

Maryland Department of the Environment
Land Management Administration

**Maryland Technical Standards for Concentrated Animal Feeding Operations (CAFOs)
Covered by the National Pollutant Discharge Elimination System (NPDES) Permit**

Supplemental Information

June 2011

**The following is the Maryland Department of the Environment (the
“Department”) Supplemental Information, which is in a form of a response to
EPA comments regarding Maryland Technical Standards (TS)**

INCORPORATION BY REFERENCE

In accordance with the Maryland Department of the Agriculture regulations - Code of Maryland Regulations (COMAR) 15.20.07.02, the Maryland Nutrient Management Manual – Nutrient Recommendations, Technical Standards & Criteria, Laws and Regulations is incorporated by reference into the regulations that govern the nutrient management program. Specifically additional technical standards required for Nutrient Management Plans (NMPs) found under COMAR 15.20.08.

COMAR 15.20.04 covers the certification and licensing of individuals or businesses that prepare and offer farm NMPs. Certification requires a person to meet educational requirements and to comply with all nutrient management requirements. The Maryland Nutrient Management, Consultant's Resource Notebook provides technical guidance outlining program requirements and the supporting metrics which govern the Maryland Department of Agriculture inspections of the records of consultants to ascertain their compliance with program requirements when preparing NMPs.

The definition of “Nutrient Management Plan” under the Maryland Department of the Environment regulation COMAR 26.08.01.01B(53-1) references the Maryland Department of the Agriculture regulations COMAR 15.20.07 and 15.20.08.

The “Phosphorus Site Index” is defined under the Maryland Department of the Agriculture regulations - Code of Maryland Regulations (COMAR) 15.20.08.03B(30).

PHOSPHORUS SITE INDEX (PSI)

Item 4. Does the TS contain a clearly outlined field specific assessment tool for N and P transport from the field for surface waters?

Response:

The PSI takes into consideration phosphorus loss potential due to site and transport characteristics such as soil composition and proximity to waterways. Management and source characteristics are also considered as part of the formula. Even though P levels in the soil may have a Fertility Index Value (FIV) greater than 100 but less than 150, P fertilizer could be added at crop removal rates. University of Maryland Extension has an ongoing technical work group looking at the risk of P transport across physiographic provinces, inclusion of new science specifically regarding P transport and an increased emphasis on management decisions. The University of Maryland has completed a data analysis of information collected from 9,000 fields between 2001 and 2008 and is making revisions to the PSI. University experts in agronomy and soil fertility are considering changes to the PSI which will make it a more accurate tool to balance crop needs for phosphorus with the risk of excess levels of phosphorus in the soil. The revised PSI is expected to further limit the use of manure as a crop fertilizer.

Where soils have high phosphorus concentrations FIV values ranging from 100 – 150, and PSI evaluations indicate low to medium “P” losses, certified nutrient management planners generally do not recommend additional “P” at plant removal rates in soils with excessive “P” due to economic reasons. NMP writers need to be cognizant that their clients (farmers) would be wasting limited resources currently \$6.85 per ton on di or mono-ammonium phosphate on soils not needing additional phosphorus. An exception to this might be the addition of up to 30 lbs of starter “P” banded when planting corn for grain.

Item 6. Where the assessment requires a P-based application rate is it constrained to a 1-year P removal rate?

Response:

Where the results of a PSI calculation reveal a “high” risk for “P” movement, phosphorous fertilizer can be applied only at crop/plant removal rates.

Item 10. Does the TS provide the actual removal rates, soil test recommendations or both for crops, depending on the answer to Item 9?

Response:

Crop removal rates can be located in the Maryland Nutrient Management Consultant’s Resource Notebook, Section III “Phosphorus Removal by Crops in the Mid-Atlantic” “Nutrient Management, NM-3 Revised August 2004”.

MANURE & SOIL ANALYSIS

Item 13. Does the TS address the requirement for manure analysis?

Item 15. Does the TS address methods for collecting manure samples?

Response:

The manure analysis requirement is based on the following:

- The Maryland Department of the Agriculture regulations - Code of Maryland Regulations (COMAR) 15.20.08.03B(25), which defines “Nutrient content” as the percentage of any primary nutrient as total nitrogen (N), available phosphate (P₂O₅), or soluble potash (K₂O) in any type or source of fertilizer;
- The Maryland Nutrient Management Consultant’s Resource Notebook, Section II, “Sampling Manure for Nutrient Content” University of Maryland, Maryland Cooperative Extension - Nutrient Management NM-6 Revised February 2006;
- Sample collection must be performed in accordance with the “Recommended Methods of Manure Analysis, (A3769), 1-2/2003”;

Item 16. Does the TS address which components to include in the manure analysis?

Response:

COMAR 15.20.08.03 B(25) defines “Nutrient Content” as the percentage of any primary nutrient as total nitrogen (N), available phosphate (P₂O₅) or soluble potash (K₂O) in any type or source of fertilizer. Based on the lab test results whether the units of measure is expressed in lbs/ac or ppm, the certified nutrient management planner can easily calculate the nutrient value derived from any source of manure less mineralization for “N” when developing a fertilizer recommendation.

“Nutrient Content” pertains to the source, “nutrient value” is the resultant nutrient content that could be available for plant growth.

Item 17. Does the TS address acceptable method(s) for conducting the manure analysis?

Response:

All manure sample analyses must be performed by an independent laboratory or other laboratory acceptable by the Department using standards, procedures and methods that are acceptable to the Department. Manure sampling and analysis must be conducted in accordance with the “Recommended Methods of Manure Analysis, (A3769), 1-2/2003”.

Item 18. Does the TS address which laboratories are acceptable for performing the manure analysis?

Response:

See Response to Item 17.

Item 21. Does the TS address the methods for collecting soil samples?

Response:

Soil sampling methods are addressed in the Maryland Nutrient Management Consultant’s Resource Notebook, Section II “Soil, Tissue & Manure Assessment” Soil Sampling Procedures for Nutrient Management. In the case of the Penn State Analytical Lab, additional sampling and quality control methods are supplied on a list of instructions authored by the laboratory.

Item 22. Does the TS address which components to include in the soil analysis?

Response:

Yes- Confirmed in the General Discharge Permit for soil testing at least once every three years for pH and phosphorus.

Item 23. Does the TS address acceptable method(s) for conducting the soil analysis?

Response:

Soil sample analysis must be performed by an independent laboratory or other laboratory acceptable by the Department using standards, procedures and methods that are acceptable to the Department. Soil testing standards, procedures, and methods must be performed in accordance with the “Recommended Soil Testing Procedures for the Northeastern United States, 2nd Edition, Northeastern Regional Publication No. 493, Revised December 15, 1995.”

Item 26. Does the TS address when manure application should be delayed?

Response:

Time of application is addressed in COMAR 15.20.08.05H and Section I-D “Nutrient Application Guidelines” of the Maryland Nutrient Management Manual – Nutrient Recommendations, Technical Standards & Criteria, Laws and Regulations. The regulation and the guidelines provide that best management practices shall be used when necessary to minimize or control nutrient movement to sensitive areas or to surrounding water bodies. The regulations and guidelines also provide that nutrient applications to a crop shall be made as close to plant periods as possible.