



# COMMONWEALTH of VIRGINIA

## Office of the Governor

Jane H. Woods  
Secretary of Health and Human Resources

December 22, 2004

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Dr. Lynton S. Land  
125 Airstrip Lane  
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Dear Dr. Land:

Thank you for your recent letter concerning nutrient management provisions for phosphorus restrictions as contained in the Biosolids Use Regulations (12 VAC 5-585-550A). In response to my letter to you, dated October 19, 2004, you have expressed additional concerns about water quality impacts that may result from not restricting the land application of phosphorus (P) in fertilizers, including biosolids, to just the amount needed to support crop growth (*i.e.*, agronomic rates).

As noted in my previous letter to you, the Virginia Department of Health (VDH) measures the P content in the soil prior to the application of biosolids and uses the result as one of the determining criteria for the preparation of a complete nutrient management plan (NMP). For sites with a very-high soil test P (above 55 ppm when converted to the Mehlich 1 standard), a NMP must be completed and submitted by the land applier if requested by the Department of Conservation and Recreation (DCR). This requirement was developed with the assistance of DCR in the 1997 amendments to the *Biosolids Use Regulations*.

As a result of legislation adopted in 2003 (SB 1088), the NMP requirements in the *Code of Virginia* were amended. VDH has been working with the Biosolids Use Regulations Advisory Committee (BURAC) to develop amendments to the *Biosolids Use Regulations* addressing the new NMP requirements in the *Code*. Dr. Greg Evanylo, a BURAC member who works for the Department of Crop and Soil Environmental Science at Virginia Polytechnic Institute and State University, has advised VDH that risk of P pollution of surface water is a function of both P bioavailability (*i.e.*, functionally active concentration) and transport characteristics, which include soil slope and length, soil erodibility, soil infiltration, type and density of vegetative cover, distance to surface water bodies, buffer strip size, etc. Furthermore, Dr. Evanylo notes that agronomic soil test methods for assessing P availability were not developed for preventing environmental degradation and that higher than agronomically necessary P rates can be applied to some soils and landforms with no greater risk of P contamination of surface water than with the minimum amount necessary for optimal crop production. He further states that soil test P levels, by themselves, are insufficient indices for land application rate recommendations.

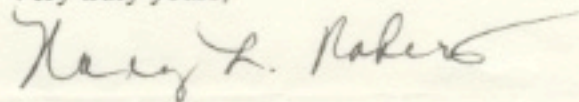
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Dr. Evanylo recommends the use of a scientifically-advanced, comprehensive assessment tool, such as the P index, as a much more useful method for determining environmentally sound P application rates. He points out that studies have validated the use of the P index at a range of sites. In some cases, the P index predicted (correctly) that the risk of P loss was greater on soils that contained lower concentrations of P than other soils having lower transport risk and/or lower P bioavailability. These issues have been discussed at meetings of the Technical Advisory Committee (TAC) established by DCR to develop recommendations concerning the content of NMP's prepared by certified nutrient management planners. I understand that you have served as a member of the TAC and have participated in the discussions of use of a P index as a regulatory tool.

Dr. Evanylo also points out that crop yields are not increased by adding P beyond the "high" soil test P level. Agronomists have never advocated spending more money where no yield gain is possible, as this represents poor economics as well as a potential impact on water quality and the environment. VDH agrees with Dr. Evanylo's comments and recognizes the need to reduce or even eliminate the further application of P to soils whose P-binding thresholds have been exceeded. However, such regulatory decisions must be based on the use of an appropriate tool, such as the P index. I believe that DCR is also looking at the P index for possible use in developing NMP's. VDH will continue to rely on available scientific evidence to provide a basis for developing amendments to the *Biosolids Use Regulations* to ensure proper nutrient management is achieved with land application of biosolids.

Should you desire further information, please contact C. M. Sawyer, Director, Division of Wastewater Engineering, VDH, 109 Governor Street, Fifth Floor, Richmond, Virginia 23219 by telephone at (804) 864-7463, or by FAX at: (804) 864-7475.

Very truly yours,



*for* Jane H. Woods

JHW/cms

cc: Robert B. Stroube, M.D., M.P.H.

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