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## Proposed Regulation Agency Background Document

<b>Agency name</b>	Department of Conservation and Recreation
<b>Virginia Administrative Code (VAC) citation</b>	4 VAC 5 -15
<b>Regulation title</b>	Nutrient Management Training and Certification Regulations
<b>Action title</b>	Revise nutrient management plan content and development procedures to enhance nitrogen and phosphorus management provisions in order to protect water quality.
<b>Document preparation date</b>	01/03/05

This information is required for executive branch review and the Virginia Registrar of Regulations, pursuant to the Virginia Administrative Process Act (APA), Executive Orders 21 (2002) and 58 (1999), and the *Virginia Register Form, Style, and Procedure Manual*.

### Brief summary

*In a short paragraph, please summarize all substantive changes that are being proposed in this regulatory action.*

Existing nutrient management training and certification regulations will be amended to include revised criteria for nutrient management plans capable of reducing nitrogen and phosphorus loss from land to ground and surface waters. Modifications to phosphorus management practices are necessary to reduce water quality impacts from the land application of fertilizer, animal manure, sewage sludge, and industrial wastes. Amendments in nitrogen application criteria in nutrient management plans will be primarily addressed through improved timing of land application of nitrogen containing materials. Additional changes include a revised listing of Virginia soils to include those soil series established since the last regulatory adoption in 1995 and other technical changes.

## Legal basis

*Please identify the state and/or federal legal authority to promulgate this proposed regulation, including (1) the most relevant law and/or regulation, including Code of Virginia citation and General Assembly chapter number(s), if applicable, and (2) promulgating entity, i.e., the agency, board, or person. Describe the legal authority and the extent to which the authority is mandatory or discretionary.*

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Several mandates exist for this regulation. § 10.1-104.2 of Chapter 1 of Title 10.1 of the Code of Virginia requires the Department to establish criteria for nutrient management plans. These criteria were last promulgated in the Department's 1995 *Virginia Nutrient Management Standards and Criteria*.

*§ 10.1-104.2. Voluntary nutrient management training and certification program. (1994, c. 159.)*  
*A. The Department shall operate a voluntary nutrient management training and certification program to certify the competence of persons preparing nutrient management plans for the purpose of assisting land owners and operators in the management of land application of fertilizers, municipal sewage sludges, animal manures, and other nutrient sources for agronomic benefits and for the protection of the Commonwealth's ground and surface waters. The Department shall promulgate regulations:*  
*3. Providing for criteria relating to the development of nutrient management plans for various agricultural and urban agronomic practices;...*

In addition, Article 3 of Chapter 3.1 of Title 62.1 of the Code of Virginia requires the Department to adopt and implement additional regulatory or other changes to nutrient management plan criteria by December 31, 2005 the Department concludes are appropriate to better address water quality issues associated with poultry waste.

*§ 62.1-44.17:1.1. Poultry waste management program. (1999, c. 1.)*  
*C. The program shall include, at a minimum:*  
*2. Provisions requiring that:*  
*a. Nitrogen application rates contained in nutrient management plans developed pursuant to this section shall not exceed crop nutrient needs as determined by the Department of Conservation and Recreation. The application of poultry waste shall be managed to minimize runoff, leaching, and volatilization losses, and reduce adverse water quality impacts from nitrogen;*  
*b. For all nutrient management plans developed pursuant to this section after October 1, 2001, phosphorus application rates shall not exceed the greater of crop nutrient needs or crop nutrient removal, as determined by the Department of Conservation and Recreation. The application of poultry waste shall be managed to minimize runoff and leaching and reduce adverse water quality impacts from phosphorous;*  
*c. By December 31, 2005, the Department of Conservation and Recreation, in consultation with the Department of Environmental Quality, shall (i) complete an examination of current developments in scientific research and technology which shall include a review of land application of poultry waste, soil nutrient retention capacity, and water quality degradation and (ii) adopt and implement regulatory or other changes, if any, to its nutrient management plan program that it concludes are appropriate as a result of this examination; and*  
*d. For all nutrient management plans developed pursuant to this section after December 31, 2005, and not prior thereto, phosphorous application rates shall conform to the provisions of subdivision 2 b of this subsection and shall be in accordance with other regulatory criteria and standards, if any, amended or adopted by the Department of Conservation and Recreation pursuant to subdivision 2 c of this subsection to protect water quality or to reduce soil concentrations of phosphorous or phosphorous loadings. The application of poultry waste shall*

*be managed to minimize runoff and leaching and reduce adverse water quality impacts from phosphorous.*

Also, requirements set forth in 40 CFR Parts 9, 122, 123 and 412 as published in the Federal Register Volume 68, No. 29, dated February 12, 2003 requires states to establish for concentrated animal feeding operations (CAFOs) criteria for nutrient management plans that will be required in NPDES permits. Section 412.4(c) stipulates that CAFOs must develop and implement a nutrient management plan that is based on a field specific assessment, that addresses the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals, while minimizing nitrogen and phosphorus movement to surface waters. Recent final regulations promulgated by the Water Control Board in 9 VAC 25-191 and 9 VAC 25-192 requires DCR to begin utilizing more stringent phosphorus criteria for nutrient management plans required for Water Control Board permits for confined animal feeding operations by January 1, 2006. This action was necessary to obtain EPA approval of the Commonwealth’s delegated program for regulating confined animal feeding operations.

**Purpose**

*Please explain the need for the new or amended regulation by (1) detailing the specific reasons why this regulatory action is essential to protect the health, safety, or welfare of citizens, and (2) discussing the goals of the proposal and the problems the proposal is intended to solve.*

The purpose of this proposed action is to develop and adopt revised criteria for nutrient management plan content and development procedures. Nutrient management plans are developed in Virginia for a variety of purposes including: as a condition of financial incentives for the implementation of best management practices, as a condition for certain animal waste and biosolids application permits, or for voluntary use by land managers. The plans are prepared to manage land application of fertilizers, sewage sludge, manure, and other nutrient sources for agronomic benefits and in ways that protect water quality.

**Substance**

*Please briefly identify and explain the new substantive provisions, the substantive changes to existing sections, or both where appropriate. (More detail about these changes is requested in the “Detail of changes” section.)*

Substantive changes are proposed in 4 VAC 5-15-150 A. 2. that pertain to nutrient application rates for phosphorus. The existing regulation states that phosphorus application rates should be managed to reduce adverse water quality impacts. The proposed regulation states that phosphorus application rates shall be managed to minimize adverse water quality impacts. The nutrient management planner is given several procedures to determine appropriate rates of phosphorus application, but must select a method for use in each instance and adhere to the criteria.

Substantive changes are proposed in 4 VAC 5-15-150 A. 4. that pertain to timing of land applications of nitrogen containing materials. The existing regulation requires nutrient management plans to be developed such that an agronomically feasible crop is planted within 30 days of the application of any nutrient (nitrogen, phosphorus, or potassium) source if no actively growing crop is in place. An exception is allowed that organic nutrient sources may be applied between December 21 and March 16 if necessary and if certain conditions are met. There is scientific evidence that nitrogen from fall and winter applications of poultry manure and other organic nitrogen containing materials can migrate in soils to

depths beyond the reach of subsequent crops and potentially contaminate groundwater. The proposed regulation requires that such applications be made no more than 30 days prior to crop planting for high risk sites and 60 days prior to crop planting for other sites.

**Issues**

*Please identify the issues associated with the proposed regulatory action, including:*

- 1) the primary advantages and disadvantages to the public, such as individual private citizens or businesses, of implementing the new or amended provisions;*
- 2) the primary advantages and disadvantages to the agency or the Commonwealth; and*
- 3) other pertinent matters of interest to the regulated community, government officials, and the public.*

*If the regulatory action poses no disadvantages to the public or the Commonwealth, please so indicate.*

Nutrient management plans are prepared for the purpose of assisting land owners and operators in the management of the land application of fertilizers, animal manures, municipal sewage sludges, and other nutrient sources for agronomic benefits and for the protection of the Commonwealth’s ground and surface waters. Nutrient application to land is agronomically necessary in many cases for the economically sustainable production of crops. If applied at excessive rates, at improper times, or if misapplied, nutrients can be lost from the root zone in soils and enter ground and surface waters. Excessive nutrient levels in ground or surface waters used for drinking can be harmful to human health if ingested. Drinking water containing above 10 ppm nitrate-nitrogen is believed to cause methemoglobinemia (blue-baby syndrome - a lack of oxygen transport to the brain) in infants. Excessive nutrient runoff into surface waters can result in algae blooms and depletion of dissolved oxygen, thereby stressing or causing death in fish and other aquatic organisms of commercial, ecological or recreational significance to the Commonwealth. The amended provisions provide increased protections of ground and surface waters, while maintaining efficient crop production techniques that benefits the general public and the farming community. Disadvantages of the amended provisions are certain impacts to livestock and poultry producers, wastewater treatment plant owners, and sludge land application contractors. The disadvantages to these parties are increased costs of disposal where excess quantities of animal waste or sewage sludge exist. The proposed phosphorus criteria will result in lower waste application rates per acre on many sites. The proposed nitrogen timing amendments will result in increased costs to develop storage for sewage sludge, seasonally landfill sewage sludge when necessary, and/or utilize winter cover crops to manage sludge generated at times of the year when agronomic crops do not utilize nitrogen.

The primary advantage to the Commonwealth is increased protection of ground and surface water quality. Another advantage is the contribution of this action to meeting the Commonwealth’s commitments to reduce nutrient loads to the Chesapeake Bay by 2010 to avoid more stringent requirements proposed by EPA if attainment of water quality standards are not realized.

**Economic impact**

*Please identify the anticipated economic impact of the proposed regulation.*

<p><b>Projected cost to the state to implement and enforce the proposed regulation, including (a) fund source / fund detail, and (b) a</b></p>	<p>Implementation of this proposed regulation, particularly concerning the changes related to phosphorus management, will require the</p>
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<p><b>delineation of one-time versus on-going expenditures</b></p>	<p>development of additional training materials and examination questions, increase the training time requirements of staff that provide training to certified planners, and increase the need for state oversight. This may be accomplished through reallocation of position responsibilities. There will be a one time cost to reprogram the software used by many planners to develop nutrient management plans at an estimated cost of \$50,000 non-general funds and recurring cost to maintain the program of approximately \$20,000 non-general funds annually.</p>
<p><b>Projected cost of the regulation on localities</b></p>	<p>No impact expected except for those localities that land apply sewage sludge. Improved phosphorus management and improved timing of applications for sewage sludge generated in-state will require additional application land area and more seasonal storage or seasonal landfilling of sludge other management techniques such as the use of cover crops for winter application at an estimated cost of \$500,000.</p>
<p><b>Description of the individuals, businesses or other entities likely to be affected by the regulation</b></p>	<p>This regulation affects certified nutrient management planners that prepare nutrient management plans. The nutrient management plans prepared by these individuals impacts dairy, beef, swine, poultry, and other farmers required to have nutrient management plans, sewage sludge land application contractors, wastewater treatment plants that land apply sewage sludge, and certain industrial waste land application permittees.</p>
<p><b>Agency's best estimate of the number of such entities that will be affected</b></p>	<ul style="list-style-type: none"> <li>-290 certified nutrient management planners (approximately ½ of these are private sector).</li> <li>-1,260 dairy, beef, swine, and poultry farmers that are regulated under Water Control Board permits.</li> <li>- 9 sewage sludge land application contractor firms.</li> <li>- Approximately 35 Virginia sewage treatment plants that land apply sewage sludge.</li> <li>- Approximately 20 out-of-state sewage treatment plants that dispose of sewage sludge through land application contracts in Virginia.</li> <li>- Approximately 30 industrial waste land appliers.</li> </ul>
<p><b>Projected cost of the regulation for affected individuals, businesses, or other entities</b></p>	<p>Phosphorus management changes will generate the majority of the cost impact to these entities. Nutrient management plans will be more complex to assess phosphorus. Since the department is proposing the availability of several methods (of varying complexity) to determine phosphorus application rates, the change in plan development cost could range from essentially no change to as much as an \$8 per acre increase. However, the majority of the impact to these entities will be the potential for increased costs of manure utilization by farmers that are required by regulations promulgated under § 62.1-44.17:1 and § 62.1-44.17:1.1 and those impacted by 40 CFR Parts 9, 122, 123 and 412. These Water Control Board and EPA regulations mandate that DCR require</p>

	<p>phosphorus based nutrient management plans beginning in 2006, so the economic impact occurred as a result of those regulations. The department’s proposed regulations do not require nutrient management plans be developed, they do specify criteria concerning how phosphorus based nutrient management plans will be developed. Additional detail to indicate additional site and environmental features and setbacks on plan maps as recommended by a JLARC study will add planning time for on-the-ground site investigation and map production. This could increase planning costs approximately \$1 per acre for plans developed by department staff and those developed by other certified planners.</p>
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**Alternatives**

*Please describe any viable alternatives to the proposal considered and the rationale used by the agency to select the least burdensome or intrusive alternative that meets the essential purpose of the action.*

Due to the mandates requiring revision of the regulations, there is not identified alternative to this action to amend the regulations. Pertaining to the phosphorus planning criteria, the agency considered four conceptual methods and hybrids of these. These included the soil test phosphorus method, environmental phosphorus threshold, phosphorus index, and the current Poultry Waste Management Act method. After extensive consideration and discussion of these methods by the technical advisory committee, the agency proposes to make a combination of the first three methods available, rather than limit the approach to one method. Concerning the nitrogen timing issue, the agency considered adopting present requirements used in animal waste permit nutrient management plans of a 30 day limit prior to crop planting. If view of storage issues and difficulties for this provision for the sewage sludge land applicators, the window for application is being proposed to be within 60 days of crop planting for lower risk sites with respect to nitrogen loss potential if certain conditions are met.

**Public comment**

*Please summarize all comments received during public comment period following the publication of the NOIRA, and provide the agency response.*

<b>Commenter</b>	<b>Comment</b>	<b>Agency response</b>
CBF, SELC, VSDA, VFB, VDACS, NAPS, VPF, VDACS	We request representation of our constituent group on the advisory committee.	Broad representation of these constituent groups were included on the technical advisory committee.

<p>SELC</p>	<p>Include representation on the advisory from the academic community with water quality expertise (outside of Virginia Tech), and representatives from natural resource agencies concerned with water quality like DGIF and VMRC.</p>	<p>The academic community represented on the advisory committee included staff with water quality expertise. Institutions represented included Virginia Tech, James Madison University and Virginia State University.</p>
<p>CBF</p>	<p>DCR's NOIRA did not state potential impacts to commercial and recreational fishing industries, and tourism. The economic value of the Chesapeake Bay to the economies of Virginia and Maryland has been estimated at \$678 billion.</p>	<p>The agency concurs. This will be corrected in the proposed regulation background document.</p>
<p>VDACS &amp; PPC</p>	<p>DCR's NOIRA did not state the potential impacts to the stability of thousands of farm families from the contemplated regulatory action.</p>	<p>The agency concurs. This will be corrected in the proposed regulation background document.</p>
<p>CBF, SELC</p>	<p>Adopt phosphorus requirements for all nutrient management plans (biosolids, swine, dairy, etc.</p>	<p>The agency concurs. This issue was discussed by the technical advisory committee. There was general consensus to include phosphorus requirements for all nutrient sources that are land applied.</p>
<p>CBF</p>	<p>Phosphorus criteria needs to be protective of water quality, be relatively easy for planners to incorporate, be relatively easy for permittees to understand, be able to be monitored for compliance with regulatory requirements.</p>	<p>The proposed regulation criteria for phosphorus were structured with these concepts being considered.</p>
<p>VPF</p>	<p>The standards and criteria of nutrient management plans have significant ramifications for poultry farmers because state poultry waste management permitting regulations require compliance with them. It is important that VDCR adopt scientifically sound, flexible standards that meet water quality objectives of the Commonwealth with the least possible economic burden on farmers.</p>	<p>The proposed regulation criteria for phosphorus were structured with these concepts being considered. Several science based options for managing phosphorus are included in the proposed regulation. Farmers and nutrient management planners can select the best option for their specific situation.</p>
<p>VSDA</p>	<p>The complexity of the nutrient management regulations, the lack of flexibility nutrient management planners have to make on the farm changes, micromanagement of cropping systems by DCR, and lack of flexibility farmers have to comply with plans, all are creating</p>	<p>The agency requested the technical advisory committee members to suggest specific ways that the regulations could be made more flexible while still achieving the goals of nutrient management. No specific suggestions resulted. Although a number of the TAC members preferred the use of the phosphorus index method for phosphorus management, the</p>

	<p>unreasonable hardships on farmers and are being counterproductive to improving water quality. It is our hope that through the implementation of sound science and input from all parties, these issues can be addressed and high water quality achieved and farmers can stay in business.</p>	<p>Department still felt it was important to provide farmers with alternative methods to calculate their application rates. Accordingly, the agency worked to develop criteria for other optional methods for developing phosphorus based NMPs that are less sensitive to cropping system and other changes farmers need to make due to weather variation or other factors. Also, the agency did modify language to specify that NMPs contain stipulations to recommend plan modification under certain circumstances such as cropping system changes. This is less restrictive than present language that states that NMPs shall be invalid if these changes are not made.</p>
<p>LL</p>	<p>Nutrient management plans for nitrogen and phosphorus should be mandated for all agricultural land throughout the watershed.</p>	<p>The agency concurs that all NMPs should be based on nitrogen and phosphorus criteri that is protective of water quality. However, the agency does not have authority to specify where nutrient management plans are required through this regulation.</p>
<p>HS</p>	<p>DCR is urged to adopt regulations that assure that excessive phosphorus and nitrogen are not applied to land in Virginia. Currently the Department of Health’s Biosolids Use Regulations provides in part: “The applied nitrogen and phosphorus content of biosolids shall be limited to amounts established to support crop growth.” The proposed DCR regulations are needed so that all parties (generators, applicators, farmers and the public) can be assured that nitrogen and phosphorus limitations are understood and complied with.</p>	<p>The agency concurs that phosphorus should be addressed on all agricultural lands that require NMPs. This issue was discussed by the technical advisory committee. There was general consensus to include phosphorus requirements for all nutrient sources that are land applied. Regarding the request to “limit nitrogen and phosphorus to amounts established to support crop growth,” this statement does appear in the Biosolids Use Regulations and this is one of the methods identified in this proposed regulation whereby phosphorus applications should not exceed crop nutrient needs based on a soil test.</p>
<p>NAPS</p>	<p>The recent draft tributary strategies highlight the need to dramatically curtail nutrient inputs to the Chesapeake Bay. Animal (including human) waste is phosphorus-rich, so when it is applied to meet the nitrogen needs of the crop (as is the current practices), overfertilization with phosphorus is guaranteed. This NOIRA begins to address the need for mandated nutrient management plans to limit the fertilization to the amounts of both nitrogen and phosphorus needed by the crop so that excess fertilizer is not released</p>	<p>This regulatory action is an incremental step to achieving more optimized use of nitrogen and phosphorus. However, the agency does not have authority to specify where nutrient management plans are required through this regulation.</p>

<p>SELC</p>	<p>to the Bay.</p> <p>Phosphorus management criteria selected should consider long term impacts from continued phosphorus application, not just short term. Simply moving phosphorus from areas of high soil phosphorus to areas of low phosphorus will not resolve the problem in the long run. Phosphorus should only be applied at levels that can be utilized by plant growth.</p>	<p>The agency is concerned that even with the adoption of this regulation, certain sites will continue to receive over application of phosphorus and soil phosphorus levels will build. This regulatory action is an important incremental step to achieving more optimized use of phosphorus based on agronomic and environmental considerations. Limits to soil test phosphorus values are included in the phosphorus index and this proposed regulation whereby no additional phosphorus may be added based on this parameter along, although at an extremely high level of soil phosphorus.</p>
<p>CS</p>	<p>With phosphorus based plans limited to plant uptake, you can't build up poor soil, especially on pasture. High fertilized soil in good grass has less erosion than low phosphorus soils with weak grass. Regulating nutrients is okay if economics is considered. It is unfair to regulate only poultry growers.</p>	<p>The phosphorus application rates proposed based on soil test phosphorus levels have been shown through research to be adequate to produce economically optimum yields. However, since poultry litter contains nitrogen and phosphorus, a phosphorus limited rate of application will often not provide enough nitrogen for crop needs. In these cases, nutrient management plans developed under these regulations must recommend other nitrogen sources such as nitrogen fertilizer be utilized to provide nitrogen for economically optimum yields. This does represent an additional cost to the producer if poultry litter has little or no economic cost or value. The proposed regulation does address phosphorus for agricultural sectors other than only the poultry grower.</p>
<p>NRCS</p>	<p>Nutrient recommendations for wheat and barley in Standards and Criteria needs to specify if they pertain to both grain and silage, or separate recommendations need to be developed based on Virginia Tech or other scientific research.</p>	<p>Recommendations for barley and wheat silage have been added to Virginia Nutrient Management Standards and Criteria for this proposed regulation.</p>
<p>NRCS</p>	<p>Conversion to cropping systems that return high levels of carbon to soils, such as in continuous no-till, can increase short-term needs for nitrogen. After a conversion period of soil carbon buildup, N rates could then be adjusted downward.</p>	<p>The proposed regulations allow the use of the pre-sidedress nitrate test to make adjustments to nitrogen application rates based on actual indications of nitrogen mineralization and availability in each specific field. This would assist in adjusting for trends in carbon buildup or carbon reduction in soils.</p>
<p>NRCS</p>	<p>Clear guidance on adjustments to N recommendations for cover crops is needed, including if, when and how to apply N to cover crops and adjustment of N application rate,</p>	<p>A new definition for "trap crop" has been added to the proposed regulation and an allowance for up to 40 pounds of nitrogen to be applied without the need to carry this nitrogen credit to subsequent crops.</p>

	<p>timing, and placement to subsequent crops depending on the C/N ratio of the cover crop</p>	
NRCS	<p>Nutrient management plans should contain appropriate recommendations for any relevant non-polluting nutrients (i.e., potassium, boron, etc.) needed to achieve yield goals.</p>	<p>The appropriate sections of the proposed regulation and Virginia Nutrient Management Standards and Criteria have been strengthened to emphasize this component of NMPs.</p>
NRCS	<p>Improve readability of NutMan computer program print-outs.</p>	<p>The NutMan computer program is not promulgated through this regulation, nor is it required to be used by certified planners in developing NMPs. However, the agency concurs with this suggestion and will seek to make improvements in print-out formats.</p>
NRCS	<p>Streamline the process of reviewing and approving plans for permitted livestock facilities.</p>	<p>This regulation does not address plan reviews.</p>
NRCS	<p>Eliminate certification fees for employees of DCR, local soil and water conservation districts, cooperative extension, DEQ, and NRCS.</p>	<p>The issue of exemptions to fees by governmental entities was discussed with the advisory committee. A primary goal of the training and certification program is to increase private sector involvement in nutrient management planning. The agency does not support this concept and does not desire to increase fees for non-governmental employees to offset this loss of operational funding that would result from a change of the current fee structure.</p>
VFB	<p>Address the question of flexibility when on-farm changes need to be made due to weather or other complications that do not allow the farmer to precisely follow the plan.</p>	<p>The agency requested the technical advisory committee members to suggest specific ways that the regulations could be made more flexible while still achieving the goals of nutrient management. No specific suggestions resulted. Although a number of the TAC members preferred the use of the phosphorus index method for phosphorus management, the Department still felt it was important to provide farmers with alternative methods to calculate their application rates. Accordingly, the agency worked to develop criteria for other optional methods for developing phosphorus based NMPs that are less sensitive to cropping system and other changes farmers need to make due to weather variation or other factors. Also, the agency did modify language to specify that NMPs contain stipulations to recommend plan modification under certain circumstances such as cropping system changes. This is less restrictive than present language that states that NMPs shall be invalid</p>

<p>VFB</p>	<p>Nutrient management has evolved from a voluntary program to more and more instances where plans are required by regulations, creating a need to open the nutrient management regulations for potential changes.</p>	<p>if these changes are not made.  The agency concurs.</p>
<p>SYN</p>	<p>The nutrient management program should maintain credibility with the agricultural industry by adopting criteria that is proven through science based research in Virginia, such as the phosphorus index. Flexibility should be encouraged for the planner and farmer to make quick and site specific modifications to any nutrient management plan. Upgrading the NutMan computer program can help in these objectives.</p>	<p>The agency generally concurs with this comment.</p>
<p>SYN</p>	<p>The department should thoroughly consider the economic impact on farming operations and consult with affected segments of the agricultural industry before adopting changes to the current program.</p>	<p>The agency used the technical advisory committee to help accomplish the stated objectives in the comment. Several methods to develop phosphorus based NMPs are allowed in the proposed regulation to help lessen the economic impact of this change. In considering the timing of nitrogen applications in organic nutrient sources, the agency has proposed a compromise between present requirements in animal waste permits and present requirements in biosolids use permits.</p>
<p>VT</p>	<p>We do not recommend or advocate the use of soil test phosphorus based on crop response potential or soil phosphorus thresholds as the sole criteria for establishing phosphorus based management in Virginia. These two methods could be used as initial screening tools and/or as a component of the phosphorus index approach which would fit under the proposed structure #4 in the agency NOIRA. The phosphorus index approach integrates factors necessary to identify fields and management practices with the highest potential for phosphorus losses to surface waters. We do fully recommend and endorse the phosphorus index approach for developing</p>	<p>The agency concurs with this comment and has proposed the availability of several methods to develop phosphorus based NMPs.</p>

	<p>phosphorus based nutrient management plans in Virginia. We also support the use of soil test phosphorus levels as a screening tool to assist in identifying those fields needing a full implementation of the phosphorus index.</p>	
LL	<p>Current programs are unsatisfactory because they guarantee phosphorus pollution. Sewage sludge should be treated like any other kind of phosphorus rich animal waste and be subject to mandatory nutrient management plans for nitrogen and phosphorus.</p>	<p>The agency is addressing the need for nitrogen and phosphorus criteria for all NMPs regardless of the nutrient source. The Board of Health was mandated by the §32.1-164.5 of the Code of Virginia as amended following the 2003 General Assembly to revise their regulations to require nutrient management plans on all sewage sludge application sites.</p>
LL	<p>We must not only reduce the concentrations of nitrate and phosphate in groundwater (via nutrient management plans), but remove as much nitrate and phosphate as possible before the groundwater can discharge into surface waters. Mandated nutrient management plans for nitrogen and phosphorus and 100 foot buffer strips are the only non-draconian steps that can be taken to reduce the most important source of nonpoint pollution from agriculture.</p>	<p>The agency is addressing groundwater protection through improved timing requirements for the land application of biosolids and animal waste. There is a subsurface component for certain sites in the proposed phosphorus index, however, phosphorus contamination of groundwater from agriculture is not believed to be as widespread as is nitrate-nitrogen contamination.</p>
PPC	<p>The Poultry Waste Management program utilized very conservative phosphorus controls because of a lack of scientific information at the time of establishment. The years of work to develop the phosphorus index indicate that the controls used in the past were more constrictive than they need to be. As we move forward, the phosphorus index has to be part of the poultry waste management program. The phosphorus index is the only one of the four listed alternatives that takes into account the actual phosphorus runoff into streams.</p>	<p>The proposed regulation allows for the use of the phosphorus index within the constraints of the Poultry Waste Management Act.</p>
VDACS	<p>DCR should be willing to update its software in order to adopt new methods that would provide farmers with more site-specific planning information that would meet the objectives of nutrient management planning at minimal cost to farmers.</p>	<p>The agency agrees that the NutMan computer program helps facilitate nutrient management planning, helps provides site-specific information and reduces the personnel cost of developing NMPs. The agency intends to reprogram the NutMan computer program to</p>

<p>Key to Commenters:</p> <p>CBF CS HS LL NAPS  NRCS  PPC SELC  SYN VDACS  VFB VPF VSDA  VT</p>	<p>Chesapeake Bay Foundation Charles Schooley Henry Staudinger Dr. Lynton Land Northumberland Association for Progressive Stewardship USDA Natural Resources Conservation Service Pilgrim's Pride Corporation Southern Environmental Law Center Synagro Virginia Dept. of Agriculture and Consumer Services Virginia Farm Bureau Federation Virginia Poultry Federation Virginia State Dairymen's Association Virginia Tech - Drs. Mullins, Wolfe, Zelazny, Daniels, Pease, and Hodges</p>	<p>incorporate revised nitrogen criteria and as many of phosphorus criteria as is practical.</p>
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**Family impact**

*Please assess the impact of the proposed regulatory action on the institution of the family and family stability.*

This proposed regulatory action may impact certain farm families if land for manure application generated by confined hog, dairy, or poultry farms is less than the acreage necessary to safely utilize the manure based on allowable phosphorus application rates. Conversely, failing to adopt the proposed regulation may impact certain families that depend on adequate quality of water in rivers and the Chesapeake Bay to make a living. These would include families with members employed as watermen, or in other commercial and recreational industries such as tourism that are dependent on these natural resources. Also, the protection or improvement of water quality does have health and safety benefits for families that depend on groundwater as a source of drinking water.

**Detail of changes**

*Please detail all changes that are being proposed and the consequences of the proposed changes. Detail all new provisions and/or all changes to existing sections.*

*If the proposed regulation is intended to replace an emergency regulation, please list separately (1) all changes between the pre-emergency regulation and the proposed regulation, and (2) only changes made since the publication of the emergency regulation.*

For changes to existing regulations, use this chart:

Current section number	Proposed new section number, if applicable	Current requirement	Proposed change and rationale
4 VAC5-15-10			<p>Add definitions for: cereal crop, composted organic nutrient source, no-till, phosphorus index, RUSLE2, tilled, and trap crop. These additional terms are referenced in the proposed regulations.</p> <p>Modify definitions for: certified nutrient management planner, cool season grass, crop nutrient needs, crop nutrient removal, environmentally sensitive site, organic nutrient source, nutrient management plan, and soil erosion. The definitions for these terms are modified for clarification reasons.</p>
4 VAC-5-15-40		<p>To be eligible for certification: Requires degree college degree with a major in an agriculturally related area and one year of practical experience related to nutrient management planning; or a combination of nutrient management educational courses or training and three years of practical experience related to nutrient management.</p>	<p>Adds stipulation that degree in agriculturally related area must have included coursework in the area of nutrient management such as soils, soil fertility and plant science. This change insures that there is some education in nutrient management topics and allows the department to consider a broader range of degree programs as related to agriculture (examples: biology, geology) if some coursework was taken that is directly relevant to nutrient management.</p> <p>Adds ability to consider implementation of nutrient management concepts and principles in lieu of nutrient management planning experience. This change allows the department to accept a broader range of experience backgrounds.</p>
4 VAC 5-15-60		<p>Applicants for certification shall achieve a passing score on each of the essential components of the nutrient management examination...</p>	<p>Strike “essential components” and add “parts.” This change is needed for clarification that the exam is divided into two or more parts that are scored individually, not 10 parts pertaining to each major knowledge area.</p> <p>The knowledge area numbered as 10 is amended to include timing of nitrogen applications and phosphorus nutrient management planning and assessment techniques. This change reflects increased emphasis on these issues in the proposed</p>

			regulation.
4 VAC 5-15-80			Requires persons certified prior to the effective date of the amended regulation to attend a specific additional training course to maintain certification. This change is needed to familiarize these persons with significant changes in criteria, particularly relating to phosphorus management.
4 VAC 5-15-100 A		Requires reporting of acreage of plans for various land uses by county and watershed codes.	Requires reporting of acreage of plans for various land uses specified as new or revised acres by county and watershed codes. This change is needed for departmental reporting of nutrient reduction progress to the Chesapeake Bay Program.
B1		Requires certified planners to make plans available for inspection by Department personnel upon request within 2 weeks.	Requires certified planners to make plans available for inspection by Department personnel upon request within 1 week. This change expedites the provision of plans to Department personnel upon inspection.
B2 f		Requires certain organic nutrient source parameters to be analyzed.	Adds ammonium nitrogen to the list of parameters to be analyzed. This parameter is required to determine appropriate application rates.
4 VAC 5-15-110			Adds to the department's authority to revoke, suspend or deny certification if a planner modifies or revises a plan so that it does not comply with the regulations. Also adds a requirement that the department must be provided a copy of certain modified nutrient management plans required by permits. These changes are necessary because the department is contemplating allowing certified planners to make certain plan modifications within the specified life of nutrient management plans for permitted operations without prior approval of the department.
4 VAC 5-15-130		Relates to duties of other state agencies.	This section is stricken because it is unnecessary.
4 VAC 5-15-140 A		Requires name and certificate number of certified planner.	Requires name, certification number, and signature of the certified planner that prepared the plan. This change is needed for additional accountability and problems encountered when computerized files specific to a plan have been shared by two or more certified planners.
4 VAC 5-15-140 C			Adds several elements to features that must be indicated on maps contained in nutrient management plans. Some of these changes are necessary due to document plan features related to phosphorus management changes in 4 VAC 5-15-150. Other additions were recommended by a JLARC study entitled

			“Review of Nutrient Management Planning in Virginia.”
4 VAC 5-15-140 D			Adds a requirement to include numerical phosphorus and potassium soil analysis results for all fields in the plan. This change is necessary to provide for inputs to the phosphorus management procedures in 4 VAC 5-15-150 and so the department can confirm compliance with the regulations during plan reviews.
4 VAC 5-15-140 E		Plans must contain information about the length of time the plan is effective, not to exceed five years from the date the plan is developed.	Strikes “not to exceed five years from the date the plan is developed” and adds “consistent with 4 VAC 5-15-150 D.1.” This changes is needed for internal consistency.  Adds a new subsection specifying additional plan content items if the phosphorus index is used to derive allowable phosphorus application rates. This change is needed to confirm farmer compliance with nutrient management plans and certified planner compliance with the regulation.
4 VAC 5-15-140 G		Recommends that planners incorporate additional plan requirements as appropriate if required by other specific regulatory or incentive programs which apply to a specific operator.	Requires that planners incorporate additional plan requirements if required by other specific legislative, regulatory or incentive programs which apply to a specific operator. This change is needed to improve the quality of plans developed by certified planners if specific laws, regulations or incentive programs require more stringent plan criteria and/or content.
4 VAC 5-15-150 (multiple sub-divisions)		References Virginia Nutrient Management Standards and Criteria, revised Nov. 1995 and Virginia Commercial Vegetable Production Guide, 1995	References Virginia Nutrient Management Standards and Criteria, 2004 and Virginia Commercial Vegetable Production Guide, 2004. This change is needed since these documents have been updated.
4 VAC 5-15-150 A 1  2 b & c		Potential nutrient sources to be consider in plans are listed.  Phosphorus application rates should be managed to reduce water quality impacts. Additional planning considerations are described to help achieve this recommendation.	The term “industrial wastes” is added to the list of potential nutrient sources. This is necessary because certain industrial wastes that contain significant nutrient levels are land applied in Virginia.  Phosphorus application rates shall be managed to minimize adverse water quality impacts. Specific procedures are prescribed to determine allowable phosphorus application rates in nutrient management plans. This is necessary to meet requirements in § 62.1-44.17:1.1 of the Code of Virginia, 40 CFR Parts 9, 122, 123 and 412 as published in the Federal Register Volume 68, No. 29, dated February 12, 2003,

2 d		<p>Recommended application rates for potassium, secondary nutrients, and micronutrients should be at agronomically or economically justifiable levels for expected crop production.</p>	<p>and 9 VAC 25-191 and 9 VAC 25-192 of the Virginia Administrative Code.</p> <p>Changes the “should” to “shall” and requires that potassium applications be consistent with the Virginia Nutrient Management Standards and Criteria document that is incorporated by reference. This change was suggested during the NOIRA comment period is needed to make the nutrient management plans more usable by farmers and insure that deficiencies of other nutrients do not limit crop uptake of nitrogen and phosphorus that may be applied at maximum allowable rates.</p>
2 e		<p>Allows for planner discretion to make reasonable yield adjustments on up to 20% of fields with no yield records.</p>	<p>Allows planner discretion to make reasonable yield adjustments on up to 20% of fields with no yield records if adjusted yields do not exceed the levels allowable for a soil series that adjoins the field. This change was based on a specific recommendation to reduce planner discretion in this section of the regulation that was documented in a JLARC study entitled “Review of Nutrient Management Planning in Virginia.”</p>
2 f		<p>Requires methods for phosphorus soil analysis approved by the department and specifies sampling depths in fields.</p>	<p>Adds a requirement for the department to approve laboratories as well as methods based on statistical correlation with the Mehlich I procedure. Also amends and clarifies soil sampling depths. These changes are necessary due to more specific requirements for phosphorus based nutrient management planning.</p>
2 g		<p>Describes how to use organic nutrient source analyses in developing nutrient management plans.</p>	<p>Adds further specificity to the use of past manure analysis values for existing operations and clarifies methods to use to project nutrient analysis values for new operations. This change is needed for clarification and consistency of analysis methods.</p>
2 h		<p>Describes how to credit the expected nitrogen credits from legumes in the crop rotation contained in nutrient management plans.</p>	<p>Strikes the phrase “which substantially conform to those.” This change is necessary to eliminate ambiguity.</p>
3		<p>Describes the influence of soil pH on nutrient availability and recommends that pH be adjusted to the level suitable for the crop.</p>	<p>Adds requirements that nutrient management plans more precisely address the need to maintain soil pH in appropriate ranges. This change is needed since departmental reviews of nutrient management plans have identified instances where and soil pH has</p>

4 a		Requires all nutrient applications to be made no more than 30 days prior to planting an agronomically feasible crop. An exception exists that organic nutrient sources may be applied if necessary between December 21 and March 16 if specified conditions are met.	been well outside of appropriate agronomic ranges for crops.  Changes the requirements pertaining to timing of application to apply to nitrogen containing nutrient sources only, not all nutrients. Requires application to occur no more than 30 days prior to the timely planting of a crop except as specified in subsection b or c. This change is necessary to recognize that timing of application is more critical for nitrogen than other nutrients and that leaching losses of nitrogen can occur in the winter.
4 b		Redefines existing regulation section b as proposed new section d.	Inserts into new section b to allow an exception to section 4 a to specify that sites which are not defined as environmentally sensitive may receive applications of organic nutrient sources no more than 60 days of planting a spring seeded crop if the site has at least 60 percent uniform ground cover from an existing actively growing crop such as a small grain trap crop or fescue with exposed plant height of three inches or more. This change is necessary to provide a wider range of application dates in the winter and early spring on sites that are at a somewhat lower risk for rapid nitrogen movement through the soil.
4 c		Existing regulation section 4 c is proposed as section 4 e.	Inserts a new section c to allow an exception to 4 a and 4 b if composted organic nutrient sources have a carbon to nitrogen ratio of 25:1 or greater. This change is necessary since these materials are not likely to release significant quantities of soluble nitrogen forms that would be subject to leaching losses.
4 d		Existing regulation section 4 b.	Redefines existing regulation section b as proposed new section d. Strikes the word "additional" to clarify that the pre-sidedress nitrogen test may sometimes result in no additional need for nitrogen. Adds language to create an exception to split application requirements for inorganic nitrogen fertilizers if at least 50% of the nitrogen requirement of the crop is supplied with slowly available nitrogen sources.
4 e		Existing regulation section 4 c specifies that nutrient application to frozen or snow covered ground should be avoided and	Specifies that nutrient applications to frozen or snow covered ground shall not be recommended in nutrient management plans. The planner is provided with guidance to advise producers of appropriate actions if

<p>5 a</p>		<p>provides criteria for selection of fields for application if emergency situations develop.</p> <p>The application of nitrogen shall be managed to minimize runoff, leaching and volatilization losses.</p>	<p>emergency situations arise. This change is necessary to conform to the treatment of frozen and snow covered ground in animal waste regulations.</p> <p>Adds the words “containing materials” after the word “nitrogen.” This change is needed for clarity.</p>
<p>5 b.</p>		<p>Limits the rates of liquid manures or sludges that are applied using irrigation equipment to specified limits to avoid runoff.</p>	<p>Adds the word “hydraulic” before the word “rates.” This change is needed to clarify that this section applies to liquid loading rates (i.e., inches per acre per application).</p>
<p>5 d.</p>		<p>Encourages biosolids and manures to be soil incorporated where possible.</p>	<p>Adds industrial wastes and states the reason for the recommendation is to reduce losses on nitrogen to the atmosphere and to increase the plant available nitrogen to phosphorus ratio of these nutrient sources relative to crop nutrient needs. This change is needed to provide appropriate guidance to planners.</p>
<p>5 e.</p>		<p>Specifies that the planner shall recommend certain buffer zones around environmental site features.</p>	<p>Renames “buffer zones” as “setbacks,” adds “industrial waste” to the list of materials needing setbacks, and specifies that alternative setbacks must be used if specified in other regulations of permits. These changes are needed for clarity and to avoid conflicts with other regulations.</p>
<p>4 VAC 5-15-150 D 1</p>		<p>Specifies length of time that can be covered by a nutrient management plan.</p>	<p>Requires that cropland plans be developed for no more than three years. This change is needed since the usable life of a soil sample does not exceed three years and cropping system changes are more likely to occur on cropland than in permanent pasture or continuous hay.</p>
<p>4 VAC 5-15-150 D 2</p>		<p>Specifies when plan modifications need to occur.</p>	<p>Specifies conditions when plans need to state a need for immediate modification and reduces need for modification if cropping systems, rotations, or fields change under certain circumstances. This change is needed to indicate the more serious situations needing immediate attention.</p>
<p>4 VAC 5-15-150 D 6</p>		<p>Specifies how the pre-sidedress nitrogen test can be used to modify nitrogen recommendations.</p>	<p>Adds the stipulation that the pre-sidedress nitrogen test and interpretation must be consistent with Virginia Nutrient Management Standards and Criteria document. This change is needed for clarity.</p>

