as to present a threat of a release of harmful substances into the environment or present a hazard to human health. Such a site is subject to the Open Dump Criteria in 9VAC20-80-180.

IV. Hierarchy for Animal Mortality Management

DEQ recognizes that the distribution of animal disposal options varies across the Commonwealth. A hierarchy of animal disposal options has been developed to formally recognize DEQ's preference for environmentally sound animal mortality management in Virginia. The order of mortality management options that should be pursued are as follows:

1) Rendering- to recycle animal mortality into useful products in commerce;
2) On-site composting- to convert animal mortality back into stable soil nutrients
3) Concentrated animal composting – composting of mortality at DEQ permitted composting facilities
4) Incineration - using a DEQ permitted incinerator to sanitarily dispose of mortality
5) Landfill burial – burial in a permitted sanitary landfill (please contact your local landfill first for their acceptance procedures).
6) On-site burial - burial on the site where the animal mortality waste occurs

V. Guidance Document

This guidance applies to the on-site composting of routine livestock, poultry and aquaculture mortality. In cases of epidemic or mass culling, composting may be a viable mortality management option; however, such operations are outside the scope of this policy. In those cases, the State Veterinarian shall be contacted and disposal shall be in accordance with the appropriate state regulations and requirements.

DEQ must emphasize in this guidance that management of animal mortalities should follow the waste management hierarchy as promoted by DEQ (see Section IV). Thus, animals should be reused (rendered), treated and reused (composted on-site or at a landfill), disposed at a permitted facility (incineration or landfilled), or lastly buried on-site. DEQ andVirginia Extension Service have additional information on methods of on-site composting for large animals and other disposal options. Please contact your local DEQ office or Virginia Extension office for information on disposal options.

Livestock owners or farmers who are not able to render their animal mortality should implement on-site composting as their primary mortality management method. Individuals choosing to compost their routine mortality shall adhere to each of the following criteria for on-site composting:

- Animal carcass composting shall only be on the property which is used for the raising or husbandry of animals.
- Composting of carcasses should be initiated within 48 hours of death and prior to creation of an open dump, hazard, or nuisance situation.

- Composting piles or windrows should not be within:
    - 50 feet of the property boundary;
    - 100 feet of any surface waters (streams, creeks, ponds, lakes, rivers, wetlands, etc.);
    - 200 feet from any well or spring currently used as a drinking water source;
    - 50 feet from caves and sinkholes;
    - a 25-year floodplain as defined by FEMA and/or local planning officials;
    - two (2) feet of the seasonal high groundwater table unless on an impervious surface such as concrete or asphalt;
    - 50 feet of rock outcrops;
    - 50 feet of a intermittently flowing drainage swales; and
    - 200 feet from any off-property residence, health care facility, school, recreational park area, daycare or similar public institution
- On-site composting will typically employ windrow or aerated static pile (methods Type B facilities)
- Compost piles shall be constructed, maintained and sheltered such that the compost materials cannot be dispersed by wind and rain, and combustion and fire are prevented.
- A composting facility will be required to obtain a storm water discharge permit if they are deemed a significant source under the provisions of 9VAC25-31-120 A 1 e.
- No more than a total of 1/3 acre of compostable materials are stored on-site;
- The compost pile does not exceed 12 feet in height above base grade.
- Composting windrows or piles should be constructed to meet the following criteria:
    - Base layer of sufficient porosity for air circulation and depth (12" minimum) to absorb free liquids;
    - Cap layer of sufficient thickness (18" minimum) to provide insulation for the process and prevent odors and scavenging animals;
    - Designed with a shape and depth to shed precipitation; and
    - Situated such that runoff from the compost site does not flow directly into any surface water body.

The following materials shall not be used in composting:

- Hazardous waste;
- Treated or painted wood;
- Municipal wastewater treatment sludge, biosolids or septage;
- Agricultural waste containing herbicide or pesticide residues; or
- Any other material prohibited by the Virginia Solid Waste Management Regulations and the Virginia Vegetative Waste Management Regulations.

Pathogen destruction can be confirmed by documenting that the interior of the compost pile (designed in the manner described above) achieves a temperature of 131 degrees Fahrenheit for three (3) consecutive days.

Compost shall be adequately cured to destroy all soft animal tissues to eliminate odors, destroy pathogens, and protect human health and environment. Finished compost shall be used as fertilizer and be land applied on the farm at agronomic rates.

Technical assistance for on-site composting is available from the Virginia Cooperative Extension or your DEQ regional office.

Recommended technical publications on mortality composting include:

- Livestock http://compost.css.cornell.edu/naturalrenderingFS.pdf
  http://cru.cahe.wsu.edu/CEPublications/eb2031e/eb2031e.pdf
  http://info.ag.vt.edu/vce/offices/newsletters/FINAL%20Composting%20Large%20Animal%20Mortality%20Final%20Draft%2010-12-05.pdf
- Poultry http://www.ext.vt.edu/pubs/poultry/442-037/442-037.html
- Aquaculture www.wvu.edu/~agexten/aquaculture/waste02.pdf

VI. Other Animal Mortality Composting Facilities

Composting of animals on-site (i.e., on the property of generation) shall be generally exempt under 9 VAC 20-80-150.F. In limited circumstances, DEQ may allow the composting of animal production and butchering wastes. Non-farm sites may be approved on a case by case basis depending on the composting process proposed and the regulatory requirements. Examples of potentially eligible facility types include:

- Slaughterhouses;
- Multi-farm composting cooperatives;
- Fish and poultry hatcheries;
- Canneries and seafood cleaning facilities;
- Zoos and animal care facilities;
- Road kill management areas.

These types of facilities, which do not raise or husband animals, and which wish to pursue mortality composting shall contact their regional DEQ office to schedule a site visit and discussion of the composting requirements applicable to their operation. Initiating these composting operations prior to obtaining DEQ approval/permit is considered a violation of the Virginia Solid Waste Management Regulations

VII. Compliance Evaluation

Animal mortality is highly putrescible and of potential concern for vectors and pathogens detrimental to human health and the environment. These wastes should be transported quickly and directly to the site of reuse or disposal. Animal mortality should not be handled through a public convenience center or waste transfer station unless specifically allowed by the DEQ.

Mortality composting will not be appropriate in all communities and geographic areas of the Commonwealth. In areas where other waste disposal options are available, the option

highest in the mortality management hierarchy shall be pursued first. Animal mortality composting shall not be allowed in areas where it is prohibited by local government. Please contact your local government concerning prohibitions.

Animal mortality composting on the site of origin is considered exempt under 9 VAC 20-80-150.F of the Virginia Solid Waste Management Regulations. The composting should be done in a manner that does not constitute a public nuisance, health hazard or open dump. DEQ retains the obligation and right to investigate any and all sites of animal composting, to the limit allowed by state law, to verify that site operations do not create a public nuisance, open dump, or hazard to human health and the environment.

For purposes of determining compliance with this guidance, a site may be deemed a public nuisance if:

1. There is any surface exposure of animal carcass;
2. The site is malodorous to the point of offense to neighbors and passers-by;
3. It attracts scavengers, rodents, insects or other vectors;
4. The compost piles discharge fluids to or have stained the ground indicative of discharge to any surface water body;
5. Standing water is pooled on or in contact with the compost pile;
6. Materials from the compost piles are scattered by wind or rain;
7. If fire attributable to composting occurs;
8. There is a discharge from the composting area directly into State waters;
9. If the resulting compost is not promptly and efficiently applied to farmlands;
10. The site is unsightly and ill-kept; or
11. The site constitutes an open dump.

The speculative accumulation provisions of the VSWMR (defined in 9VAC 20-80-10 of the VSWMR) shall apply to accumulated feedstock and finished compost stockpiles. Previously composted materials can be a worthwhile bacterial accelerant when added to a compost pile. However, recurrent use of the same material in composting to avoid land application or disposal as solid waste will not be allowed. At least 75% of any material accumulated and/or composted must be used within one year of accumulation or it may become subject to regulation as a solid waste.

This guidance only applies to farms/facilities which raise or husband animals and that compost routine animal mortality on their site as an alternative to disposal as solid waste. This activity is exempted from the definition of solid waste under VSWMR, 9VAC 20-80-150.F. The resulting compost is to be applied to at or below prescribed agricultural loading rates. Please note, compost used by the public may also be subject to requirements under the Virginia Department of Agricultural and Consumer Services (VDACS). Commercial facilities composting animal mortality (i.e., not livestock owners/farms which only compost routine mortality from the raising or husbandry of animals on-site) shall be subject to DEQ permit requirements and are subject to the composting facility requirements of Virginia Solid Waste Management Regulations.

VIII. Collaboration Process

This guidance was developed by a small project team consisting of Central and Valley Regional Office staff from the Solid Waste and Agricultural programs. Staff from VCE VDACS were consulted during its preparation. The timing of the rendering ban precluded the formation of a larger team to develop this guidance.