Virginia Animal Agriculture Program Assessment

Final

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Region III
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Contents

Acronyms and Abbreviations

AFO	Animal feeding operation
ASA	Agricultural Stewardship Act
BMP	Best management practice
CAFO	Concentrated animal feeding operation
CFR	Code of Federal Regulations
CWA	Clean Water Act
DCR	Virginia Department of Conservation and Recreation
DEQ	Virginia Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
FTE	Full-time equivalent
NMP	Nutrient management plan
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service (U.S. Department of Agriculture)
RMP	Resource management plan
SWCD	Soil and Water Conservation District
TMDL	Total maximum daily load
TRO	Tidewater Regional Office
VACS	Virginia Agricultural Cost-Share
VDACS	Virginia Department of Agriculture and Consumer Services
VPA	Virginia Pollution Abatement
VPDES	Virginia Pollutant Discharge Elimination System
VRO	Valley Regional Office
WIP	Watershed Implementation Plan

1.0 Executive Summary

The U.S. Environmental Protection Agency (EPA) conducts periodic reviews of state programs as part of its oversight responsibilities under the Clean Water Act (CWA). Previously, EPA's program reviews have not focused exclusively on animal agriculture regulations and programs. EPA decided to conduct assessments of animal agriculture programs related to water quality in the six Chesapeake Bay jurisdictions as part of its oversight responsibilities under the Chesapeake Bay Total Maximum Daily Load (TMDL) and National Pollutant Discharge Elimination System (NPDES) Permit Program. This review also satisfies certain EPA commitments made in the settlement agreement that resolved the lawsuit Fowler et al. v. EPA, No. 1:09-cv-0005-CKK (D.D.C.). As such, the Virginia review is one of six animal agriculture program reviews that will be completed by 2015.

EPA conducted an assessment of the Commonwealth of Virginia's (Commonwealth) animal agriculture programs related to water quality. This assessment (1) identifies successes and challenges within the Commonwealth's animal agriculture programs related to water quality; (2) evaluates the programs that are available to support Virginia's agricultural pollutant load reduction commitments set forth in Virginia's Watershed Implementation Plans to achieve the allocations set forth in the Chesapeake Bay TMDL; and (3) evaluates Virginia's NPDES permit program (including its implementation) for concentrated animal feeding operations (CAFO) with federal NPDES and CAFO requirements. The main goal of the assessment is to determine whether the state programs are consistent with Clean Water Act requirements and are implemented effectively to achieve Virginia's animal-agriculture Watershed Implementation Plan (WIP) commitments to reduce nitrogen, phosphorus, and sediment under the Chesapeake Bay Total Maximum Daily Load (TMDL).

This assessment briefly summarizes Commonwealth environmental regulations applicable to animal agriculture operations as well as those Virginia agencies with regulatory and technical responsibilities for animal agriculture operations. The report also includes EPA's analysis of how the Commonwealth is implementing its animal agriculture programs related to water quality. The specific programs assessed are the Nutrient Management Program, Virginia Pollution Abatement (VPA) AFO General Permit Program, VPA Poultry Waste Management General Permit Program, the Virginia Pollutant Discharge Elimination System (VPDES) CAFO Program, Resource Management Plan (RMP) Program, Agricultural Stewardship Act (ASA) Program, and Small AFO Evaluation and Assessment Strategy Program. These programs were compared to the goals outlined in Virginia's Watershed Implementation Plan (WIP). Virginia was forthcoming with a considerable amount of material and information to support this assessment.

This assessment is based on responses from Virginia to an animal agriculture program questionnaire developed by EPA; information in 60 VPA-permitted animal feeding operation files provided by the Virginia Department of Environmental Quality (DEQ) Tidewater Regional Office (TRO) and Valley Regional Office (VRO); interviews with staff; and program information available from agency websites. The observations outlined in this report provide a framework for Virginia to strengthen implementation of their animal agriculture programs related to water quality and work toward improved water quality within the Commonwealth and the Chesapeake Bay watershed.

According to the United States Department of Agriculture (USDA), National Agricultural Statistics Service (NASS) Census of Agriculture (Ag Census), Virginia had 27,744 farms with livestock and poultry in 2007 (USDA, 2009) and 26,555 farms with livestock and poultry in 2012 (USDA, 2014). Virginia estimates that there are approximately 3,194 animal agriculture operations with confinement buildings or feedlots in Virginia (Commonwealth of Virginia 2013a). This estimate is based upon "the [Virginia Department of Conservation and Recreation] GIS data set for animal operations, which was originally derived from aerial imagery locating confinement buildings and feedlots as well as the DEQ database listing permitted operations. Some of the facilities in the DCR database do not meet the regulatory definition of AFO due to length or nature of confinement, and the locations of some unconfined animal operations have been added." Virginia stated that its estimate "does not include all animal agriculture operations."

DEQ, the Virginia Department of Conservation and Recreation (DCR), and the Virginia Department of Agriculture and Consumer Services (VDACS) have statutory and regulatory authority to manage animal agricultural programs in Virginia. DCR receives assistance from and provides assistance to the soil and water conservation districts (SWCDs). As a whole, EPA reviewed seven main programs that these agencies implement that emphasize on-farm best management practices (BMPs) to maintain or improve the quality of water runoff from farms into surface waters: 1) Nutrient Management Program; 2) Virginia Pollution Abatement (VPA) AFO General Permit Program; 3) VPA Poultry Waste Management Program; 4) Virginia Pollutant Discharge Elimination System (VPDES) CAFO Program; 5) Resource Management Plan (RMP) Program; 6) Agricultural Stewardship Act (ASA) Program; and 7) Small AFO Evaluation and Assessment Strategy Program. EPA also analyzed how these programs support Virginia's implementation of its WIP and the BMPs that are necessary in order to achieve the WIP goals. The purpose of EPA's assessment was to look at all of these programs and evaluate how well they work together collectively to meet Clean Water Act requirements and the Commonwealth's animal agriculture commitments made to meet the Chesapeake Bay TMDL requirements.

Watershed Implementation Plan (WIP) Best Management Practices (BMP) Implementation

Virginia's Phase I and Phase II Watershed Implementation Plans (WIPs) detail how the Commonwealth plans to meet Chesapeake Bay TMDL loading allocations for nitrogen, phosphorus, and sediment. Virginia submitted its' Chesapeake Bay TMDL Phase I WIP on November 29, 2010 and the Phase II WIP on March 30, 2012. Virginia anticipates that the agricultural strategies outlined in the Phase I WIP and Phase II WIP, particularly the development of RMPs and tracking of voluntarily implemented BMPs, combined with a continued commitment to expanding the Virginia Agriculture Cost-Share (VACS) Program, will provide significant opportunities toward meeting the load reductions for the agricultural sector.

In evaluating whether the Commonwealth's CAFO and AFO programs are aligned with meeting the Chesapeake Bay TMDL, EPA focused its assessment on the animal agriculture BMPs that Virginia identified in its WIPs (and associated input decks) and is relying on to achieve a significant portion of its animal agricultural nutrient and sediment reductions. EPA identified these practices because they represent key practices in Virginia's watershed implementation plans that, when implemented, would achieve a significant portion of its nutrient and sediment reductions from animal agriculture.

EPA selected the following six such BMPs and identifies them throughout this document as "priority BMPs": (1) nutrient management, (2) animal waste management systems, (3) conservation plans, (4) barnyard runoff control systems, (5) stream fencing on pastures, and (6) vegetated buffers on pastures.

EPA found that Virginia's animal agriculture programs related to water quality require the implementation of some but not all of these priority BMPs. Nutrient management plans (NMPs) are required for all 1,037 VPA-permitted facilities as well as any of these facilities that may be covered by VPDES permits in the future, and approximately 945 of these 1,037 operations have current NMPs. NMPs are also required of operations that participate in the voluntary RMP program in the future. Animal waste management systems are required for all 1,037 VPA-permitted facilities as well as any facilities that may be covered by a VPDES CAFO permit in the future. Conservation plans are required for any farmer who participates in the voluntary RMP program. Barnyard runoff control may or may not be required at facilities covered by VPA permits and those that may be covered by VPDES CAFO permits in the future. Stream fencing on pastures is required for any farmer who participates in the voluntary RMP program. Vegetated buffers on pastures are not required under any of the programs that were reviewed. All of these BMPs may be a requirement of a required ASA plan.

Virginia is relying heavily on programs with voluntary participation, such as the RMP program, Small AFO Strategy, and the Virginia Agriculture Cost-Share (VACS) program, in order to increase BMP implementation to meet Virginia's WIP goals. For example, Virginia is implementing the Small AFO Strategy to try to address water quality impacts related to discharges or potential discharges at unpermitted AFOs, and Virginia is implementing the RMP program to encourage voluntary implementation of BMPs at any agricultural operation in Virginia, not just AFOs or livestock operations. In addition, Virginia has placed particular emphasis on increasing voluntary implementation of stream fencing on pastures. Currently, farmers can receive 100 percent cost-share reimbursement for stream fencing on pastures, and 70 percent of the SWCD cost-share funds are currently dedicated to this practice. Finally, DCR is providing grant money to support the development of RMPs and of NMPs at unpermitted dairies. Virginia committed in its 2014-2015 WIP programmatic milestones to get NMPs on an additional 300 unpermitted dairies and RMPs on at least 40 agricultural operations by December 31, 2015.

Virginia's voluntary programs are important in achieving Virginia's animal agriculture pollution reduction goals set forth in the WIP, but there is currently uncertainty if and how the voluntary programs will ensure these reductions are met. For example, all animal agriculture operations are eligible to participate in the voluntary RMP program, but it is uncertain how many operations will voluntarily sign up. As a result, while the RMP program may be able to increase BMP implementation on unregulated farms, there is not a clear understanding at this point that the program will be widely accepted by the farm community. In addition, Virginia is implementing the Small AFO Strategy to address water quality concerns related to discharges or potential discharges on unpermitted operations, but has only required operational changes or BMPs on 19 farms out of the 332 farms that have been evaluated. Because the Small AFO Strategy is not designed to document all voluntary BMPs present on farms, or those BMPs installed in anticipation of an assessment, EPA was unable to determine the full scope of BMP implementation that has resulted from implementation of the Small AFO Strategy.

Virginia's current programs are limited in their ability to require BMPs for animal agriculture operations in order to address Virginia's Chesapeake Bay WIP commitments. Approximately 56% of AFOs in Virginia are covered under the state VPA permitting program, representing approximately 4% of all Virginia farms with livestock and poultry and approximately 2% of all Virginia farms. This leaves the other approximately 44% of the AFOs in Virginia, as well as all non-AFOs, covered only through voluntary programs. Because Virginia requires permits of the largest farms, the percentage of total animals in confinement which are permitted is markedly greater than the percentage of farms permitted. For example, the dairy cow inventory in the 2012 Ag Census is 94,105 animals, and the corresponding number of dairy cattle on farms with VPDES and VPA permits is 37,384 animals, representing approximately 40% of the total dairy animal population in Virginia. Nonetheless, Virginia is relying heavily on voluntary programs to achieve nutrient and sediment reductions from the animal agriculture sector. Virginia expects that wide-spread acceptance and implementation of voluntary programs such as the RMP program will accelerate implementation of priority BMPs to meet the WIP agricultural implementation goals.

Future reductions in nutrient and sediment loading will need to continue to come from voluntary BMP installation at unpermitted operations, additional BMP requirements for permitted operations, or an increase in the number of operations that are required to implement BMPs or obtain permits. In the event that Virginia is unable to keep up with or make progress toward meeting its agricultural implementation goals, Virginia may need to act on its commitment outlined in the WIP to employ additional mandatory BMP programs to achieve the 2017 and 2025 WIP BMP and pollutant load reduction goals.

Nutrient Management Program

Virginia's nutrient management program, which is implemented by DCR, identifies the criteria that a site-specific nutrient management plan (NMP) must contain in order to meet DCR standards for approval. All VPA- or VPDES-permitted facilities must follow a NMP, as do any facilities that participate in the voluntary RMP program. Unpermitted animal agriculture operations and cropland may be required to obtain an NMP if they receive cost-share funds to participate in Virginia and federal cost-share and technical assistance programs.

Approximately 945 out of the 1,037 VPA-permitted animal operations have current DCR-approved NMPs, and an additional 97 NMPs have been developed for unpermitted dairies. As a result, NMPs currently cover approximately 56% of all Virginia AFOs, approximately 4% of all Virginia farms with livestock and poultry, and approximately 2% of all Virginia farms. VPA-permitted operations that are required to have NMPs cover approximately 97% of swine, approximately 80% of the poultry AFOs, and approximately 13% of the dairy AFOs in Virginia.

NMP coverage is fairly comprehensive for the poultry and swine sectors, but lacking for the dairy operations where only approximately 13% of dairy AFOs are required to have NMPs. In 2014-2015, DCR is making $152,000 available for the development of NMPs at unpermitted dairies in Virginia, with $100,000 being directed inside the Chesapeake Bay Watershed. Virginia's WIP 2014-2015 programmatic milestones set a goal of getting NMPs on an additional 300 unpermitted dairies by December 2015.

DEQ inspects NMP implementation during VPA and VPDES compliance inspections. Through compliance inspections, DEQ documented NMP noncompliance at approximately 20% of its VPA inspections.

VPA AFO General Permit Program and VPA Poultry Waste Management Program

The VPA permit program, which is implemented by DEQ, requires AFOs above certain size thresholds to obtain and comply with state VPA permits. Any operation that meets the size threshold for an NPDES Medium or Large CAFO needs to obtain VPA permit coverage. VPA permit coverage is also required for some poultry operations that are below the size threshold for an NPDES Medium CAFO. VPA permits, among other things, require AFOs to develop and implement a site-specific NMP and maintain records of manure generation and utilization for DEQ to review. The VPA Poultry Waste Management general permit also set requirements for poultry waste brokers and end-users.

Currently, 143 facilities are covered under the VPA AFO General Permit, nine facilities are covered under VPA individual permits, and 885 facilities are covered under the VPA Poultry Waste Management General Permit. As a result, VPA permits cover approximately 50% of all Virginia AFOs, approximately 4% of all Virginia farms with livestock and poultry, and approximately 2% of all Virginia farms.

Virginia has 29 registered poultry waste brokers on a state-wide basis that also must follow requirements in VPA Poultry Waste Management general permit regulations.

Routine compliance activities (including inspections) at VPA-permitted facilities are predominately performed by DEQ regional office staff with support from the DEQ central office. DEQ is currently inspecting VPA-permitted animal operations at least once every two years. This a more aggressive inspection schedule than DEQ's risk-based inspection strategy to conduct inspections once every three to four years.

DEQ inspections include a detailed review of NMP requirements, and NMP violations were the largest category of deficiencies identified by DEQ. Inconsistency exists between DEQ regional offices in how they conduct inspections, how deficiencies are recorded in inspection reports, and how deficiencies are addressed. Virginia's Civil Enforcement Manual does not appear to be consistently implemented, as facilities with similar noncompliance issues were often addressed differently. Clear deadlines were not always provided to the facility for addressing deficiencies. Violations that remained unresolved across consecutive annual inspections often were not escalated. Enforcement often was not elevated, even for facilities with multiple Notices of Violation.

VPDES CAFO Program

The VPDES CAFO permit program, which is implemented by DEQ, requires CAFOs that discharge to obtain a VPDES permit and comply with the VPDES permit requirements. VPDES permits, among other things, require CAFOs to develop and implement a site-specific NMP, maintain records of manure generation and utilization, provide annual reports to DEQ.

Currently, DEQ has not issued any VPDES CAFO permits; therefore, no facilities are covered by VPDES CAFO permits.[1] In EPA's evaluation of Virginia's 2012-2013 Milestone Progress and 2014-2015

[1] **Note: When this assessment report was written, DEQ had not issued any VPDES CAFO permits. DEQ issued two VPDES CAFO permits on February 3, 2015, which are not reflected in this assessment report.**

Milestone Commitments, one of the identified shortfalls was that "Virginia did not issue any CAFO permits as committed to by September 2012 and later deferred to December 2013; this milestone has been carried over to the 2014-2015 milestones."

Approximately 86 facilities have submitted VPDES permit applications to date, but DEQ has not issued any final VPDES CAFO permits. In May 2014, DEQ submitted two draft VPDES CAFO permits for two swine operations to EPA for review and comment, EPA completed its review in October 2014, and Virginia plans to issue these two permits by January 2015. Afterwards, DEQ has stated that it intend to draft six additional VPDES CAFO permits for swine operations and four VPDES CAFO permits for poultry operations. Virginia estimates that the eight swine permits and associated NMPs will address approximately 40% of the permitted swine in Virginia.

DEQ has reviewed the remaining 75 VPDES permit applications and has concluded that the majority of the facilities do not discharge and therefore do not require issuance of a VPDES permit. DEQ determined that two additional poultry facilities have drainage issues of concern and plans to begin processing these permit applications. DEQ has determined that the remaining 73 of the 75 facilities will continue to be regulated under VPA permits. EPA has not to date provided a response to that conclusion.

Resource Management Plan (RMP) Program

The RMP program, which is implemented by DCR, is a voluntary program designed to promote the use of conservation practices that improve farming operations and enhance water quality.

A farmer who participates in the voluntary RMP program agrees to implement certain BMPs, such as an NMP, soil conservation plan, and stream fencing on pastures. In exchange for preparing and implementing the RMP, farmers with RMPs will be assured of a "safe harbor" for nine years from new Commonwealth environmental regulations related to the Chesapeake Bay or local TMDLs, assuming the RMP is fully implemented.

The RMP program is still early in the implementation phase. Virginia has not yet identified a long-term source of funding for the RMP program. DCR is awarding $472,640 in EPA Chesapeake Bay Regulatory and Accountability Program (CBRAP) grant funds and other DCR grant funds for the development of 274 RMPs in the Chesapeake Bay watershed covering a total of 47,264 acres.

Agricultural Stewardship Act (ASA) Program

The ASA Program, which is implemented by VDACS, is a complaint-based, cooperative program between VDACS, farmers and local SWCDs aimed at resolving water quality problems from agricultural activities. Under the ASA, VDACS has the authority to investigate complaints about water quality impacts from agriculture. VDACS, along with the SWCDs, conduct on-site investigations to determine whether or not there are potential water quality impacts from agriculture. If there are, VDACS can require the farmer to implement corrective measures through an ASA Plan.

Because of the complaint-based nature of this program, no actions can be taken until a complaint has been received and no measures can be required to address water quality issues outside the scope of the complaint. The ASA program is not prescriptive and does not set forth minimum BMPs to be implemented at all operations.

From April 2013 through March 2014, VDACS received more than 140 inquiries regarding possible agricultural pollution. Eighty inquiries became official complaints, of which 32 were determined to be founded complaints that required corrective actions to be implemented through an ASA Plan. Of the 32 founded complaints, 23 were at livestock operations.

EPA did not review ASA files for individual farms and thus was unable to determine the overall effectiveness of the ASA program at resolving water quality complaints at individual animal agriculture operations. EPA was unable to determine whether or not operations had other water quality issues that could not be addressed due to the scope limitations of the ASA program or what BMPs were required to be implemented by the ASA Plans for these animal agriculture operations.

Small AFO Evaluation and Assessment Strategy Program

The Small AFO Evaluation and Assessment Strategy (Small AFO Strategy) is a cooperative strategy between VDACS and DEQ. It complements the regulatory Animal Waste Program of DEQ (i.e., VPDES and VPA permitting programs) and the complaint-based ASA program of VDACS. The goal of the Small AFO Strategy is to evaluate and assess small unpermitted AFOs, primarily to assess whether there is a discharge or potential to discharge. Where water quality problems are observed, DEQ and VDACS will require corrective measures to be taken. Implementation of corrective measures can be accomplished through an array of outcomes, such as voluntary compliance memorialized in a letter from DEQ, an ASA Plan, requiring VPA permit coverage, or DEQ designating the AFO and requiring VPDES permit coverage.

Virginia estimates that there are approximately 823 unpermitted AFOs in Virginia that are candidates for assessment under the Small AFO Strategy. As of August 2013, Virginia had conducted 335 evaluations, resulting in 105 on-site assessments. Virginia determined that 19 facilities had water quality risks or impacts requiring corrective measures. DEQ and VDACS used the voluntary approach for 13 small AFOs, documenting the corrective measures in a letter between DEQ or VDACS and the owner/operator. The remaining 6 small AFOs were investigated under the ASA and were required by VDACS to develop and implement an ASA Plan. EPA was not provided access to documentation and thus was unable to determine the overall effectiveness of the Small AFO Strategy at identifying and addressing water quality issues at individual animal agriculture operations.

The Small AFO strategy is designed only to identify and address operational deficiencies at an AFO that would result in a discharge. The Small AFO Strategy is not designed to document all BMPs implemented on farms assessed.

2.0 Introduction

The U.S. Environmental Protection Agency (EPA) conducted an assessment of the Commonwealth of Virginia's (the Commonwealth) animal agriculture regulations and programs related to water quality to determine whether they are consistent with Clean Water Act requirements and are implemented effectively to achieve Virginia's animal agriculture Watershed Implementation Plan (WIP) commitments to reduce nitrogen, phosphorus, and sediment under the Chesapeake Bay TMDL. The assessment process began in summer 2013 when EPA provided Virginia with a detailed Virginia Animal Agriculture Program Review questionnaire (questionnaire). The Virginia Department of Environmental Quality (DEQ) coordinated Virginia's completion of the questionnaire with the Virginia Department of Conservation and Recreation (DCR), the Virginia Department of Agriculture and Consumer Services (VDACS), and the Soil and Water Conservation Districts (SWCDs). DEQ also supported the assessment process by providing EPA with DEQ files for 60 animal agriculture operations permitted under the Virginia Pollution Abatement (VPA) General Permit for Animal Feeding Operations (AFOs), VPA Individual Permits for AFOs, or the VPA General Permit for Poultry Waste Management for Poultry Growers (together, the VPA permits). Virginia provided responses to EPA's questionnaire in September 2013. EPA provided the draft assessment report to Virginia on November 7, 2014. Virginia provided comments to EPA on December 5, 2014. EPA completed the interim final report on December 31, 2014. EPA finalized the report on February 27, 2015.

The report is organized into the following sections: Section 3.0 (Virginia Animal Agriculture Regulatory Overview), Section 4.0 (Commonwealth Agencies involved with Animal Agriculture Programs), Section 5.0 (Virginia and the Chesapeake Bay TMDL), and Section 6.0 (Virginia's Animal Agriculture WIP BMPs) provide background information. Section 7.0 (Nutrient Management Program), Section 8.0 (VPA Permit Program), Section 9.0 (VPDES Permit Program), Section 10.0 (Resource Management Plan Program), Section 11.0 (Agricultural Stewardship Act Program), and Section 12.0 (Small AFO Evaluations and Assessment Strategy) discuss and evaluate implementation of Virginia's various programs applicable to animal agriculture operations. Each section includes a summary of program requirements and responsible agencies, and includes subsections addressing the following: the universe of animal agriculture operations subject to each program; program staff and financial resources; data systems in place to track program activities; compliance and enforcement; and the role of the program in furthering the Commonwealth's progress toward meeting the 2025 WIP implementation goals. Each section includes observations based on the staff discussions, file reviews, and Virginia's questionnaire responses.

2.1 Purpose of Effort

EPA conducts periodic reviews of state NPDES programs as part of its oversight responsibilities under the Clean Water Act (CWA). EPA discusses program goals and objectives with authorized states, such as Virginia, that are authorized to implement CWA program (e.g. NPDES permit programs) as part of annual CWA Section 106 grant negotiations.[2] Previously, EPA's program reviews have not focused exclusively on animal agriculture regulations and programs. EPA decided to conduct assessments of animal

[2] http://water.epa.gov/grants_funding/cwf/pollutioncontrol.cfm

agriculture programs related to water quality in the six Chesapeake Bay jurisdictions[3] as part of EPA's oversight responsibilities under the NPDES program and the Chesapeake Bay Total Maximum Daily Load (TMDL). These reviews will also be used to fulfill EPA's commitment under the settlement agreement with the Chesapeake Bay Foundation (CBF) (Fowler et al. v. EPA). As such, the Virginia review is one of six animal agriculture state program reviews that EPA will be completing by 2015.

The intent of the assessment is to identify successes and challenges within the Commonwealth's animal agriculture programs related to water quality, evaluate the programs that are available to support Virginia's pollutant load reduction goals under the Chesapeake Bay TMDL, and compare the Virginia Pollutant Discharge Elimination System (VPDES) program with federal concentrated animal feeding operations (CAFO) requirements. The goal of this assessment is to determine 1) how well Virginia's programs align with Virginia's Chesapeake Bay TMDL Watershed Implementation Plan (WIP) commitments and 2) how effectively Virginia's programs are being implemented.

2.2 Program Review Approach

In July 2013, EPA sent a questionnaire to Virginia requesting background information on seven Virginia programs applicable to animal agriculture as well as Virginia's WIP:

1. Nutrient Management Program
2. VPA AFO General Permit Program
3. VPA Poultry Waste Management Permit Program
4. VPDES CAFO Permit Program
5. Resource Management Plan (RMP) Program
6. Agricultural Stewardship Act (ASA) Program
7. Small AFO Evaluation and Assessment Strategy Program
8. Watershed Implementation Plan (WIP) BMP Implementation

The intent of the questionnaire was to determine how well these programs were funded, staffed, and implemented, as well as how well these programs worked together to collectively meet the requirements under the Clean Water Act and Virginia's commitments for reducing animal agriculture nutrient and sediment pollution to meet the Chesapeake Bay TMDL. For each of these programs, EPA requested information on the number of full-time equivalents (FTEs) and FY2013 budget (July 1, 2012 through June 30, 2013) supporting the program, the number of animal agriculture operations involved/enrolled in the program, compliance and enforcement activities, communication among agencies involved in each program, communication with farmers, data management, policies and training programs, and program strengths and challenges. Virginia provided its completed response to the questionnaire in September 2013.

EPA also conducted file reviews and on-site interviews with agency staff. EPA focused its file reviews on two DEQ regional offices, the Tidewater Regional Office (TRO) based in Virginia Beach and the Valley Regional Office (VRO) based in Harrisonburg. These two regional offices make up a large portion of the Chesapeake Bay watershed in Virginia and have a large number of animal agriculture operations. EPA has focused agriculture efforts on three agricultural "hot spots" in Region III: the Delmarva Peninsula, the Shenandoah Valley, and south-central Pennsylvania. The TRO is responsible for implementing DEQ

[3] Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia

programs on the Delmarva Peninsula, and the VRO is responsible for implementing DEQ programs in the Shenandoah Valley.

For the file reviews, EPA reviewed DEQ files for VPA-permitted facilities. Prior to the file reviews, EPA provided DEQ with a list of animal agriculture operation files to be reviewed by EPA. The facilities for which DEQ files were requested were selected to represent the distribution of VPA AFO and Poultry Waste permits by animal sector. Virginia has approximately eight VPA Poultry Waste Management General Permit holders for every VPA AFO Permit holder. Below is a brief summary of the number and animal operation type of files reviewed at each office.

- Tidewater Regional Office
    - 22 operations covered by VPA Poultry Waste General Permit
    - 8 operations covered by VPA AFO Permits
- Valley Regional Office
    - 26 operations covered by VPA Poultry Waste General Permit
    - 4 operations covered by VPA AFO Permits

Each facility file included information such as: inspection reports, compliance and enforcement communications, current and expired Nutrient Management Plans (NMPs), correspondence, self-monitoring reports, permits and other facility-specific information maintained by DEQ.

EPA performed a detailed review of each file. EPA logged the type and date of each document in each operation's file and recorded observations related to program implementation, including potentially missing documents (e.g., correspondence about an inspection without a corresponding inspection report in the file), NMP approval issues, typical inspection findings, challenges with permit issuance or reissuance, and differences in inspection approach between the DEQ regional offices. The observations help to identify opportunities for Virginia to strengthen implementation of the Commonwealth's animal agriculture programs related to water quality and work towards improved water quality within Virginia and the Chesapeake Bay watershed.

EPA used information from the on-site agency meetings, DEQ file reviews, Commonwealth questionnaire responses, and agency and entity websites to develop and substantiate observations about Virginia's animal agriculture programs related to water quality. EPA reviewed all of the material provided but generally limits the content of this report to information necessary to support the observations. For this report, the files reviewed are considered representative.

3.0 Virginia Animal Agriculture Regulatory Program Overview

According to the 2012 United States Department of Agriculture, National Agricultural Statistics Service Census of Agriculture (Ag Census), Virginia had 26,555 livestock and poultry operations (animal agriculture operations) in 2012, down slightly from the 27,744 animal agriculture operations from the 2007 Ag Census. Below in Table 1 are animal inventories for Virginia from the Ag Census.

Table 1. 2007 and 2012 USDA Ag Census Animal Inventories

Census	Beef	Dairy	Poultry				Swine
			Broilers	Turkeys	Pullets	Layers	
2007	695,061	98,917	43,744,639	6,330,958	1,187,798	3,208,912	371,176
2012	657,320	94,105	38,386,310	5,160,805	1,301,917	2,897,238	239,899
Change	+37,741 (+5.43%)	-4,812 (-4.86%)	-5,358,329 (-12.25%)	-1,170,153 (-18.48%)	+114,119 (+9.61%)	-311,674 (-9.71%)	-131,277 (-35.37%)

Another measure of the livestock industry besides inventory is the number of animals sold. Table 2 shows the numbers of animals sold in Virginia from the Ag Census.

Table 2. 2007 and 2012 USDA Ag Census Animal Numbers Sold

Census	Beef	Dairy	Poultry				Swine
			Broilers	Turkeys	Pullets	Layers	
2007	641,749	67,672	249,184,367	18,434,065	2,263,004	2,323,378	965,117
2012	583,876	65,091	237,669,378	18,223,608	2,809,131	2,687,902	559,658
Change	-57,873 (-9.02%)	-2,581 (-3.81%)	-11,514,989 (-4.62%)	-210,457 (-1.14%)	+546,127 (+24.13%)	+364,524 (+15.69%)	-405,459 (-42.01%)

Table 3 presents poultry data from the Virginia Poultry Federation about Virginia's poultry industry.

Table 3. Virginia Poultry Industry, 2009-2012.

	Broilers		Turkeys		Eggs
	Numbers Produced	Pounds Produced	Numbers Produced	Pounds Produced	Numbers Produced
2009	240,800,000	1,204,000,000	17,000,000	448,800,000	741,000,000
2010	250,400,000	1,292,100,000	17,000,000	459,000,000	729,000,000
2011	243,800,000	1,292,100,000	17,500,000	460,250,000	716,000,000
2012	240,500,000	1,298,700,000	17,000,000	448,800,000	696,000,000
Change	-300,000 (-0.12%)	+94,700,000 (+7.86%)	0 (0%)	0 (0%)	-45,000,000 (-6.07%)

Source: http://www.vapoultry.com.

Table 4 presents the primary statutes and regulations under which Virginia administers Virginia's animal agriculture programs related to water quality.

Table 4. Virginia Animal Agriculture Programs, Statutes, Laws, and Regulations Related to Water Quality.

Virginia Animal Agriculture Program	Law/Statute and Regulations
VPDES CAFO Program	§ 62.1-44.15, §62.1-44.17.1, §62.1-44.17.1.1, §10.1-104.2. 9VAC25-31-10 et seq., 9VAC25-32-10 et seq., 9VAC25-192-10 et seq., 9VAC25-630-10 et seq., 4VAC5-15-10 et seq.
VPA AFO Permit Program, Individual and General	§ 62.1-44.15, §62.1-44.17.1, 9VAC25-192-10 et seq., § 10.1-104.2, 4VAC5-15-10 et seq.
VPA Poultry Waste General Permit Program	§ 62.1-44.15, §62.1-44.17.1.1, 9VAC25-630-10 et seq., § 10.1-104.2, 4VAC5-15-10 et seq.
Small AFO Evaluation and Assessment Strategy	§ 62.1-44.15, § 62.1-44.17.1, § 62.1-44.17.1.1, 9VAC25-192-10 et seq., 9VAC25-31-10 et seq., § 3.2-400 et seq.
Nutrient Management Training and Certification Regulations	§ 10.1-104.2, 4VAC5-15-10 et seq.
Resource Management Plan (RMP) Program	§ 10.1-104.7., § 10.1-104.8., 4VAC50-70-10 et seq.
Agricultural Stewardship Act (ASA) Program	§3.2 - 400 through 410
VA Agricultural Best Management Practices Cost-share (VACS) Program	§ 10.1-104.1. DCR to assist in the nonpoint source pollution management program. § 10.1-2124. B. Cooperative nonpoint source pollution program. § 10.1-2128. B. Virginia Water Quality Improvement Fund established; purposes.
VA Agricultural Best Management Practices Tax Credit Program	§58.1-339.3 Agricultural; best management practices tax credit § 10.1-2124. B. Cooperative nonpoint source pollution program. § 10.1-2128. B. Virginia Water Quality Improvement Fund established; purposes. § 10.1-2128.1. Virginia Natural Resources Commitment Fund established.
Conservation Reserve Enhancement Program (CREP)	§ 10.1-2124. B. Cooperative nonpoint source pollution program. § 10.1-2128. B. Virginia Water Quality Improvement Fund established; purposes
Virginia Nutrient Trading Program (as related to animal agriculture)	§ 62.1-44.19:15. New or expanded facilities. § 62.1-44.19:20. Nutrient credit certification. 9VAC25-900-10 et seq. Certification of Non-Point Source Nutrient Credits (Regulation under development)

4.0 Commonwealth Agencies involved with Animal Agriculture Programs

DEQ, DCR, and VDACS are the primary agencies with regulatory responsibilities for Virginia's animal agriculture programs related to water quality. The SWCDs also assist with the implementation of various programs and may or may not have been delegated regulatory authority. The Virginia Cooperative Extension is also an integral partner with the Commonwealth's animal agriculture technical and educational programs. The scope of this assessment report does not directly address the roles played by VDACS other than the ASA Program, the Virginia Cooperative Extension, EPA, USDA-NRCS, and other non-Commonwealth agencies.

4.1 Agency Funding

Table 5 summarizes the resources allocated (budget and FTE), number of operations, and the target type of facility for each animal agriculture program related to water quality.

Table 5. Resources Allocated, Number of Operation and Targeted Facility Type

Program (Lead Agency)	Budget (FY 2013)		FTEs	Operations	Target Facilities
VPDES CAFO Program (DEQ)	$68,590		0.75	0	CAFOs that discharge
VPA AFO Program (DEQ)	$278,879		5.355	143	CAFOs that do not discharge; medium AFOs; some small AFOs
VPA Poultry Waste Program (DEQ)	$341,897		6.205	885	
Small AFO Evaluation and Assessment Strategy Program (DEQ)	$282,593		3.325 (Secondary role for 3 additional FTEs)	823	All unpermitted small AFOs
Nutrient Management Program (DCR and SWCDs)	$10,330,738		5*	1,048	VPDES-permitted CAFOs; VPA-permitted CAFOs/AFOs
ASA Program (VDACS)		$324,187	3	112 (in FY13)	All unpermitted agricultural operations, including unpermitted AFOs
RMP Program			4 anticipated for FY2014	0	Cropland, hayland, and pastures at farms, including at AFOs
Agricultural BMP Cost-share and Tax Credit Programs	$21,377,186		N/A	N/A	All

*Not included are FTEs in DEQ (which are counted toward VPA programs but also deal with nutrient management compliance) and 170.5 FTEs (with 38 vacancies) in all of the SWCDs that serve various aspects of agricultural programs, with animal agriculture as a varying component. SWCD positions include District Managers, Conservation Specialists, and administrative staff. The 170.5 FTEs do not include the 324 local SWCD Directors.

Table 6 presents Virginia's estimated breakdown of the Commonwealth's animal agriculture budget by funding source.

Table 6. Funding Sources for Virginia's Animal Agriculture Programs, Sorted by Funding Source

Source Description	Percent Contribution to Total Budget	FY2013 Amount
Virginia General Funds	96.96%	$65,526,743
319 Funds	0.71%	$479,500
CBIG*	1.93%	$1,307,000
CBRAP**	0.29%	$198,000
PPG***	0.10%	$68,590****
Total	**100%**	**$67,579,833**

*Chesapeake Bay Implementation Grant (CBIG)

**Chesapeake Bay Regulatory and Accountability Program (CBRAP)

***Performance Partnership Grant (PPG)

****The portion of funds represented here as provided through the Performance Partnership Grant to DEQ is calculated from the portion of DEQ CO and RO time used to support the VPDES CAFO program.

There are many different grants and other funding mechanisms that Virginia uses to support animal agriculture operations, some of which are identified in Table 7. For example, DCR, through the local SWCDs, administers the Virginia Agricultural BMP Cost-Share (VACS) Program and the Virginia BMP Tax Credit Program.[4] These programs provide financial and technical assistance to carry out construction or implementation of selected BMPs. Agricultural operators' BMPs are inspected and certified by their local SWCD, and operators receive cost-share payments or a tax credit approval letter from their local SWCD after BMP implementation is verified. A comprehensive accounting of the allocation of cost-share funds is available in the 2013 Nonpoint Source Annual Report to EPA (Commonwealth of Virginia, 2013b).

[4] http://www.dcr.virginia.gov/soil_and_water/costshar.shtml

Table 7. DCR and DEQ Grants and Other Funding Mechanisms to Support Animal Agriculture Operations.

Program	Resp. Agency	Description	Program Capacity		FY2013 Disbursements	
			Per farm ($)	Total ($)	Farms (#)	Total ($)
VA Agricultural BMP Cost-share Program	DCR	Distribute Cost-share funds to Soil and Water Conservation Districts (SWCD) for BMP implementation on local Agricultural operations	based on BMP implemented	$25,842,815	FY 2012 Funding = 1,654 Participants totaling 2,034 Contracts for 8,143 BMP Instances	FY 2013 Disbursement to SWCDs for BMP Installation $25,842,815
VA Agricultural BMP Tax Credit Program	DCR	Proved a state income tax credit for out of pocket expenses of agricultural operations that implement approved Ag. BMPs	based on BMP implemented			Total FY00-FY12: $5,309,039 FY2013: $627,272
Conservation Reserve Enhancement Program	DCR	Provide enhanced cost-share payments to CRP participants.	based on BMP implemented		FY00-FY13: 2,979 participants, including 1,383 participants in the Chesapeake Bay watershed	FY00-FY13: $10,613,492 in total cost share payments, including $5,880,234 in the Chesapeake Bay watershed
Targeted TMDL Implementation Program	DEQ	Provide additional cost-share allocations to SWCDs implementing TMDLs			17 SWCDs	FFY12-FY13: $ 3,347,157 allocated*
Agricultural BMP Loan Program	DEQ	Provide low-interest loans to agricultural operations that implement approved ag. BMPs	based on BMP implemented	Component of State Revolving Loan Fund with $15M set aside that grows	Total FY00-FY10: 409 FY2013: 14	Total FY00-FY10: $34,450,337 FY2013: $1,928,118

*State funds only

The FY 2013 Chesapeake Bay and Virginia Waters Clean-up Plan Report estimates that during FY 2013, the state cost-share program resulted in approximately $23.3 million worth of BMPs being implemented throughout Virginia. Of this amount, Virginia paid approximately $17.7 million in state cost-share payments, other funding sources contributed approximately $2.5 million, and farmers contributed approximately $3.1 million in out-of-pocket expenditures. Virginia provided farmers approximately

$630,000 in state income tax credits tied to the farmers' out-of-pocket expenditures. These costs are for the totality of the cost-share program, and are not exclusively for the animal agriculture portion (Commonwealth of Virginia, 2013b). The amount of funds amounts that Virginia has allocated to the Virginia Agriculture Cost-Share over the past few years is shown below in Table 8.

Table 8. VACS Cost-Share Allocation.

Program Year	Allocation
2011	$7,100,000
2012	$20,240,615
2013	$18,990,567
2014	$19,402,186
2015	$23,439,337

The amount of funds that Virginia has allocated each year is less than the amount of funds that Virginia has determined that are needed. Agricultural funding needs from Virginia's annual Agricultural Needs Assessment, included within the Chesapeake Bay and Virginia Waters Clean-Up Plans, are shown below in Table 9.

Table 9. Agricultural Funding Needs Assessment.

Year	Type	Cost-Share Program Funding	District Technical Assistance	District Financial Assistance	Program Support
FY2015	Needed Funding	$30.1 million	$10.4 million	$9.6 million	$2.1 million
FY2015	Recommended Funding	$29.7 million	$3.0 million	$8.3 million	
FY2015	Actual Funding	$24.9 million	$2.8 million	$6.8 million	
FY2016	Needed Funding	$51.7 million	$16.5 million	$9.1 million	$650,000
FY2017	Needed Funding	$98.9 million	$17.1 million	$9.1 million	$650,000
FY2018	Needed Funding	$102.5 million	$17.7 million	$9.1 million	$650,000

Increased implementation of agricultural BMPs is necessary to achieve the nutrient and sediment reductions in the WIP. According to Virginia's Phase I WIP, "In 2005 DCR began to place greater emphasis on certain BMPs that were designated as "priority practices." These priority practices now represent five suites of BMPs that address: nutrient management, vegetative buffers (grass and forest), conservation tillage, cover crops, and livestock stream exclusion" (Commonwealth of Virginia, 2010). Between 2006 and 2012, DCR emphasized these practices by requiring SWCDs to obligate 80 percent of their cost-share allocation funding for them. After 2012, SWCDs have not been required to meet the 80 percent threshold but these five BMPs are still identified as priority practices. This prioritization has produced noticeable results. For example, Virginia has placed particular emphasis on stream fencing on pastures to exclude livestock from streams, with farmers receiving 100 percent reimbursement for the practice and with 70 percent of the cost-share funds dedicated to this practice (DCR, 2013). As a result, approximately 94% (52,390 acres implemented out of goal of 56,029 acres) of the 2025 target for stream fencing on pasture was met in 2013.

Following are brief descriptions of the roles and responsibilities of DEQ, DCR and VDACS with respect to animal agriculture in Virginia.

4.2 Virginia Department of Environmental Quality

DEQ's mission is to protect and enhance Virginia's environment, and promote the health and well-being of the citizens of the Commonwealth.[5] DEQ administers many Virginia and federal laws and regulations for air quality, water quality, water supply, and land protection. Through its central office and six regional offices[6], DEQ issues environmental permits, conducts inspections and monitoring, and enforces regulations and permits.

Specific to animal agriculture, DEQ is responsible for oversight and implementation of the VPDES CAFO, VPA AFO and VPA Poultry Waste Management permit programs to manage animal waste. In addition to the VPA and VPDES regulatory programs, DEQ, in collaboration with VDACS, developed a Small Animal Feeding Operations Evaluation and Assessment Strategy by which small AFOs (i.e., operations that fall below the animal numbers that require a VPA permit) will be evaluated for site-specific risks or impacts to water quality (DEQ and VDACS, 2012).

DEQ maintains a livestock and poultry website[7] that includes VPDES and VPA permit information, applications and instructions as well as forms, guidance and agriculture-related links.

4.3 Virginia Department of Conservation and Recreation

DCR's mission is "to provide opportunities that encourage and enable people to enjoy, protect and restore Virginia's natural and cultural treasures."[8] DCR administers many programs to help achieve that mission, including overseeing state parks, recreation sites, land conservation programs, dam safety programs, and soil and water conservation programs.

Specific to animal agriculture, DCR, through the Division of Soil and Water Conservation, is responsible for oversight and implementation of Virginia's nutrient management program, including regulatory and policy development, plan writing, plan review and approval, planner certification and training, and ensuring that certified planners write NMPs according to the Virginia Nutrient Management Standards and Criteria. While DCR does not issue VPA or VPDES permits, livestock operations that are covered by VPA or VPDES permits are required to have and implement a site-specific NMP, which must be written by a DCR-certified nutrient management planner and submitted to DCR for review and approval. DCR also provides direct technical assistance to farmers with regards to nutrient management, and in many cases develops NMPs for farmers. DCR also administers the RMP program, including regulatory and guidance development.

DCR administers several programs through Virginia's 47 SWCDs to help improve or maintain water quality. DCR and the SWCDs also administer the Virginia Agricultural BMP Cost-Share (VACS) Program and the Virginia BMP Tax Credit Program.

The SWCDs also assist with implementation of the ASA program. Under the ASA program, when VDACS receives a complaint to be investigated, VDACS forwards the complaint to the local SWCD, which then decides whether the SWCD will investigate or if the SWCD will let VDACS investigate. For any operations

[5] http://www.deq.virginia.gov/AboutUs/Mission.aspx
[6] http://www.deq.virginia.gov/Locations.aspx
[7] http://www.deq.virginia.gov/Programs/Water/LandApplicationBeneficialReuse/LivestockPoultry.aspx
[8] http://www.dcr.virginia.gov/

that are required to develop a plan to address any problems, the plan must be submitted to the local SWCD, which will review the plan and make any recommendations before the plan is ultimately approved by VDACS.

4.4 Virginia Department of Agriculture and Consumer Services

VDACS mission is to "promote the economic growth and development of Virginia agriculture, provide consumer protection and encourage environmental stewardship."[9] VDACS administers many programs to help achieve that mission, including overseeing agricultural product marketing programs, livestock and poultry laboratory and veterinary services, food safety and inspection programs, the state milk commission, and pesticide programs.

Specific to animal agriculture as it relates to water quality, VDACS administers the ASA Program, a complaint-based, cooperative initiative between farmers and local SWCDs aimed at resolving water quality problems reported to VDACS. Some of these water quality problems may be caused by nutrients from manure in feed lot runoff, sediment from erosion on crop fields, toxins from pesticide runoff, etc.

VDACS also worked in collaboration with DEQ to develop the Small Animal Feeding Operations (AFO) Evaluation and Assessment Strategy. This strategy complements the VPDES CAFO, VPA AFO, and VPA Poultry Waste Management programs of DEQ and the complaint-based ASA Program of VDACS. Currently, DEQ is doing the majority of work under the Small AFO Evaluation and Assessment Strategy.

[9] http://www.vdacs.virginia.gov/

5.0 Virginia and the Chesapeake Bay TMDL

On December 29, 2010, the U.S. Environmental Protection Agency established the Chesapeake Bay Total Maximum Daily Load (TMDL), a historic and comprehensive "pollution diet" to restore clean water in the Chesapeake Bay and the region's streams, creeks and rivers. The Chesapeake Bay TMDL is the largest and most complex TMDL ever developed, involving six states and the District of Columbia and the impacts of pollution sources throughout a 64,000-square-mile watershed. The Chesapeake Bay TMDL – actually a combination of 92 smaller TMDLs for individual Chesapeake Bay tidal segments – includes individual and aggregate allocations for nitrogen, phosphorus and sediment sufficient to achieve state clean water standards for dissolved oxygen, water clarity, underwater Bay grasses and chlorophyll-a, an indicator of algae levels.[10] Virginia contributes drainage to 39 of the 92 tidal segments within the Chesapeake Bay watershed, all of which are listed as impaired for excessive nutrients and sediments (Commonwealth of Virginia, 2010).

The Chesapeake Bay TMDL is designed to ensure that all pollution control measures needed to fully restore the Bay and its tidal rivers are in place by 2025, with practices in place to achieve at least 60 percent of the reductions necessary to obtain water quality standards in the Chesapeake Bay by 2017. The TMDL is supported by rigorous accountability measures to ensure cleanup commitments are met, including short- and long-term benchmarks, a tracking and accountability system for jurisdiction activities, and federal contingency actions that can be employed if necessary to spur progress (EPA, 2010).

Virginia and the other Chesapeake Bay jurisdictions[11] developed Watershed Implementation Plans (WIPs) that detail each jurisdiction's plan to meet the TMDL allocations for nitrogen, phosphorus, and sediment. To date, WIPs have been developed in two phases. The Phase I WIPs, submitted in late 2010, proposed Chesapeake Bay TMDL pollutant allocations and laid out the plan for how each jurisdiction would meet its allocations. The EPA's TMDL allocations were based almost entirely on the proposed allocations in the state's Phase I WIPs. Phase II WIPs, finalized in March 2012, provided additional detail on implementation actions, including actions by local partners to support achievement of the TMDL allocations. Phase III WIPs, when submitted in 2018, will provide the opportunity for the jurisdictions to make mid-course adjustments to pollutant reduction strategies, provide additional detail on implementation strategies, and propose refinements to the TMDL allocations. Each WIP includes detailed plans for reducing nutrient and sediment loads from agricultural runoff, including runoff from animal feeding operations (AFOs) and CAFOs.

As of 2009, the Chesapeake Bay Program (a regional partnership that includes EPA and Virginia) estimated that Virginia was the source of 27% of the nitrogen, 43% of the phosphorus and 41% of the sediment load delivered to the tidal Chesapeake Bay waters. [12] To meet its overall TMDL allocations, Virginia has committed to achieving approximately 79% of its necessary nutrient and sediment reductions from the agricultural sector. Controlling the agricultural load is not only essential to achieving Virginia's portion of the Chesapeake Bay TMDL, but it is essential for the overall Chesapeake Bay

[10] http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/FrequentlyAskedQuestions.html
[11] Delaware, Maryland, New York, Virginia, West Virginia, and the District of Columbia
[12] http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/FinalBayTMDL/CBayFinalTMDLSection4_final.pdf

restoration. Table 10 identifies the progress and target loads for the agricultural sector, including animal agriculture operations, by milestone period.

Table 10. Agricultural Sector Target Loads by Milestone Period

Ending Year	2009 Progress	2013 Progress	2015 Milestone	2017 60% Target	2025 TMDL	% Reduction (2009-2025)
Nitrogen (lbs)	20,732,000	18,964,000	18,306,000	16,363,000	13,450,000	35%
Phosphorus (lbs)	4,824,000	4,449,000	4,400,000	3,813,000	3,139,000	35%
Sediment (lbs)	2,410,341,000	2,152,531,000	1,977,485,000	1,929,484,000	1,608,912,000	33%

Virginia submitted its Chesapeake Bay TMDL Phase I WIP on November 29, 2010 (Commonwealth of Virginia, 2010) and Phase II WIP on March 30, 2012 (Commonwealth of Virginia, 2012). Specific to agriculture and therefore animal agriculture, agricultural pollutant reduction targets were set at levels achievable through significantly expanded implementation of BMPs such as: NMPs addressing the application of nutrients; livestock waste management systems; conservation plans; barnyard runoff control; stream fencing on pastures that excludes cows from streams; and vegetated buffers on pastures. In particular, Virginia plans to achieve these levels of BMP implementation through effective funding and implementation of its regulatory programs, implementation of the Resource Management Plan program, and improved tracking of both mandated and voluntary BMPs.

Virginia anticipates that the strategies outlined in the Phase I WIP and the Phase II WIP, particularly the development of RMPs and tracking of voluntarily installed BMPs, combined with a continued commitment to expanding the Virginia Agriculture Cost-Share (VACS) Program will contribute to meeting the TMDL. Virginia plans to meet its animal agriculture nutrient and sediment reduction goals through a combination of regulatory and voluntary programs.

Virginia uses the following regulatory programs to facilitate pollutant load reductions through required implementation of specific BMPs or general classes of BMPs (i.e., barnyard runoff control):

- VPA AFO General Permit Program
- VPA Poultry Waste Management General Permit Program
- VPDES CAFO Permit Program
- VDACS ASA Program
- Nutrient Management Program (for VPA- or VPDES-permit required NMPs)

Virginia uses the following voluntary programs to encourage voluntary BMP implementation and to help further reduce nutrient and sediment loads to the Chesapeake Bay.

- Nutrient Management Program (for voluntarily implemented NMPs)
- RMP Program
- Small AFO Evaluation and Assessment Strategy
- Agricultural BMP Cost-Share Program
- Agricultural BMP Tax Credit Program

Virginia, in its Phase I WIP, has committed to pursue state legislation for mandatory actions or programs, and/or additional regulatory programs or policy changes should Virginia fall short of incremental load reduction targets (Commonwealth of Virginia, 2010 and 2012). Any future legislative action would need

to occur in advance of 2025 with adequate lead time to allow Virginia to achieve necessary load reductions by 2025.

Along with the WIPs, each of the jurisdictions established two-year programmatic milestones to further outline the detailed steps to achieve 60 percent of necessary reductions by 2017 and full TMDL implementation by 2025 (see below for discussion of dates). The two-year milestones provide measureable interim implementation goals used to monitor process toward full TMDL implementation.

The Chesapeake Bay Program (CBP), a regional partnership that includes EPA and Virginia, leads and directs Chesapeake Bay restoration and protection activities, collects data from the Chesapeake Bay jurisdictions to track and model progress toward the two-year milestones and Bay-wide TMDL implementation. The CBP collectively has adopted 2025 as the date by which 100% of the controls necessary to achieve the Bay TMDL allocations are expected to be in place. CBP has also adopted 2017 as an interim goal and the date by which practices should be in place to achieve 60% of the necessary reductions, as compared with the level of reduction achieved in 2009. Best management practice (BMP) data are compiled by each jurisdiction and forwarded to the CBP as an electronic "input deck." Each input deck is entered into computer models maintained by the CBP to simulate nitrogen, phosphorus, and sediment loads from all sectors and sources and the units (e.g., acres) of each BMP for any area in the Chesapeake Bay watershed.[13] Model output is used to track progress toward each jurisdiction's 2017 and 2025 WIP implementation goals (CBP, 2012).

Under the accountability framework adopted by the CBP and discussed in the TMDL, EPA has committed to evaluating the two-year milestone commitments and the progress in meeting these commitments. Based on EPA's recent evaluation of the Commonwealth's 2012-2013 WIP milestones and input deck, Virginia achieved its 2013 overall milestone targets for nitrogen, phosphorus and sediment reductions.

The Chesapeake Bay Program collects data from the Chesapeake Bay jurisdictions, including Virginia, on BMP implementation and land use. BMP data are compiled by each jurisdiction and forwarded to the Chesapeake Bay Program as an electronic "input deck." Each input deck is entered into computer models maintained by the Chesapeake Bay Program to simulate nitrogen, phosphorus, and sediment loads from all sectors and sources and the acres of each BMP for any area in the Chesapeake Bay watershed. Model output is used to track progress toward each jurisdiction's 2017 and 2025 WIP implementation goals (Chesapeake Bay Program, 2012). Virginia emphasizes that the implementation rates set forth in the WIPs:

> …are not concrete goals for each BMP, but rather a description of one possible implementation scenario that would produce the target pollutant load reductions *as computed by the model*. The actual goal is to achieve the load reductions. Not meeting a particular rate of BMP implementation does not necessarily indicate failure, but rather a need to adaptively manage with other strategies…Nevertheless, Virginia is committed to

[13] The Chesapeake Assessment Scenario Tool (CAST) estimates load reductions for point and nonpoint sources including: agriculture, urban, waste water, forest, and septic loading to the land (edge-of-stream) and loads delivered to the Chesapeake Bay. CAST stores data associated with each BMP as well as the load for each sector and land use (http://casttool.org/About.aspx).

> strategies that accelerate implementation of the specified [WIP] BMPs… (Commonwealth of Virginia, 2013a)

In evaluating whether the Commonwealth's CAFO and AFO programs are aligned with meeting the Chesapeake Bay TMDL, EPA focused its assessment on six EPA-selected "priority BMPs": nutrient management, animal waste management systems, conservation plans, barnyard runoff control systems, stream fencing on pastures, and vegetated buffers on pastures.[14] EPA chose to focus on these practices because they are related to animal agriculture and represent the BMPs that Virginia identified in its WIPs (and associated input decks) and is relying on to achieve a significant portion of its animal agricultural nutrient and sediment reductions. Virginia is relying on these six practices for reducing its nitrogen loads from all sectors by approximately 22.0%, reducing its phosphorus loads from all sectors by approximately 39.0%, and reducing its sediment loads from all sectors by approximately 36.1% (Table 11). Virginia is relying on these six practices for reducing its agricultural nitrogen loads by approximately 31.4%, reducing its agricultural phosphorus loads by approximately 44.8%, and reducing its agricultural sediment loads by approximately 44.2%. These practices are also the focus of many of Virginia's plans for ramping up animal agricultural programs (such as increasing financial assistance for stream exclusion measures, etc.). This assessment report evaluates how Virginia's regulatory and non-regulatory programs require or facilitate implementation of these six priority BMPs.

Table 11. Virginia Total Load Reductions Resulting from Priority BMP.

Priority BMP	Nitrogen	Phosphorus	Sediment
Nutrient management	2.3%	2.5%	0.0%
Animal waste management systems	8.1%	14.0%	0.0%
Conservation plans	2.9%	5.6%	8.5%
Barnyard runoff control systems	0.9%	1.6%	0.6%
Stream fencing on pastures	2.6%	5.6%	10.6%
Vegetated buffers on pastures	5.2%	9.7%	16.4%
Total	22.0%	39.0%	36.1%

[14] http://www.casttool.org/Documentation.aspx

6.0 Virginia's Animal Agriculture WIP BMPs

Virginia is relying on both regulatory and voluntary programs to meet the 2017 and 2025 WIP goals pertaining to animal agriculture operations. Table 12 summarizes EPA's findings on the priority BMPs incorporated into each of Virginia's programs along with an estimated number of animal operations subject to each program. The estimated facility universe for the voluntary programs is based on Virginia's estimate of 1,860 AFOs, as well as the estimates of 26,555 Virginia farms with livestock and poultry and 46,030 Virginia farms total (USDA, 2014).

Table 12. Virginia Programs Contributing to Implementation of Priority BMPs.

Priority BMP	NMP Program	VPA AFO and Poultry Waste Management Program	VPDES CAFO Program	RMP Program	Small AFO Strategy	ASA Program
Lead Agency	DCR	VADEQ	VADEQ	DCR	VADEQ and VDACS	VDACS
Estimated Facility Universe	1,037 required + 97 voluntary = 1,134	1,037	0	Up to 46,030*	823	Up to 46,030*
Nutrient Management	**Required**	**Required**	**Required**	**Required**		**May Be Required**
Animal Waste Management Systems	**May Be Required**	**Required**	**Required**			**May Be Required**
Conservation Plans				**Required**		**May Be Required**
Barnyard Runoff Control		**May Be Required**	**May Be Required**			**May Be Required**
Stream Fencing on Pastures				**Required**		**May Be Required**
Vegetated Buffers on Pastures						**May Be Required**

*Not limited to animal agriculture operations.

NMPs are required for all 1,037 VPA-permitted operations, and approximately 945 of these 1,037 operations have current NMPs. NMPs will be required at any operations that may be covered by VPDES permits in the future. NMPs are also required for any farmer who participates in the voluntary RMP program, and NMPs may be a requirement of a required ASA plan. An additional 97 farmers have voluntarily implemented NMPs, and DCR is encouraging other farmers to voluntarily implement NMPs by developing a nutrient management training program for small unpermitted dairies and by making $152,000 in funding available for the development of NMPs at unpermitted dairies and confined beef operations

Animal waste management systems are required for all 1,037 VPA-permitted operations Animal waste management systems will be required at any operation that may be covered by VPDES permits in the future. Animal waste management systems may be a requirement of a required ASA plan. Animal waste

management systems may be voluntarily implemented or required at the additional 97 non-VPA permitted operations with NMPs.

Conservation plans are required for any farmer who participates in the voluntary RMP program, and conservation plans may be a requirement of a required ASA plan. Other farmers may voluntarily implement conservation plans.

Barnyard runoff control may be voluntarily implemented or required at facilities covered by VPA permits or by VPDES CAFO permits in the future, depending upon the facility, its location, and any site-specific NMP requirements. Barnyard runoff control may be a requirement of a required ASA plan. Other farmers may voluntarily implement barnyard runoff control practices.

Stream fencing on pastures is required for any farmer who participates in the voluntary RMP program, and stream fencing on pasture may be a requirement of a required ASA plan. Virginia has placed particular emphasis on increasing voluntary implementation of stream fencing on pastures. Currently, farmers can receive 100 percent cost-share reimbursement for stream fencing on pastures, and 70 percent of the SWCD cost-share funds are currently dedicated to this practice (DCR, 2013).

Vegetated buffers on pastures are not required under any of the programs that were reviewed, although vegetated buffers on pasture may be a requirement of a required ASA plan. Farmers may voluntarily install vegetated buffers on pastures, but there are currently no requirements for farmers to implement this BMP.

Table 13 summarizes Virginia's progress toward meeting the 2025 implementation goals, as reported by Virginia to the CBP, for the six priority BMPs selected by EPA as specifically relevant to animal agriculture programs related to water quality. Note that the data are not necessarily limited to animal agriculture operations.

Table 13. Virginia's Progress Toward 2025 Priority BMP Implementation Goals

WIP Priority Practice	Units	2009 Progress (% of 2025 Goal)		2013 Progress (% of 2025 Goal)		2025 Goal
Nutrient Management	acres	515,275	68%	557,012	74%	756,531
Animal Waste Management Systems	AUs	225,318	26%	274,689	32%	862,058
Conservation Plans	acres	926,165	49%	1,131,522	60%	1,883,053
Barnyard Runoff Control	acres	525	10%	1,374	25%	5,488
Stream Fencing on Pastures	acres	33,866	60%	52,390	94%	56,029
Vegetated Buffers on Pastures	acres	33,596	65%	27,638	54%	51,550

Increased implementation of agricultural BMPs is necessary to achieve the nutrient and sediment reductions in the WIP. According to Virginia's Phase I WIP, "In 2005 DCR began to place greater

emphasis on certain BMPs that were designated as "priority practices." These priority practices now represent five suites of BMPs that address: nutrient management, vegetative buffers (grass and forest), conservation tillage, cover crops, and livestock stream exclusion" (Commonwealth of Virginia, 2010). Between 2006 and 2012, DCR emphasized these practices by requiring SWCDs to obligate 80 percent of their cost-share allocation funding for them. After 2012, SWCDs have not been required to meet the 80 percent threshold but these five BMPs are still identified as priority practices. This prioritization has produced noticeable results. For example, Virginia has placed particular emphasis on stream fencing on pastures to exclude livestock from streams, with farmers receiving 100 percent reimbursement for the practice and with 70 percent of the cost-share funds currently dedicated to this practice (DCR, 2013). As a result, approximately 94% (52,390 acres implemented out of goal of 56,029 acres) of the 2025 target for stream fencing on pasture was met in 2012.

Virginia has clearly specified regulatory programs to manage the pollution from AFOs of certain sizes and meeting certain operational conditions. However, approximately half of the AFOs in Virginia are not covered by these regulatory mechanisms because they fall below the VPA permit thresholds. Based on information provided by Virginia in the questionnaire, 1,037 animal agriculture operations currently have VPDES or VPA permit coverage. These farms comprise approximately 56% of the estimated 1,860 AFOs in Virginia (Commonwealth of Virginia, 2013a), approximately 4% of the 26,555 farms with livestock and poultry in Virginia (USDA, 2014), and approximately 2% of the 46,030 total farms in Virginia (USDA, 2014).

Virginia is relying on BMPs outside of those required under regulatory programs in order to meet the 2017 and 2025 WIP implementation goals. Virginia's voluntary programs are important in achieving Virginia's animal agriculture pollution reduction goals set forth in the WIP. For example, Virginia is implementing the Small AFO Strategy to try to address water quality impacts at unpermitted AFOs, and Virginia is implementing the RMP program to encourage voluntary implementation of BMPs at any agricultural operation in Virginia, not just AFOs or livestock operations. In addition, Virginia has placed particular emphasis on increasing voluntary implementation of stream fencing on pastures. Currently, farmers can receive 100 percent cost-share reimbursement for stream fencing on pastures, and 70 percent of the SWCD cost-share funds are currently dedicated to this practice. Finally, DCR is providing grant money to support the development of RMPs and of NMPs at unpermitted dairies. Virginia's 2014-2015 WIP programmatic milestones set a goal of getting NMPs on an additional 300 unpermitted dairies and RMPs on at least 40 agricultural operations by December 2015.

While Virginia's voluntary programs are important in achieving Virginia's animal agriculture pollution reduction goals set forth in the WIP, there is currently uncertainty if and how the voluntary programs will ensure these reductions are met. For example, while any animal agriculture operations with cropland, hayland, or pasture are eligible to participate in the voluntary RMP program, it is uncertain how many operations will voluntarily sign up. As a result, while the RMP program may be able to increase BMP implementation on unregulated farms, there is not a clear understanding at this point that the program will be widely accepted by the farm community. In addition, Virginia is implementing the Small AFO Strategy to address water quality concerns related to discharges or potential discharges on unpermitted operations, but has only required operational changes or BMPs on 19 farms out of the 332

farms that have been evaluated. Because the Small AFO Strategy is not designed to document all voluntary BMPs present on farms, or those BMPs installed in anticipation of an assessment, EPA was unable to determine the full scope of BMP implementation that has resulted from implementation of the Small AFO Strategy. Tracking priority BMP implementation is an additional challenge for Virginia. Currently, agricultural BMPs are reported through the Agriculture Cost-Share Program Tracking Database. Tracking BMP implementation is critical for measuring success within the Chesapeake Bay TMDL WIP, and DCR has a BMP tracking program in place to account for BMPs installed using state or federal cost-share funds. However, according to Virginia, BMP implementation and associated pollutant reductions reported to date are largely only for practices installed with government cost-share funds, and tracking BMPs installed voluntarily (without government assistance) has proven challenging (Commonwealth of Virginia, 2013a).

DCR is currently developing a mechanism to account for voluntary practices. Six SWCDs were engaged in 2012 to begin the voluntary BMP tracking process. Each SWCD developed voluntary BMP tracking protocols and gathered data to include in a tracking database. DCR and other stakeholders reviewed the SWCD's findings and were to choose the most appropriate protocol to gather voluntary practice information across the Chesapeake Bay watershed.

In summary, Virginia has limited regulatory programs to address Virginia's Chesapeake Bay WIP commitments. Approximately 56% of AFOs in Virginia are covered under the state regulatory permitting programs, representing approximately 4% of all Virginia farms with livestock and poultry and approximately 2% of all Virginia farms. This leaves approximately 44% of the AFOs in Virginia, as well as all non-AFOs, covered only through voluntary programs. Because Virginia requires permits of the largest farms, the percentage of total animals in confinement which are permitted is markedly greater than the percentage of farms permitted. For example, the dairy cow inventory in the 2012 Ag Census is 94,105 animals, and the corresponding number of dairy cattle on farms with VPA permits is 37,384 animals, representing approximately 40% of the total dairy animal population in Virginia. Nonetheless, Virginia is relying heavily on voluntary programs to achieve nutrient and sediment reductions from the animal agriculture sector. Virginia expects that wide-spread acceptance and implementation of voluntary programs such as the RMP program will accelerate implementation of priority BMPs to meet the WIP agricultural implementation goals, though there is uncertainty at this point how well these programs will be embraced and implemented by the farm community.

In the event that Virginia is unable to keep up with or make progress toward meeting its agricultural implementation goals, Virginia may need to act on its commitment outlined in the WIP to employ additional mandatory BMP programs to achieve the 2017 and 2015 WIP BMP and pollutant load reduction goals. The additional mandatory BMPs that Virginia may consider include NMPs, conservation plans, stream fencing on pastures, and vegetated buffers on cropland (Commonwealth of Virginia, 2010). For example, Virginia could increase mandatory NMPs by lowering the VPA permit size thresholds and increase the number of operations required to obtain VPA permits and NMPs.

6.1 Virginia's Animal Agriculture WIP BMPs – Observations

- Virginia's regulatory programs require some but not all of the priority BMPs.

- Virginia is relying heavily on programs with voluntary participation, such as the RMP program, Small AFO Strategy, and the Virginia Agriculture Cost-Share (VACS) program, in order to increase BMP implementation to meet Virginia's WIP goals.
- There is currently uncertainty if and how the voluntary programs will ensure these reductions are met. For example, it is uncertain how many operations will voluntarily sign up for an RMP. EPA was unable to determine the full scope of BMP implementation that has resulted from implementation of the Small AFO Strategy, only that 19 out of 335 farms that have been evaluated were required to make operational changes or implement BMPs.
- Future reductions in nutrient and sediment loading will need to come from voluntary BMP installation at unpermitted operations, additional BMP requirements for permitted operations, or an increase in the number of operations that are required to implement BMPs or obtain permits.

7.0 Nutrient Management Program

The role of DCR in Virginia's nutrient management program is to work "to manage both urban and agricultural nutrients found in fertilizers, manure, biosolids and other sources so that they retain their efficient use yet don't impair the quality of Virginia's ground and surface waters."[15] DCR provides administrative and technical oversight for the nutrient management program in Virginia, including regulatory and policy development, nutrient management plan (NMP) review and approval, nutrient management planner certification and training, and ensuring that certified planners write plans according to the Virginia Nutrient Management Standards and Criteria.

Virginia's nutrient management training and certification regulations[16] explain the requirements for being trained and certified to write NMPs. These regulations also set standards for information that must be in an NMP written by a certified planner.

Virginia's VPDES and VPA regulations require VPDES- or VPA-permitted AFOS and CAFOs, as well as biosolids land appliers and other permitted residual specific land application activity, to implement an NMP that has been developed by a DCR-certified nutrient management planner and approved by DCR. Unpermitted AFOs may be required to develop NMPs if they choose to participate in some Virginia or federal cost-share programs. Unpermitted AFOs may also voluntarily develop and implement an NMP.

DCR nutrient management planners write 90 percent of all NMPs for livestock operations on an annual basis, while private sector certified nutrient management planners complete the other 10 percent. Certified nutrient management planners must meet the state's certification criteria to become certified, must submit annual reports to DCR, and must complete four credit hours of continuing education every two years. DCR may revoke planners' certificates if the NMPs they write do not meet the Virginia Nutrient Management Standards and Criteria.

For VPDES- and VPA-permitted AFOs and CAFOs, NMPs are submitted to DCR's central office for review and approval. In order to be approved by DCR, NMPs must be developed according to the Virginia Nutrient Management Standards and Criteria (DCR, 2005) as well as technical guides, academic research, and other resources ("Technical Standards"). Virginia reviews its Technical Standards on an annual basis to determine where the standards need to be updated based on current research, changes in crop management techniques, and technological considerations.

EPA periodically compares state technical standards against agency expectations. The 2012 EPA review determined that most aspects of Virginia's Technical Standards are consistent with EPA's effluent limitation guidelines but that some portions are inconsistent.[17]

Once DCR approves an NMP, an approval letter is provided to the operator. For VPA- or VPDES-permitted facilities, DCR requires the facilities to implement additional special conditions as part of the NMP. DCR has developed different special conditions based on livestock types and facility location. These special conditions are incorporated into the approved NMP and are required to be implemented as part of the approved NMP. DCR sends a copy of these required special conditions to the facility

[15] http://www.dcr.virginia.gov/soil_and_water/nutmgt.shtml
[16] http://www.dcr.virginia.gov/documents/nmtraincertregs.pdf
[17] Additional information available upon request.

operator with the NMP approval letter. DEQ also receives a copy of the NMP approval letter for VPA- or VPDES-permitted operations.

Both VPDES CAFO permits and VPA permits require implementation of a DCR-approved NMP. For VPDES-permitted operations, the nine minimum elements that are required to be in the NMP of an NPDES CAFO permitted operation [40 CFR part 122.42(e)(1)] are found in the DCR-approved NMP as well as in VPDES permit language, fact sheets, and permit application forms. For VPA-permitted operations, the operations are covered under state permits and the NMPs do not need to meet the more stringent federal requirements. For VPA-permitted operations, the DCR-approved NMP contains at least four of the nine minimum elements that are required of VPDES-permitted operations. The required elements of an NPDES CAFO permit NMP that are not required for DCR-approved NMPs for VPA-permitted operations are:

- Ensure proper management of mortalities (*i.e.*, dead animals) to ensure that they are not disposed of in a liquid manure, storm water, or process wastewater storage or treatment system that is not specifically designed to treat animal mortalities,
- Ensure that clean water is diverted, as appropriate, from the production area,
- Prevent direct contact of confined animals with waters of the United States, and
- Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.
- Identify appropriate site specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants to waters of the United States.

If farm management changes occur, the operator can request an NMP be revised. The certified planner will then revise the plan based upon the changes and resubmit it to DCR's central office for approval. NMPs can cover a period of up to 3 years, although plans can be written for up to 5 years for poultry operations if all litter is transferred off-site. DCR estimates that 50 to 60 percent of all NMPs are updated or revised within 18 months of the original date.

DEQ communicates nutrient management program requirements to VPA- and VPDES-permitted animal agriculture operations through routine permit inspections, required operator trainings, outreach meetings, DEQ's website, and written communication sent via mail and email. DCR also communicates nutrient management program requirements to farmers and certified planners through DCR's website, email, and continuing education classes. DCR's website receives more than 16,000 hits annually and DCR sends out hundreds of emails to certified planners each year. DCR works closely with Virginia Tech Extension in communicating nutrient management requirements to animal operations and also works closely with Virginia State University's Small Farm Outreach Program (VSU, 2013). DCR is currently developing a voluntary nutrient management training program for small unpermitted dairies, and Virginia has committed in its 2014-2015 WIP programmatic milestones to complete the development of this education program, including direct mailings to licensed dairies and five educational meetings, by December 31, 2014.

7.1 Facility Universe

NMPs are required for all operations covered by VPDES CAFO Permits (0 operations), VPA AFO General Permits (143 operations), VPA AFO Individual Permits (9 operations), and VPA Poultry Waste Management Permits (885 operations). These 1,037 farms represent approximately 56% of all 1,860 Virginia AFOs, approximately 4% of all 26,555 Virginia farms with livestock and poultry, and approximately 2% of all 46,030 Virginia farms. Virginia estimates that VPA-permitted operations that are required to implement an NMP cover most swine AFOs in Virginia, approximately 80 percent of poultry AFOs in Virginia, and approximately 13 percent of dairy AFOs in Virginia (Commonwealth of Virginia, 2013a). Based on the 2012 USDA Ag Census, EPA estimated that approximately 97% of all swine in Virginia are covered by VPA permits and NMPs. Approximately 945 of the 1,037 VPA-permitted operations have current NMPs.

Virginia estimates that certified planners have also written approximately 97 additional NMPs for unpermitted dairies, which is approximately 16% of Virginia's estimated 600 unpermitted dairies. Under Virginia's 2014-2015 WIP programmatic milestones, Virginia has committed to increasing the number of unpermitted dairies with NMPs to 450 unpermitted dairies (75% of all unpermitted dairies) by the end of 2015.[18] One way that Virginia is planning to accomplish this is by developing a specific, targeted education program for unpermitted dairies by December 31, 2014, which will include direct mailings to licensed dairies and five additional educational meetings.[19]

A second way that Virginia is planning to accomplish this goal is by providing funds to develop NMPs for unpermitted dairies. On June 6, 2014, DCR announced that it is making $152,000 available for the development of NMPs at unpermitted animal operations in Virginia, with $100,000 being directed inside the Chesapeake Bay Watershed. DCR is distributing this funding through grants to DCR-certified planners. DCR issued a request for proposal (RFP) on June 6, 2014 to solicit proposals to establish agreements through competitive negotiation for the writing of NMPs for animal waste. The RFP is making funding available for NMPs for small unpermitted dairies and confined beef operations only. Each NMP must be prepared by a Virginia Certified Nutrient Management Planners who are certified in the agricultural category, and must be approved by DCR. Proposals will be considered for funding for an 8-month grant beginning September 5, 2014. The payment rate will be at $8.00 per acre for all acres included in the farming operation that receive nutrients (or a reduced rate of $2.00/acre for imported nutrients) up to a maximum of $4,000 per NMP, or 500 acres.[20] On September 1, 2014 DCR issued a notice of intent to award $118,900 to three certified planners for NMPs covering a total of 8,862 acres in the Chesapeake Bay watershed and 9,750 acres outside of the Chesapeake Bay watershed.[21]

[18] http://www.deq.virginia.gov/Portals/0/DEQ/Water/ChesapeakeBay/CBTMDL-2014-2015_ProgrammaticMilestones.pdf
[19] http://www.deq.virginia.gov/Portals/0/DEQ/Water/ChesapeakeBay/CBTMDL-2014-2015_ProgrammaticMilestones.pdf
[20] http://www.dcr.virginia.gov/forms/DCR199-227.pdf
[21] http://www.dcr.virginia.gov/soil_and_water/documents/nmp-noia-2014.pdf

7.2 Resources Allocated

Virginia's nutrient management program is a core part of the VPA and VPDES AFO and CAFO permit programs and involves multiple agencies in Virginia. DCR has 5 staff members to administer regulations, conduct training and certification, review and approve plans, and provide general technical support, although a total of 21 DCR employees are certified Nutrient Management Planners. Virginia law grants NMP-approval authority to DCR. In FY2014, DCR had a budget of $1,417,718 for programmatic support for SWCD programs and $32,107,924 for agricultural BMP support. DCR also received EPA funding through the 319 Non-Point Source program and the Chesapeake Bay Implementation Grant (CBIG) totaling $1,073,500 in support the nutrient management program and $538,000 in support of the SWCDs.

DCR will also be contracting with three private planners to write NMPs for small dairies in Virginia, all of which will be reviewed by DCR to ensure that they meet DCR's standards.

DEQ has 28 certified planners at the regional office level and 4 certified planners in the central office who review and inspect NMPs as part of the VPA AFO and VPA Poultry Waste Management program oversight. However, DEQ does not approve NMPs and does not have any FTE or budget specifically for the nutrient management program.

The SWCDs employ 21 certified planners who generally provide nutrient management assistance to farmers involved with cost-share programs. Virginia does not expect resources, including staffing levels, allocated to the nutrient management program to increase (Commonwealth of Virginia, 2013a). In FY2014, the SWCDs had a budget of $6,941,091 for operations and administrative support, $2,371,929 for technical assistance for agriculture BMPs, and $21,377,186 for cost-share for agricultural BMPs.

In addition to these state funds, EPA also provides funds to Virginia to help implement the nutrient management program. In FY2014, EPA provided $246,500 through the 319 nonpoint source grant and $827,000 through the Chesapeake Bay Implementation Grant (CBIG) for nutrient management.

7.3 Data Systems

DCR, DEQ, and the SWCDs maintain separate systems to track NMPs and associated information.

DCR maintains a database for NMP tracking to track the acres under nutrient management plans by watershed and to track the number of plans that are current. For each NMP, the database stores the watershed code, crops, acres, NMP date, period the NMP is valid, number of animals, and amount of manure generated. DCR updates the database monthly (Commonwealth of Virginia, 2013a).

DEQ uses their CEDS database to track inspection data and formal compliance and enforcement activities. DEQ regional office staff enter data into CEDS within five business days of the event or activity being recorded. DEQ regional offices use CEDS for reporting to DEQ central office, as well as for data pulls such as responding to FOIA requests. Excel spreadsheets are used for data analysis and reporting, and for data not entered or tracked in CEDS (Commonwealth of Virginia, 2013a). Further, DEQ is planning an information services upgrade to all CEDS modules beginning in 2015 that will enhance the overall functionality and data export capabilities.

The SWCDs track NMPs using the Virginia Agricultural Cost Share (VACS) Tracking Program. For each NMP, the VACS tracking program stores the watershed code, crops, acres, NMP date, period the NMP is valid, number of animals, and amount of manure generated. SWCD staff updates the database weekly (Commonwealth of Virginia, 2013a).

7.4 Compliance and Enforcement

As described above, Virginia's nutrient management training and certification regulations explain the requirements for being trained and certified to write NMPs, as well as the standards for the content of an NMP written by a certified planner. Therefore, DCR is responsible for ensuring that certified planners maintain their training and certification and that NMPs submitted to DCR for review and approval meet Virginia's standards.

NMPs are required to be submitted to DCR for approval for VPA- and VPDES-permitted facilities but not for unpermitted livestock operations. Since facilities must update their NMPs at least once every three years, approximately 33% of facilities should be submitting updated NMPs for review and approval each year. In FY2013, 29% of facilities with VPA Poultry Waste Management permits and 39% of facilities with VPA AFO permit submitted their NMPs to DCR for review and approval. In FY2013, 318 NMPs were submitted to DCR for review, of which 314 were approved. Of the 314 approved NMPs, 254 were from facilities covered by VPA Poultry Waste Management permits, while the remaining 60 were from facilities covered by VPA AFO permits.

In addition to NMPs from VPDES- and VPA-permitted operations, DCR also reviews about 10% of all other NMPs each year, such as for crop farmers. If there are any deficiencies in an NMP during DCR's review, DCR reviews the deficiencies with the certified planner so that the planner addresses the deficiencies.

DCR and the local SWCDs also perform spot checks to verify BMP implementation at unpermitted animal operations when an NMP is required for cost-share programs. DCR and SWCD inspect approximately 5% of cost-share practices that require NMPs each year. EPA did not review DCR or SWCD NMP files because EPA is prohibited from seeing NMPs that are funded or developed by NRCS without the farmer's consent per Section 1619 of the USDA Farm Bill.

Since the requirement to develop and implement an NMP is found in the VPDES and VPA regulations, DEQ is responsible for ensuring that permitted operations comply with the terms of their NMP, not DCR. DEQ determines NMP compliance during inspections of VPA-permitted facilities, which occur at least once every three to four years. DEQ's enforcement process for addressing compliance issues is summarized in DEQ's Civil Enforcement Manual, Chapter 2 as follows:

- Informal corrections can be used for issues that do not present a significant threat to the environment or actual harm, and that can ordinarily be corrected within 30 days.
- If the responsible party does not return to compliance within 30 days of an informal correction, staff should issue a warning letter.
- After the issuance of a warning letter, DEQ expects the violation(s) to be corrected within 30 to 90 days, unless the alleged violations meet the criteria for a notice of violation (NOV). NOVs are required are required by Virginia law before having a formal hearing to request a civil penalty.

- DEQ staff use NOVs to notify the responsible party of alleged violation(s) and to signify that the alleged noncompliance is ongoing, persistent, severe, or of such significance that the case is appropriate for further enforcement action and may warrant a civil charge or civil penalty. NOVs mark the transition from compliance to enforcement.
- NOVs request that the responsible party respond within 10 days to set up a prompt meeting. The meeting with the responsible party should take place within 30 days of the date of the NOV.
- If the return to compliance will take more than 90 days but under 12 months, then a compliance agreement may be appropriate.
- If the return to compliance will take longer than 12 months, or if a compliance agreement is not appropriate, then a Consent Order must be used to memorialize the plan and schedule for returning to compliance.[22]

In FY2013, DEQ conducted inspections at 498 VPA-permitted facilities, which represents approximately 48% of all VPA-permitted facilities. DEQ identified NMP non-compliance at 101 facilities, or during approximately 20% of DEQ's inspections. DEQ addressed most non-compliance through informal corrections. Of the 101 facilities with NMP non-compliance issues, only eight were elevated above informal corrections, with seven facilities receiving warning letters, and one facility receiving a notice of violation (NOV). In FY2013, NMP non-compliance was the source of 25% of the NOVs (1 out of 4) and approximately 47% of the warning letters (7 out of 15) that DEQ issued.

7.5 WIP Implementation Goals

Nutrient management is one of the priority practices identified in Virginia's Phase I WIP for reducing nutrient loads to the Chesapeake Bay. The Virginia Nutrient Management Standards and Criteria provide guidance and requirements for developing NMPs, such as the procedures to determine the nutrients present in livestock waste, how much nutrients various crops need, and the proper rate, time and place to land apply livestock waste and other nutrient sources (DCR, 2005).

Virginia's nutrient management regulations and technical standards may or may not require a facility to have a waste management system. Many operations will have waste storage facilities, but the nutrient management regulations and technical standards do not explicitly require waste storage facilities. NMPs are required to identify the "location of manure, biosolids, or waste storage if any" and "available manure storage capacity." Therefore, if an operation has a waste management system, it should be identified in the operation's NMP.

Virginia's nutrient management regulations and technical standards do not require a conservation plan, barnyard runoff control structures, stream fencing on pastures, or vegetated buffers on pastures as part of an NMP.

[22] http://www.deq.virginia.gov/Portals/0/DEQ/Enforcement/Guidance/Chapter2-Text.pdf

Table 14. Priority BMPs, Nutrient Management Program

Priority BMP	Required Component	Notes
Nutrient Management	☑	4VAC50-85-130
Animal Waste Management Systems	☑ May be required	4VAC50-85-130,C.1.f 4VAC50-85-130.F.2
Conservation Plans	☐	
Barnyard Runoff Control	☐	
Stream Fencing on Pastures	☐	
Vegetated Buffers on Pastures	☐	

7.6 Nutrient Management Program – Observations

- In FY2014, DCR had approximately 5 FTEs dedicated to the Nutrient Management program and a budget of $1,417,718 for programmatic support for SWCD programs and $32,107,924 for agricultural BMP support. DCR also received EPA funding through the 319 Non-Point Source program and the Chesapeake Bay Implementation Grant (CBIG) totaling $1,073,500 in support the nutrient management program and $538,000 in support of the SWCDs.
- Virginia's Nutrient Management Program only requires NMPs at farms covered by VPDES and VPA permits, which currently cover 1,037 farms. Approximately 945 of the 1,037 VPA-permitted operations have current NMPs, and an additional 97 NMPs have been developed for unpermitted dairies. As a result, NMPs currently cover approximately 56% of all 1,860 Virginia AFOs, approximately 4% of all 26,555 Virginia farms with livestock and poultry, and approximately 2% of all 46,030 Virginia farms.
- VPA-permitted operations that are required to implement an NMP cover approximately 97% of swine, approximately 80% of the poultry AFOs, and approximately 13% of the dairy AFOs in Virginia.
- NMP noncompliance was observed at approximately 20% of DEQ's VPA permit inspections.
- VADEQ has yet to issue any VPDES CAFO permits, so there are no VPDES CAFO NMPs yet.
- Virginia is trying to increase the number of NMPs at unpermitted operations by:
    - Requiring NMPs for some VA or federal cost-share programs.
    - Requiring NMPs for any operation who participates in Virginia's Resource Management Plan program.
    - Developing a nutrient management training program for small unpermitted dairies.
    - Making $152,000 in funding available for the development of NMPs at unpermitted dairies and confined beef operations.
- Virginia DCR reviews 100 percent of NMPs for VPA- and VPDES-permitted operations.
- Virginia's Nutrient Management program requires one or two of the six priority BMPs.

8.0 Virginia Pollutant Abatement (VPA) Permit Program

Virginia has regulated AFOs under the authority of the State Water Control Law since the 1970s. Currently all Virginia AFOs with more than 300 AUs (or more than 200 AUs for poultry operations), including all Large and Medium CAFOs, are required to obtain coverage under the VPA permit program. VPA permit coverage may be obtained under the VPA General Permit for Management Activities for Animal Feeding Operations (VPA AFO General Permit), the VPA General Permit for Poultry Waste Management (VPA Poultry Waste General Permit), or an individual VPA permit.

VPA permits are Virginia state permits and are not VPDES CAFO permits. A facility that discharges pollutants would still need to be covered by a VPDES CAFO permit, not a VPA permit. VPDES CAFO permits have several different requirements from VPA permits. For example, VPDES permits require that facilities to prevent direct contact of confined animals with surface waters, divert clean water from the production area, and not dispose of chemicals or other contaminants in any waste storage system.

8.1 VPA AFO General Permit

The VPA general permit regulation for AFOs (9VAC25-192) and the State Water Control Law (§62.1-44.17:1) require any AFO not covered by a VPDES permit and having 300 or more animal units[23] utilizing a liquid manure collection and storage system to obtain coverage under the VPA AFO General Permit. A facility applying for coverage under the VPA AFO General Permit must complete a registration statement and submit it to the appropriate DEQ regional office. The VPA AFO General Permit was reissued on November 16, 2014 and expires on November 15, 2024.

In addition to the VPA AFO General Permit, DEQ also regulates some AFOs under individual VPA permits. A VPA AFO individual permit "is typically utilized when it is determined that additional requirements are necessary in order to protect water quality or when it is determined that the facility is unable to comply with the requirements of the [General Permit]" (Commonwealth of Virginia, 2010).

All operations covered under the VPA Poultry Waste Management General Permit are required to develop and implement a DCR-approved NMP. Other permit requirements include proper storage of manure, proper design of waste storage facilities, proper land application of manure including setbacks, and proper recordkeeping of manure generation and land application.

Each facility covered under the VPA AFO General Permit must complete DEQ-approved training at a minimum of once every three years.

DEQ indicated that the development of the program is ongoing to keep up to date with changes with technology and programmatic issues. Regulatory action to reissue and amend the VPA AFO regulations is completed at least once every ten years for VPA general permits. Additionally, a periodic review of each existing regulation is completed at least once every four years by DEQ unless specifically exempted from periodic review by the Governor.

[23] 300 animal units is equivalent to 200 dairy cattle (milked or dry); 750 swine (> 55 lbs); 300 slaughter or feeder cattle; 150 horses; 3,000 sheep or lambs; 16,500 turkeys; 30,000 laying hens or broilers. http://www.deq.virginia.gov/Portals/0/DEQ/Water/VirginiaPollutionAbatement/AFOdocuments/AFO_CAFO_Decision_Tree20130318.pdf

The VPA AFO general permit regulation states that "There shall be no point source discharge of wastewater to surface waters of the state except in the case of a storm event greater than the 25-year, 24-hour storm" (9VAC25-192-50.A.2). The VPA AFO general permit requires that "any liquid manure collection and storage facility shall be designed and operated to prevent point source discharges of pollutants to state waters except in the case of a storm event greater than the 25-year, 24-hour storm" (9VAC25-192-70.B.1).

8.2 VPA Poultry Waste General Permit

Any poultry feeding operation not covered by a VPDES permit that confines more than 200 animal units of poultry (20,000 chickens or 11,000 turkeys) is required to obtain coverage under the VPA Poultry Waste General Permit (9VAC25-630, §62.1-44.17.1.1). A poultry grower must file a registration statement with a DCR-approved NMP. The current VPA Poultry Waste General Permit became effective December 1, 2010 and expires November 30, 2020.

In addition to regulating AFOs, the VPA Poultry Waste General Permit also establishes requirements for poultry waste brokers and end-users that receive poultry waste from an AFO. Poultry waste brokers and end-users that utilize or store poultry manure must register with DEQ and comply with technical requirements in the regulation such as recordkeeping, storage, land application, and reporting requirements. A poultry waste end-user or poultry waste broker who does not comply with the requirements of the regulation may be required to obtain coverage under the VPA Poultry Waste General Permit. In that case, a poultry waste broker or end-user must file a registration statement and obtain DCR-approved NMP for land application sites where poultry litter will be used or stored and managed.

All operations covered under the VPA Poultry Waste Management General Permit are required to develop and implement a DCR-approved NMP. Other permit requirements include proper storage of poultry waste, proper land application of manure including setbacks, and proper recordkeeping of poultry waste generation and land application.

Each VPA-permitted poultry grower, as well as registered brokers and end-users, must complete DEQ approved training at a minimum of once every five years.

DEQ indicated that the development of the program is ongoing to keep up to date with changes with technology and programmatic issues. Regulatory action to reissue and amend the VPA AFO regulations is completed at least once every ten years for General Permits. Additionally, a periodic review of an existing regulation is completed at least once every four years by the promulgating agency unless specifically exempted from periodic review by the Governor.

The VPA Poultry Waste Management general permit regulation states that "There shall be no point source discharge of wastewater to surface waters of the state except in the case of a storm event greater than the 25-year, 24-hour storm" (9VAC25-630-30.A.2). The VPA Poultry Waste Management general permit requires that "the confined poultry feeding operation shall be designed and operated to prevent point source discharges of pollutants to state waters except in the case of a storm event greater than the 25-year, 24-hour storm" (9VAC25-630-50.B.1).

8.3 Facility Universe

Currently, 143 facilities are covered under the VPA AFO General Permit, with one pending application. Nine facilities are currently covered under a VPA AFO individual permit (Commonwealth of Virginia, 2013a).

Currently, 885 facilities are covered under the VPA Poultry Waste Management General Permit, with one pending application. Virginia has 29 registered poultry waste brokers on a state-wide basis, but there are currently no brokers permitted under the VPA Poultry Waste Management permit for the sole purpose of brokering (Commonwealth of Virginia, 2013a).

Virginia estimates that of the 26,555 farms in Virginia with livestock (USDA, 2014), approximately 1,860 are AFOs (Commonwealth of Virginia, 2013a). Based on this estimate, the VPA permit program covers approximately 56% of AFOs, with approximately 48% of all AFOs covered by the VPA Poultry Waste Management General Permit and approximately 8% of all AFOs covered by VPA AFO permits. In total, the VPA permit program covers approximately 4% of all 26,555 Virginia farms with livestock and poultry, and approximately 2% of all 46,030 Virginia farms. Virginia estimates that VPA-permitted operations cover most swine AFOs in Virginia, approximately 80 percent of poultry AFOs in Virginia, and approximately 13 percent of dairy AFOs in Virginia (Commonwealth of Virginia, 2013a). Based on the 2012 USDA Ag Census, EPA estimated that approximately 97% of all swine in Virginia are covered by VPA permits.

Because Virginia requires permits of the largest farms, the percentage of total animals in confinement which are permitted is markedly greater than the percentage of farms permitted. For example, the dairy cow inventory in the 2012 Ag Census is 94,105 animals, and the corresponding number of dairy cattle on farms with VPA permits is 37,384 animals, representing approximately 40% of the total dairy animal population in Virginia.

8.4 Resources Allocated

The DEQ central office's role in the VPA AFO program is program coordination, regulation and guidance development, providing support to the DEQ regional offices, and developing and delivering training both for DEQ regional office staff and for the regulated community. In FY2013, the DEQ central office had a budget of $34,586 and approximately 0.375 FTE for the VPA AFO permit activities. The DEQ regional offices are responsible for VPA AFO permitting, compliance and enforcement duties. In FY2013, the six DEQ regional offices had a combined budget of $244,293 and 2.98 FTEs total for the VPA AFO permit program. Virginia does not expect to hire any additional staff to support the VPA AFO permit program. DEQ estimated that in FY2013, 21 percent of the 10.86 regional office FTEs assigned to animal agriculture programs were directed toward VPA AFO site inspections and enforcement, and 10% to permitting. (Commonwealth of Virginia, 2013a).

The DEQ central office's role in the VPA Poultry Waste Management program is program coordination, regulation and guidance development, providing support to the regional offices, and developing and delivering training both for DEQ regional office staff and for the regulated community. In FY2013, the DEQ central office had a budget of $34,586 and approximately 0.375 FTE for the VPA Poultry Waste Management program activities. The DEQ regional offices are responsible for VPA Poultry Waste

Management permitting, compliance and enforcement duties. In FY2013, the six DEQ regional offices had a combined budget of $307,381 and 3.83 FTEs total for the VPA Poultry Waste Management permit program. Virginia does not expect to hire any additional staff to support the VPA Poultry Waste Management program. DEQ estimated that in FY2013, 28 percent of the 10.86 regional office FTEs assigned to animal agriculture programs were directed toward VPA Poultry Waste Management site inspections and enforcement, and 10% to permitting. (Commonwealth of Virginia, 2013a).

8.5 Data Systems

DEQ uses their CEDS database to track inspection data and formal compliance and enforcement activities. DEQ regional office staff enter data into CEDS within five business days of the event or activity being recorded. DEQ regional offices use CEDS for reporting to DEQ central office, as well as for data pulls such as responding to FOIA request. Excel spreadsheets are used for data analysis and reporting, and for data not entered or tracked in CEDS (Commonwealth of Virginia, 2013a).

8.6 Compliance and Enforcement

Routine compliance activities (including inspections) at VPA-permitted facilities are predominantly performed by DEQ regional office staff with support from the DEQ central office. Historically, DEQ was mandated by the Code of Virginia to complete annual inspections of all AFOs covered by a VPA permit (Commonwealth of Virginia, 2010). In order to free up resources to implement the Small AFO Evaluation and Assessment Strategy, the Code of Virginia was amended in 2011 to remove the annual inspection requirement.[24] DEQ is now conducting inspections at VPA-permitted facilities in accordance with Virginia's Risk-Based Inspection Strategy. This strategy identifies the baseline routine inspection frequency for VPA-permitted facilities as once every 3 years. However, the routine inspection frequency can be reduced to once every 4 years if the facility is deemed to be in compliance and is not contributing to Section 303(d) or 305(b) impaired water listings. Based on files reviewed by EPA, DEQ typically performs inspections at each facility at least once every two years. In FY2013, DEQ inspected 78 of 143 VPA AFO General Permit operations (approximately 55%), 9 of 9 VPA AFO Individual Permit operations (100%), and 411 of 885 VPA Poultry Waste Management General Permit operations (approximately 46%).

If VDACS receives any complaints related to VPA-permitted AFOs, VDACS refers the complaints to DEQ for follow-up.

8.6.1 Compliance Inspections

During EPA's review of DEQ files from the DEQ Valley Regional Office ("VRO") and the DEQ Tidewater Regional Office ("TRO"), EPA observed that the inspection forms used during inspections are different between DEQ regional offices.

The VRO inspection form includes an NMP field application review which details land application information. It also includes a few more pieces of key information than the TRO inspection form, such as

[24] https://lis.virginia.gov/cgi-bin/legp604.exe?111+ful+CHAP0052

why no photos/samples were taken, if DCR training has been completed by the AFO owner/operator, biosecurity information and more information on feeding and waste storage facilities.

In addition, the VRO inspection form includes: 1) current items requiring action (i.e., deficiencies); 2) previous inspection deficiencies and status (i.e., resolved or unresolved); and 3) recommendations. The TRO inspection forms did not include previous inspection deficiencies. The VRO inspection form appears to be more useful for tracking both previous and ongoing permit compliance issues.

The VRO inspection cover letter contained a clear list of deficiencies found during the inspection, provided hard deadlines for corrective action completion, and contained consistent notification of upcoming deadlines such as the need for a new litter analysis. The VRO inspection cover letters appear to be more informative for the operator than the TRO inspection cover letters.

It was also noted during the file review that DEQ appears to conduct inspections of some facilities during the same timeframe (month or season) each year. For example, one facility was inspected on 9/11/2009, 9/21/2010, 9/14/2011, 9/27/2012, and 8/16/2013. Another facility was inspected on 10/15/2009, 10/15/2010, and 11/15/2011. The EPA team observed that timing of VPA AFO compliance inspections performed by Valley Regional Office staff is more predictable than in the Tidewater Regional Office. Out of 112 VPA AFO inspection reports from the Valley Regional Office, approximately 26% (29 inspections) were conducted within 30 days of the calendar day of the previous inspection, approximately 13% (15 inspections) were conducted within one week of the calendar day of the previous inspection, and approximately 3% (three inspections) were conducted on the same calendar day of the previous inspection. In total, the timing of approximately 42% of VPA AFO inspections conducted by the Valley Regional Office was in some degree predictable.

The timing of Tidewater compliance inspections was more random and unpredictable. Out of 155 VPA AFO inspection reports from the Tidewater regional office, approximately 7% (11 inspections) were conducted within 30 days of the calendar day of the previous inspection, approximately 3% (four inspections) were conducted within one week of the calendar day of the previous inspection, and no inspections were conducted on the same calendar day of the previous inspection. In total, the timing of approximately 10% of VPA AFO inspections conducted by the Tidewater regional office was in some degree predictable.

Conducting inspections during the same timeframe each year may limit DEQ's ability to observe and evaluate the facilities during different seasons and scenarios (e.g., during wetter months, during land application events) and is predictable to the operator. Several citizens provided a similar comment to DEQ during the VPA Poultry Waste Management General Permit renewal process in 2010. One commenter stated that:

> An additional recommended enforcement change is that an improved inspection scheme be incorporated into the management the VPA permit. Currently, inspections are performed annually and at a similar time each year for each individual operation. This has created an ineffectual deterrent to poor litter handling practices and sloppy litter storage, the result of which is not infrequent outdoor storage of litter by growers, at times in places where it can

discharge into state waters. Naturally, we believe that a randomized approach to inspections is necessary to break the cycle of inspections, and create a year round expectation of compliance."

Another commenter stated that:

> We strongly recommend the institution of a random, rather than regular, schedule for enforcement visits [*sic*][25]. Currently, producers can expect an inspection around the same time of the year they were inspected the previous year. This twelve month cycle allows for long stretches where there is little risk of inspection. Randomized inspections could provide a strong disincentive for stockpiling of poultry litter and manure in a manner likely to cause a point source discharge."

In response to these comments, DEQ stated that "DEQ Inspection procedures are outlined in the agency wide adopted Inspection Strategy. While a random schedule for inspecting facilities is preferred, the regional office must consider inspection resources, the locations of the facilities as well as biosecurity concerns when developing the annual regional inspections schedule."[26]

8.6.2 Compliance Determinations

DEQ is responsible for conducting compliance assurance activities related to the VPA permit programs, including compliance with the NMP required by the VPA permit. Even though DCR has primarily responsibility for the nutrient management program, DEQ is responsible for verifying NMP implementation during inspections of VPA-permitted AFOs and CAFOs, including review and analysis of records for compliance with the site-specific, DCR-approved NMP and DEQ permit conditions. EPA reviewed inspection reports from VPA-permitted operations provided by DEQ to understand how DEQ evaluates NMP compliance during VPA inspections. DEQ inspection reports indicate that a detailed review of NMP records is conducted during each inspection, including a comparison of recorded nutrient application against NMP recommended nutrient application, fields used, crops actually planted compared with crops planned in the NMP, manure and soil monitoring data, manure spreader calibration, manure storage management in accordance with the NMP, and whether record keeping is current. DEQ inspectors also conduct a visual inspection of a few of the land application fields.

The EPA team reviewed 273 compliance inspection reports from 60 VRO and TRO VPA-permitted AFO files provided by DEQ to determine what deficiencies are being observed by DEQ and how these deficiencies are being addressed. These inspection reports covered the time period from FY2008 through FY2013. Approximately 44% (119 out of 273) of the inspection reports identified deficiencies, while the remaining approximately 56% (154 out of 273) of the inspection reports did not identify any deficiencies. Eleven facilities did not have any deficiencies identified in any inspection reports, while the remaining 49 facilities had deficiencies identified in at least one inspection report. Many of the 119

[25] By "enforcement visits," the commenter is referencing routine compliance inspections conducted by DEQ. In contrast, DEQ distinguishes between compliance assurance activity and enforcement activity that only occurs followed certain cases of alleged non-compliance.

[26] http://townhall.virginia.gov/L/GetFile.cfm?File=C:%5CTownHall%5Cdocroot%5C103%5C3063%5C5694%5CAgencyStatement_DEQ_5694_v1.pdf

inspection reports identified several deficiencies in a single report, with a total of 228 deficiencies identified from these reports. The ten most common deficiencies are identified below in Table 15.

Table 15. 10 Most-common Deficiencies Identified in VADEQ Tidewater and Valley Regional Office VPA Inspection Reports (2008-2013)

Deficiency	Number of Instances
NMP Implementation Issues	133
Improper manure/litter storage	18
No current operator training certification	14
Lagoon maintenance issues	11
Operating in a propose to discharge condition	11
Production area maintenance issues	7
Incomplete compliance reports	7
Observed wastewater discharge or overflow	6
Improper mortality handling	5
No response from permittee	4

Of the 228 identified deficiencies, the most common deficiency was NMP implementation issues. Approximately 58 percent of the identified deficiencies (133 out of 228) were related to nutrient management. Table 16 summarizes these 133 instances of noncompliance related to nutrient management.

Table 16. Number and Type of Nutrient Management Compliance Issues Identified During 119 TRO and VRO Compliance Inspections at VPA-permitted AFOs (FY2008 - FY2013)

No. of reported deficiencies	% of nutrient management deficiencies (n=133)	% of Total Deficiencies (n=228)	Nutrient Management Compliance Issue
44	33%	19%	Failure to maintain manure/litter transfer records
31	23%	14%	Expired manure/litter analysis
18	14%	8%	Over-application of organic nutrients
16	12%	7%	NMP did not reflect observed/recorded practices
10	8%	4%	Expired soil analysis
4	3%	2%	Incomplete field equipment calibration records
4	3%	2%	Organic nutrients applied to non-NMP field(s)
3	2%	1%	NMP was not available for review
3	2%	1%	Incomplete organic nutrient application records
133	**NA**	**58%**	**Total**

In FY2013, DEQ inspected 497 operations covered by VPA permits, of which 101 operations were found to be non-compliant with NMP requirements. Of the 101 AFOs out-of-compliance with NMP requirements, DEQ issued one NOV and seven warning letters. Virginia reported that 71 of the 101 AFOs resolved their non-compliance in FY2013 (Table 17).

Table 17. NMP Compliance by VPA-permitted AFOs, FY2013

DEQ Region	Number of NMP Non-compliant Facilities	Number of Facilities that Resolved NMP Non-compliance
Tidewater	3	3
Piedmont	8*	1
Northern	8*	4*
Valley	81* (at least 9 were expired NMPs)	62* (at least 12 were expired NMPs)
Blue Ridge	0	0
Southwest	1	1
Total	**101***	**71***

* The number includes expired NMPs.

8.6.3 Compliance Inspection Follow-up Activities

DEQ's enforcement process for addressing compliance issues is summarized in DEQ's Civil Enforcement Manual, Chapter 2 (DEQ, 2009) as follows:

- Informal corrections can be used for issues that do not present a significant threat to the environment or actual harm, and that can ordinarily be corrected within 30 days.
- If the responsible party does not return to compliance within 30 days of an informal correction, staff should issue a warning letter.
- After the issuance of a warning letter, DEQ expects the violation(s) to be corrected within 30 to 90 days, unless the alleged violations meet the criteria for a notice of violation (NOV). NOVs are required are required by Virginia law before having a formal hearing to request a civil penalty.
- DEQ staff use NOVs to notify the responsible party of alleged violation(s) and to signify that the alleged noncompliance is ongoing, persistent, severe, or of such significance that the case is appropriate for further enforcement action and may warrant a civil charge or civil penalty. NOVs mark the transition from compliance to enforcement.
- NOVs request that the responsible party respond within 10 days to set up a prompt meeting. The meeting with the responsible party should take place within 30 days of the date of the NOV.
- If the return to compliance will take more than 90 days but under 12 months, then a compliance agreement may be appropriate.
- If the return to compliance will take longer than 12 months, or if a compliance agreement is not appropriate, then a Consent Order must be used to memorialize the plan and schedule for returning to compliance.

DEQ stated that "As described in the Enforcement Manual regarding informal correction, permit holders typically address non-compliance with appropriate corrective measures following inspections" (Commonwealth of Virginia, 2013a). The majority of noncompliance issues appear to be addressed through informal corrections; out of 49 operations with deficiencies identified in inspection reports, approximately 35% (17 operations) received warning letters or NOVs. DEQ initiates the informal corrections by using inspection reports that identifies one or more issues concerning environmental

requirements.[27] DEQ estimates that approximately 33% of all VPA AFO and Poultry inspections result in informal corrections (Commonwealth of Virginia, 2013a).

In FY2013, DEQ conducted 87 inspections at VPA AFO permitted operations, which resulted in two NOVs and six warning letters being issued. NOVs were issued for inadequate freeboard in liquid manure storage structures, inadequate maintenance of vegetation around manure storage, manure sample results older than one year, land application fields not included in the NMP, site conditions needing to be addressed, and improper mortality disposal. Warning letters were issued for not maintaining the required buffer zones between manure application fields and surface waters, dwellings, water supply wells, and other protected areas defined in the VPA permit regulations.

In FY2013, DEQ conducted 411 inspections at VPA Poultry Waste General Permit operations, which resulted in two NOVs and nine warning letters being issued. NOVs were issued for failure to have poultry waste transfer records on site at the time of inspection. Warning letters were issued for over application of nutrients and farm expansion without required neighbor notification. In addition, DEQ held one show cause hearing, issued one administrative fine, and required one compliance schedule for a poultry waste broker for failure to register as a poultry waste broker, inadequate storage of poultry waste, incomplete transfer records, and inadequate land application records. As a result, DEQ is requiring the poultry waste broker to obtain permit coverage under the VPA Poultry Waste Management General Permit.

DEQ inspection reports are documenting VPA compliance issues during inspections. However, based on the file reviews, DEQ does not always consistently pursue resolution of noncompliance. When deficiencies are encountered during inspections, it is unclear how DEQ determines the subsequent course of action. DEQ relies on different types of actions to address deficiencies including: deficiencies documented in the inspection report without further action required; informal corrections such as deficiencies documented in the inspection report with a deadline for an expected corrective action response; and issuance of a warning letter or NOV. EPA was unable to identify a response pattern that was consistent from facility to facility, across regional offices, or with DEQ's Civil Enforcement Manual.

The file review resulted in a number of observations and examples of DEQ's enforcement approach. For example, violations that remained unresolved across consecutive annual inspections often were not escalated. DEQ's Civil Enforcement Manual states that NOVs are appropriate for "ongoing or persistent noncompliance, including repeated or continuing alleged violations by the RP [Responsible Party] despite previous compliance activity or informal actions."

- One facility was observed repeatedly to have vegetation and trees growing on an earthen lagoon berm, which can compromise the structural integrity of the manure storage. DEQ inspections in January 2008, April 2009, October 2009, November 2010, March 2011, June 2011, and August 2012 all observed this same issue. DEQ only issued one warning letter to the facility in January 2008 to address this deficiency, with no additional warning letters or NOVs issued for the remaining six observed instances.
- One facility over-applied manure in 2008, 2012, and 2013. The facility applied manure to fields not scheduled to receive manure in 2008 and 2013. The facility had an expired NMP in 2010.

[27] http://www.deq.virginia.gov/Portals/0/DEQ/Enforcement/Manual/Chapter2/attachments/Chapter2-Text.pdf

Despite all of these instances of NMP noncompliance, DEQ never elevated the enforcement process beyond the single warning letter, which wasn't issued until after the 2013 inspection.

- One facility received a DEQ warning letter in 2009 for exceeding the number of livestock identified in the NMP and permit application. The facility received a second warning letter in 2010 for over-application of nutrients to 13 fields. The facility received a third warning letter in 2011 for over-application of nutrients to four fields and for an unreported discharge from a confinement barn. The second and third warning letters were issued for the same issue of over-application of nutrients DEQ never elevated the enforcement process beyond warning letters. DEQ noted that the two warning letters have obtained compliance at this facility, with no more over-application of nutrients since 2011.

The enforcement approach appears to be inconsistent among facilities. Some inspections included a particular violation as a deficiency with a required action while others would only list it as a recommendation.

- Inspections at many poultry facilities resulted in the recommendation to clean up spilled, tracked or residual manure around the farm. However, some facilities received a corrective action deadline for the same issue, including some facilities that received both recommendations and required action deadlines on separate occasions. Other inspection reports made observations about spilled, tracked, or residual manure but did not include either a recommendation or a requirement to clean up the manure. DEQ explained to EPA that the difference between the actions are related to the farm history and the quantity of manure. Facilities with small quantities of spilled, tracked, or residual manure may be given a recommendation, while facilities with either large quantities of spilled, tracked, or residual manure or with a history of frequent spilled, tracked, or residual manure on the farm site are usually given a corrective action deadline.
- Not properly recording litter transfer records was just noted in the inspection report at one facility, was a recommended action at another facility, and was a required action with a deadline at a third facility. This difference may be due to new requirements that took effect in 2010, as well as a discrepancy in the approach used by the Tidewater Regional Office and the Valley Regional Office.
- One facility was given deadlines of "As soon as possible" to cut down grass and vegetation and maintain accessibility, while another facility was given a clear deadline.
- Multiple facilities over-applied nutrients. Two facilities were required to follow NMP application rates with a deadline of "verified at next routine inspection" in one year, while another two facilities had a deadline of "next application." One facility had a deadline of two weeks, another facility had a deadline of three weeks, and another facility had a deadline of one month. Two other facilities were required to "understand the NMP and balance sheets for each field" with a deadline of two weeks to complete. Another facility was required to "adhere to the NMP or make adjustments when there are changes" without any expected completion date provided.

Clear deadlines were not always provided to the facility for addressing deficiencies.

- Six facilities did not having a current training certification and were required to attend the next available training session. These facilities were not given a clear deadline, with compliance being verified at the next annual inspection. DEQ explained to EPA that the required trainings are conducted by DCR and that the dates of future training sessions often are not be known at the time of the inspection when the deficiency is noted. Two facilities received a deadline of "As soon as possible" for taking and having analyzed a new manure sample, submitting a completed registration statement along with a copy of the current NMP, and keeping the grass cut and ensuring all areas of the farm are accessible.

Enforcement often was not elevated beyond NOVs to penalties or compliance orders, even for facilities with multiple NOVs. DEQ did not issue any fines to VPA-permitted operations in FY2013.

- One facility received two NOVs for a violation of maintaining adequate freeboard and was required to obtain additional storage capacity. After the facility moved forward with expanding storage capacity, a third NOV was issued for delays with constructing the waste storage facility. No enforcement actions beyond these NOVs were taken. DEQ explained to EPA that even though enforcement was not elevated beyond NOVs, the facility was still required to take necessary steps to come back into compliance

The approach differed among facilities. In some cases, DEQ identified facility-specific circumstances that led to one enforcement approach over another. In other cases, the scope of the deficiency (ex. amount of spilled, tracked, or residual manure; amount of over-application of nutrients) caused DEQ to select one approach over another. While the reasoning for selecting one approach over another was not always documented in the files, the return to compliance generally was documented. Many DEQ inspection reports had a specific section that identified deficiencies from the previous inspection and confirmed the dates when each deficiency was addressed.

8.7 WIP Implementation Goals

Virginia's VPA AFO general permits and the VPA Poultry Waste Management general permit both require DCR-approved NMPs to be developed and implemented.

Virginia's VPA AFO and Poultry Waste Management general permits require an animal waste management system. An animal waste management system is defined as "practices designed for proper handling, storage, and utilization of wastes generated from confined animal operations."[28] This definition does not require a waste management structure. Virginia's VPA AFO general permit applies only to AFOs that have 300 or more animal units and a liquid manure collection and storage system. Therefore, all AFOs covered under the VPA AFO general permit will have a waste management system that includes a waste management structure. In fact, the State Water Control Law [§62.1-44.17:1] states that AFOs covered under the VPA AFO general permit shall have a liquid manure collection and storage facility that meets certain requirements. Virginia's VPA AFO permits also identify requirements for any existing or planned waste storage facilities. Therefore, all operations covered under the VPA AFO general permit have an animal waste management system that includes a waste management

[28] http://www.casttool.org/Documentation.aspx

structure. Virginia's VPA Poultry Waste Management general permit does not explicitly require an animal waste management system that includes a waste management structure. However, all facilities covered under Virginia's VPA Poultry Waste Management general permit are required to implement an NMP "that requires proper storage, treatment, and management of poultry waste, including dry litter, and limits accumulation of excess nutrients in soils and leaching or discharge of nutrients into state waters." Many VPA-permitted poultry operations have waste management structures due to their larger size, but a VPA-permitted poultry operation could comply with the permit requirements through a waste management system that does not include a waste management structure. For example, Virginia's VPA Poultry Waste Management general permit allows an operation to store poultry waste in a stockpile in a field covered with a tarp. Therefore, Virginia's VPA permits require an animal waste management system that may or may not include a waste management structure.

Virginia's VPA permits may or may not require barnyard runoff control structures to be implemented. Virginia's VPA permits require that there shall be no point source discharge of wastewater to surface waters of the state except in the case of a storm event greater than the 25-year, 24-hour storm. Some operations may need to implement barnyard runoff control practices in order to meet this requirement. Therefore, Virginia's VPA permits may or may not require barnyard runoff control structures to be implemented.

Virginia's VPA permits do not require a conservation plan, barnyard runoff control, stream fencing on pastures, or vegetated buffers on pastures.

Table 18. Priority BMPs, VPA AFO and Poultry Waste Management Permits

Priority BMPs	Required Component	Notes
Nutrient Management	☑	9VAC25-192-70 Part I.B.7. 9VAC25-630-50 Part I.A.1.
Animal Waste Management Systems	☑	9VAC25-192-70 Part I.B 9VAC25-630-50 Part I.B
Conservation Plans	☐	
Barnyard Runoff Control	☑ May be required	9VAC25-192-70 Part I.B.1 9VAC25-630-50 Part I.B.1
Stream Fencing on Pastures	☐	
Vegetated Buffers on Pastures	☐	

The VPA AFO General Permit was reissued on November 16, 2014. The reissued 2014 VPA AFO General Permit establishes requirements for end-users that receive manure from a VPA-permitted AFO. These requirements mirror those contained in the VPA Poultry Waste General Permit. During the regulatory amendment process, DEQ received public comments on its proposed draft permit, including comments that DEQ should update the VPA AFO General Permit to require additional BMPs in order to help achieve Virginia's required nutrient reductions under the Chesapeake Bay TMDL. For example, the VPA General Permit does not require the implementation of stream fencing on pastures even though Virginia has committed to achieve 95% level of control by the 2025 target date. DEQ did not include any additional BMPs in the proposed permit regulations that it submitted to the State Water Control Board on March 28, 2014. DEQ provided the following explanation to the State Water Control Board:

"Comments were received advocating to amend the VPA General Permit for AFOs to mandate the implementation of Best Management Practices (BMPs) such as livestock stream exclusion, conservation planning, and vegetated buffers. Equally received were comments opposing the addition of such BMPs.

As the proposed regulation did not include additional BMPs, DEQ evaluated the comments advocating BMP addition carefully. The final regulation does not include the addition of additional BMPs from the Chesapeake Bay WIP for two primary reasons:

i. The Virginia Code §62.1-44.17:1 is explicit in the requirements that are to be included in the general permit regulation and therefore does not allow for adding the additional BMPs to the general permit conditions. The statutory requirement for adequate buffer zones from surface water courses is based on areas where waste is land applied, not on presence of grazing animals.

ii. The VPA AFO GP Regulation is consistent with the Chesapeake Bay WIP, as it is but one of a suite of programs described in the WIP that are designed to effect BMP implementation at AFOs. The WIP specifies that the first order mechanism to increase application of these additional agricultural BMPs will be voluntary implementation. Specifically, the Resource Management Plan regulations were promulgated by the Soil and Water Conservation Board in order to promote additional voluntary implementation prior to additional mandatory regulatory requirements. Further, the Virginia Agricultural BMP Cost-Share program excludes funding for mandatory practices required by environmental permits, which would limit the funding options available for implementation.

DEQ will address promotion of additional voluntary BMPs such as those recommended in the comments through implementation guidance. Specifically, DEQ will add a component to educate permittees on the benefits of the implementation of BMPs to the required permittee training program, as well as during routine inspections."[29]

8.8 VPA Program – Observations

- In FY2013, the VPA Program had a total budget of $620,776 and approximately 9.56 FTEs dedicated to the VPA program.
- Any operation that meets the size threshold of a Medium or Large CAFO is required to obtain permit coverage under the VPA permit program.
- The VPA AFO and Poultry Waste Management permit programs currently cover 1,037 farms. These 1,037 farms represent approximately 56% of all Virginia AFOs, approximately 4% of all Virginia farms with livestock and poultry, and approximately 2% of all Virginia farms. These 1,037 farms also represent approximately 97% of swine, approximately 80% of the poultry AFOs, and approximately 13% of the dairy AFOs in Virginia.

29 http://townhall.virginia.gov/l/GetFile.cfm?File=C:\TownHall\docroot\Meeting\103\21236\Agenda_DEQ_21236_v2.pdf

- Because Virginia requires permits of the largest farms, the percentage of total animals in confinement which are permitted is markedly greater than the percentage of farms permitted. For example, the dairy cow inventory in the 2012 Ag Census is 94,105 animals, and the corresponding number of dairy cattle on farms with VPA permits is 37,384 animals, representing approximately 40% of the total dairy animal population in Virginia.
- The VPA Poultry Waste General Permit also establishes requirements for poultry waste brokers and end-users that receive poultry waste from a VPA-permitted AFO. The reissued 2014 VPA AFO General Permit establishes requirements for end-users that receive manure from a VPA-permitted AFO.
- Prior to 2011, DEQ conducted annual inspections of VPA-permitted operations.
- Since 2011, DEQ has conducted inspections at VPA-permitted operations in accordance with DEQ's Risk-based Inspection Strategy. Routine Inspections must be completed at least once every three to four years. Based on what Virginia reported in the questionnaire and what EPA observed during the file review, DEQ appears to be exceeding this frequency by inspecting every VPA-permitted facility at least once every two years.
- In FY2013, DEQ inspected almost half of all VPA-permitted operations (497 out of 1,037 operations).
- The DEQ Valley Regional Office conducts approximately 42% of its VPA inspections within 30 days of the calendar date of its previous inspection, rather than randomizing the time of inspection.
- Inconsistency exists between DEQ regional offices in how they conduct inspections, how deficiencies are recorded in inspection reports, and how deficiencies are addressed.
- DEQ inspection reports indicate that a detailed review of NMP records is conducted during each inspection, and numerous inspection reports identified over-application of nutrients, application to fields not in the NMP, and operating with an expired NMP.
- NMP violations were the largest category of deficiencies identified in DEQ's inspection reports of VPA-permitted operations.
- In FY2013, DEQ inspected 497 operations covered by VPA permits, of which 101 operations were found to be non-compliant with NMP requirements. Of the 101 AFOs out-of-compliance with NMP requirements, most were addressed with Informal Corrections while DEQ issued seven warning letters and one NOV. Virginia's Civil Enforcement Manual provides detailed information on when certain outcomes should be used, such as informal correction, warning letters, and NOVs.
- The DEQ Civil Enforcement Manual procedures did not appear to be consistently implemented at VPA-permitted animal agriculture operations, as facilities with similar noncompliance issues were often addressed differently.
- Clear deadlines were not always provided to the facility for addressing deficiencies.
- Violations that remained unresolved across consecutive annual inspections often were not escalated. Enforcement often was not elevated, even for facilities with multiple NOVs.
- Virginia's VPA AFO permit and Poultry Waste Management general permit program requires one or two of the six priority BMPs.

9.0 Virginia Pollutant Discharge Elimination System (VPDES) CAFO Permit Program

The National Pollutant Discharge Elimination System (NPDES) program was established by Section 402 of the CWA to regulate the discharge of pollutants from point sources to waters of the United States. Section 502(14) of the CWA defined CAFOs as point sources that are regulated under the NPDES program, and 40 CFR § 122.23 identified which animal agriculture operations are defined as CAFOs that need to obtain NPDES permit coverage.

EPA can delegate the authority to administer the NPDES program to states, and each state that seeks to be authorized to administer the NPDES program must submit a request to the EPA. Virginia has been authorized to administer the CWA's NPDES program (33 U.S.C. § 1251 *et seq*.) since March 31, 1975. In Virginia, DEQ is responsible for administering the NPDES program, which it administers as the Virginia Pollutant Discharge Elimination System (VPDES) Permit Program. Virginia defines CAFOs at 9VAC25-31-10 using the same CAFO definitions that are identified in 40 CFR § 122.23.

The VPDES CAFO regulations were last updated in 2013 to reflect the 2012 changes to the federal NPDES CAFO regulations. As part of the 2013 update, Virginia Code 9VAC25-31-130.C.1 prohibits a discharge from a CAFO unless the discharge is authorized by a VPDES permit. 9VAC25-31-200.E further prohibits CAFOs from having point source discharges of manure, litter or process wastewater to surface waters of the state except in the case of an overflow caused by a storm event greater than the 25-year, 24-hour storm.

The VPDES CAFO General Permit expired on December 31, 2010 and will not be reissued. Instead, DEQ has stated that it will be issuing VPDES CAFO individual permits. DEQ plans to issue VPDES individual permits to CAFOs with "an on-going discharge that cannot be corrected, or if the operator wishes to obtain VPDES coverage to provide coverage in the event of an unanticipated discharge" (Commonwealth of Virginia, 2013a). As of the date of this report, DEQ has not yet issued a final VPDES permit to any CAFO. Facilities that seek to be covered under a CAFO VPDES permit must submit a complete VPDES individual permit application to DEQ at least 180 days before beginning to operate or commencing to discharge. The CAFO's DCR-approved NMP must be provided with the application. In addition to DCR's NMP requirements, NMPs developed under a VPDES CAFO individual permit need to be consistent with the nine minimum requirements for nutrient management specified in 40 CFR § 122.42(e)(1). EPA will evaluate VPDES CAFO individual permit and NMP contents for each draft VPDES CAFO individual permit that DEQ submits to EPA for review and comment.

According to the DEQ VPDES permit website[30], VPDES CAFO individual permits will be issued through the following process:

- Completed application is filed with the DEQ regional office.
- The DEQ regional office prepares the draft VPDES permit, which is then reviewed by EPA and the applicant. EPA has 30 days to object to a draft permit, and any changes made to the draft permit following EPA review may be re-reviewed by all parties.

30 http://www.deq.virginia.gov/Programs/Water/PermittingCompliance/PollutionDischargeElimination/PermitsFees.aspx

- Public notice is issued following the review process.
- If no comments received, the VPDES CAFO permit is issued after the public notice period closes.
- If a hearing is justified, the applicant can appeal permit denial or specific permit conditions to the State Water Control Board.

Following VPDES permit approval, substantial changes to the CAFO's NMP require a new public review and comment period. Substantial changes include addition of new land application areas, changes to field-specific maximum annual land application rates, the addition of any crop or other uses not included in the terms of the NMP, and changes to site-specific NMP components where the changes may increase the risk of nitrogen or phosphorus transport to state waters.

DEQ indicated that the VPDES program is still evolving. As such, review and update of program requirements is ongoing and regulatory actions are, and will be, completed whenever necessary to conform to federal regulations. Additionally, DEQ will review existing VPDES CAFO regulations at least once every four years unless specifically exempted from periodic review by the Governor.

DEQ currently relies almost exclusively on face-to-face communication to convey VPDES CAFO requirements to farmers due to confusion and difficulty in explaining which facilities require VPDES permits. DEQ previously communicated VPDES CAFO requirements using required operator trainings, outreach meetings, email and mail communication and its website to communicate policies and guidance to the regulated community.

9.1 Facility Universe

To date, 86 CAFOs have submitted VPDES permit applications to DEQ but no VPDES CAFO permits have been issued. In EPA's evaluation of Virginia's 2012-2013 Milestone Progress and 2014-2015 Milestone Commitments[31], one of the identified shortfalls was that "Virginia did not issue any CAFO permits as committed to by September 2012 and later deferred to December 2013; this milestone has been carried over to the 2014-2015 milestones." In its 2014-2015 WIP programmatic milestones, Virginia committed to "convert applicable CAFO VPA permits to VPDES permits" by December 2015, with a deliverable of three VPDES permits within the Chesapeake Bay watershed; an additional nine VPDES permits will also be issued outside of the Chesapeake Bay watershed.

In May 2014, DEQ submitted two draft VPDES CAFO permits for two swine operations to EPA for review and comment. EPA completed its review in October 2014. Virginia moved forward and made the draft permits available for public comment, and if no major comments are received during the public comment period, Virginia plans to issue these two NPDES CAFO individual permits in January 2015. After finalizing those two VPDES CAFO permits, DEQ has stated that it intends to l use them as a template for six additional VPDES CAFO permits for swine operations that will be submitted to EPA for review. Virginia estimates that these eight swine permits and associated NMPs will address approximately 40% of the swine permitted in Virginia. After that, DEQ has stated that it intends to begin drafting four VPDES CAFO permits for poultry operations that were required to obtain VPDES CAFO permits under previous EPA administrative orders.

[31] http://www.epa.gov/reg3wapd/tmdl/2014Evaluations/factsheet_VA.pdf

In communication dated November 10, 2014, DEQ stated that it has reviewed the remaining 75 permit applications and concluded that the majority of the facilities do not discharge and therefore do not require a VPDES permit. DEQ determined that "two facilities have drainage issues of concern and plans to begin processing these permit applications." DEQ has determined that the remaining 73 of the 75 facilities will continue to be regulated under VPA permits. EPA has not to date provided a response to that conclusion.

9.2 Resources Allocated

The DEQ central office's role in the VPDES CAFO program is program coordination, regulation and guidance development, providing support to the regional offices, and developing and delivering training both for DEQ regional office staff and for the regulated community. In FY2013, the DEQ central had a budget of $34,586 and approximately 0.375 FTE for the VPDES CAFO activities. The DEQ regional offices are responsible for VPDES permitting, compliance and enforcement duties. In FY2013, the six DEQ regional offices had a combined budget of $34,004 and 0.35 FTEs total for the VPDES CAFO program. Virginia does not expect to hire any additional staff to support the VPDES CAFO program, although DEQ may allocate additional proportions of existing FTEs toward the VPDES CAFO program if needed (Commonwealth of Virginia, 2013a).

9.3 Data Systems

DEQ is currently temporarily tracking VPDES CAFO permit applications and associated data in Microsoft Excel spreadsheets. These spreadsheets are being used for data analysis and reporting, including reporting to EPA and responding to FOIA requests.

Once DEQ issues VPDES CAFO permits, the DEQ regional offices will use CEDS to record and track compliance, enforcement, permitting, and inspection activities. DEQ regional office staff will data into CEDS within five business days of the event or activity being recorded. DEQ regional offices will use CEDS for reporting to DEQ central office, as well as for data pulls such as responding to FOIA requests. Excel spreadsheets will be used for data analysis and reporting, and for data not entered or tracked in CEDS (Commonwealth of Virginia, 2013a).

9.4 Compliance and Enforcement

No VPDES CAFO permits have been issued by Virginia to date; therefore, no VPDES permit compliance inspections have occurred. DEQ has indicated that it plans to follow the DEQ VPDES enforcement protocol and Virginia's Civil Enforcement Manual[32] for non-compliance issues when conducting compliance and enforcement activities at VPDES-permitted CAFOs (Commonwealth of Virginia, 2013a).

9.5 WIP Implementation Goals

Virginia's VPDES CAFO permits will require an operation to develop and implement a DCR-approved NMP.

[32] http://www.deq.virginia.gov/Programs/Enforcement/Laws,Regulations,Guidance.aspx

Virginia's VPDES CAFO permits will require an animal waste management system. An animal waste management system is defined as "practices designed for proper handling, storage, and utilization of wastes generated from confined animal operations."[33] This definition does not require a waste management structure. A VPDES-permitted CAFO is required to include the "location of manure, biosolids, or waste storage if any" and "available manure storage capacity" in its NMP. A VPDES-permitted CAFO is also required to maintain records of the current design of any manure or poultry waste storage structures. Virginia's VPDES CAFO permits do not explicitly require an animal waste management system that includes a waste management structure. Many VPDES-permitted CAFOs will have waste management structures due to their larger size, but a VPDES-permitted CAFO could comply with the permit requirements through a waste management system that does not include a waste management structure. For example, a VPDES-permitted poultry operation may move poultry litter directly from the poultry houses to fields for land application, may store poultry waste in a stockpile that is covered to protect it from precipitation and wind, or may sell the poultry litter to another farmer or broker who collects the poultry litter from inside the poultry houses and takes the litter off-site. Therefore, Virginia's VPDES CAFO permits require an animal waste management system that may or may not include a waste management structure.

Virginia's VPDES CAFO permits will not require a conservation plan.

Virginia's VPDES CAFO permits may or may not require barnyard runoff control structures to be implemented. Virginia's VPDES CAFO permits will require that water which has not come in contact with the pollutants from the production area must be diverted from the production area unless the waste storage facility is specifically designed to store or treat the water. Some operations may implement barnyard runoff control practices, while other operations may choose instead to design the waste storage facility to store the barnyard runoff. Therefore, a VPDES CAFO permit may or may not require barnyard runoff control structures to be implemented.

Virginia's VPDES CAFO permits will not require stream fencing on pastures or vegetated buffers on pastures.

Table 19. Priority BMPs, VPDES CAFO Program

Priority BMP	Required Component	Notes
Nutrient Management	☑	9VAC25-31-200.E.1.
Animal Waste Management Systems	☑	9VAC25-31-200.E.1.a.
Conservation Plans	☐	
Barnyard Runoff Control	☑ May be required	9VAC25-31-200.E.1.c.
Stream Fencing on Pastures	☐	9VAC25-31-200.E.1.d.
Vegetated Buffers on Pastures	☐	

[33] http://www.casttool.org/Documentation.aspx

9.6 VPDES CAFO Program – Observations

- In FY2013, the VPDES CAFO program had a total budget of $68,590 and approximately 0.725 FTEs dedicated to the VPDES CAFO program.
- To date, approximately 86 CAFOs have submitted VPDES permit applications to DEQ, but DEQ has not issued any final VPDES CAFO permits. In EPA's evaluation of Virginia's 2012-2013 Milestone Progress and 2014-2015 Milestone Commitments, one of the identified shortfalls was that "Virginia did not issue any CAFO permits as committed to by September 2012 and later deferred to December 2013; this milestone has been carried over to the 2014-2015 milestones."
- In May 2014, DEQ submitted two draft VPDES CAFO permits for two swine operations to EPA for review and comment, EPA completed its review in October 2014, and Virginia plans to issue these two permits by January 2015. Afterwards, DEQ has stated that it intends to draft six additional VPDES CAFO permits for swine operations and four VPDES CAFO permits for poultry operations. Virginia estimates that the eight swine permits and associated NMPs will address approximately 40% of the permitted swine in Virginia.
- DEQ has reviewed the remaining 75 VPDES permit applications and concluded that the majority of the facilities do not discharge and therefore do not require issuance of a VPDES permit. DEQ determined that two additional poultry facilities have drainage issues of concern and plans to begin processing these permit applications. DEQ has determined that the remaining 73 of the 75 facilities will continue to be regulated under VPA permits. EPA has not to date provided a response to that conclusion.
- Virginia's VPDES CAFO program requires between one and four of the six priority BMPs.

10.0 Resource Management Plan (RMP) Program

The Resource Management Plan (RMP) program promotes the voluntary use of conservation practices that are protective of water quality and may be applied toward nutrient and sediment reductions associated with the Chesapeake Bay WIP and other TMDLs. DCR administers the RMP program, including regulatory and guidance development. Regulations are approved by the Virginia Soil and Water Conservation Board.

RMPs are site-specific, evaluating the conservation needs of each participating farming operation and including the minimum RMP requirements as appropriate. A farm's RMP will document conservation activities that the farmer is doing or will do to protect local water quality.

RMPs will be developed by qualified RMP developers. RMP developers must be certified as a nutrient management planner by DCR and certified as a conservation planner by NRCS (or demonstrate equivalent academic and applied proficiencies in conservation planning). SWCDs may develop RMPs or approve RMPs developed by a third party RMP developer. Each SWCD has established a Technical Review Committee for the review of RMPs. RMPs are referred to the Committee for review to ensure the RMP fully meets the minimum standards identified above.

In exchange for preparing and implementing the RMP, farms with RMPs will be assured of a "safe harbor" from new Commonwealth environmental regulations related to the Chesapeake Bay or local TMDLs, assuming the RMP is fully implemented. Once implementation is verified, a certificate of RMP implementation is issued and establishes the beginning of the safe harbor period. The safe harbor is good for nine years provided the farm adheres to the RMP, as verified through periodic field visits by either SWCD or DCR staff. DCR verifies implementation when the local SWCD has not been delegated this authority.

The final RMP regulations were published in the Virginia Register of Regulations on May 6, 2013[34] and became effective on July 1, 2014 (DCR, 2014).

The final RMP regulations establish minimum standards for an RMP which include specific BMP requirements when applicable and needed based on an on-farm assessment of land use categories. For those farmers who sign up for the voluntary RMP program, the following minimum BMPs are required for each land use category and, as previously mentioned, are included to further Virginia's progress toward achieving the WIP implementation goals.

For all cropland or specialty crops:

- An NMP that meets the specifications of the Nutrient Management Training and Certification Regulations (4VAC5-15) and meets the Virginia Nutrient Management Standards and Criteria;
- A forest or grass buffer between cropland and perennial streams consistent with NRCS standards and specifications, no buffer shall be less than a minimum width of 35 feet as measured from the top of the channel bank to the edge of the field to meet water quality objectives;

[34] http://register.dls.virginia.gov/vol29/iss18/v29i18.pdf#page=7

- A soil conservation plan that achieves a maximum soil loss rate to "T" as defined by NRCS and other BMPs necessary to address gross erosion when it is present as gullies or other severely eroding conditions; and
- Cover crops, when needed to address nutrient management or soil loss requirements, or both, that provide for reportable practices which meet BMP specifications as determined by NRCS or the VACS Program.

For all hay land:

- An NMP that meets the specifications of the Nutrient Management Training and Certification Regulations (4VAC5-15);
- A forest or grass buffer between cropland and perennial streams consistent with NRCS standards and specifications, except no buffer shall be less than a minimum width of 35 feet as measured from the top of the channel bank to the edge of the field to meet water quality objectives; and
- A soil conservation plan that achieves a maximum soil loss rate to "T" as defined by NRCS and such BMPs necessary to address gross erosion when it is present as gullies or other severely eroding conditions.

For all pasture:

- An NMP that meets the specifications of the Nutrient Management Training and Certification Regulations (4VAC5-15);
- A pasture management plan or soil conservation plan that achieves a maximum soil loss rate of "T" as defined by NRCS and such BMPs necessary to address gross erosion when it is present as gullies or other severely eroding conditions; and
- A system that limits or prevents livestock access to perennial streams requires that 1) any fencing or exclusion system provides year-round livestock restriction to perennial streams; and 2) provisions that are made for limited access through stream crossings and livestock watering systems are designed to NRCS standards and specifications and are such limited access is determined to be necessary by the RMP developer.

The final RMP regulations did not contain a provision that was present in earlier drafts of the RMP regulations requiring a minimum 35-foot forest or grass buffer between the pasture exclusion systems and perennial streams.

10.1 Facility Universe

The RMP Program became effective on July 1, 2014. Participation in the RMP program is voluntary and is open to all agricultural operations, both permitted (VPA or VPDES permit) and unpermitted. The estimated RMP program facility universe is all 46,030 farms in Virginia (USDA, 2014). This includes the estimated 1,860 Virginia AFOs as well as the rest of the 26,555 Virginia farms with livestock or poultry (USDA, 2014). Virginia has not estimated the number of farms that will prepare RMPs but is optimistic that many will prepare RMPs to take advantage of the “safe harbor” protection (Commonwealth of Virginia and DEQ, 2014). While Virginia committed in its 2014-2015 WIP programmatic milestones to complete 40 RMPs by December 31, 2015, Virginia has had 274 farmers sign up to develop RMPs so far. Farmers will be certified and given “safe harbor” once they fully implement the agricultural conservation practices in the RMPs.

10.2 Resources Allocated

Virginia did not project a budget for the RMP program. Currently, approximately two DCR FTEs have RMP program development responsibilities and two full time DCR/RMP FTEs are anticipated for FY2014 along with the two FTEs with partial RMP duties. Virginia indicated that funding is being made available to pay for the development of RMPs and cost-share funding is available for most of the BMPs needed to meet RMP requirements (Commonwealth of Virginia, 2013a).

DCR originally received a federal EPA Chesapeake Bay Regulatory and Accountability Program (CBRAP) Grant for $240,000 available for the development of RMPs in the Virginia Chesapeake Bay Watershed.[35] On September 2, 2014, DCR issued a request for proposal (RFP) to solicit from DCR-certified planners proposals to establish agreements through competitive negotiation for the development of these grant-funded RMPs. The RFP made funding available for agricultural operations in the Chesapeake Bay watershed only. Proposals were considered for funding for a 10.5 -month grant beginning December 1, 2014. The payment rate will be at $10.00 per acre for all acres included in each RMP up to a maximum of $6,500.00 per RMP, or 650 acres. Multiple RMPs can be developed to cover a single farming operation. On October 24, 2014, DCR issued a notice of intent to increase the original grant award to $472,640 to five certified RMP developers for 274 RMPs covering a total of 47,264 acres in the Chesapeake Bay watershed.[36] Due to the response to the RFP received by DCR, the actual amount awarded in December 2014 was almost twice what was originally announced, utilizing additional EPA CBRAP funds.

Each RMP must be prepared by a developer with a current DCR-issued Management Plan Developer Certificate and must comply with all requirements set forth in the RMP Regulations. Plans developed and/or approved that are included for payment through the VACS program are ineligible to receive DCR grant funding (DCR, 2014b).

It is unclear if the grant made available by DCR will be sufficient to fund RMP development in the Virginia Chesapeake Bay Watershed. EPA noted that before the program was temporarily suspended in November 2013 and restarted in April 2014, stakeholders were concerned about a lack of funding for the program. In the meeting notes for the March 27, 2013 Virginia Soil and Water Conservation Board meeting, several public comments were received about ensuring appropriate funding for local SWCDs to implement and achieve the goals of the RMP program.[37]

10.3 Data Systems

Development is underway for an RMP Module for Virginia's Ag BMP Tracking Program. The program will link existing BMP information with RMP development and soil conservation software. It will allow for

[35] http://www.dcr.virginia.gov/forms/DCR199-229.pdf
[36] http://www.dcr.virginia.gov/soil_and_water/documents/noia-ag-rmp.pdf
[37] http://townhall.virginia.gov/L/GetFile.cfm?File=C:\TownHall\docroot\Meeting\116\19505\Minutes_DCR_19505_v2.pdf

tracking of voluntary BMPs and condition of existing BMPs. Inspection of RMP to ensure continued compliance with the minimum standards will also be a function of the program. Information will be entered during plan development, plan review, plan approval, and follow-up inspections (Commonwealth of Virginia and DEQ, 2014). RMPs submitted for reimbursement through DCR grants must be first entered into the RMP Module to be deemed eligible.[38]

10.4 Compliance and Enforcement

The final RMP regulation specifies that inspections must occur every one to three years, but not more frequently than once per year provided no deficiencies have been identified that may require more frequent inspections or re-inspections. For operations with identified deficiencies, inspections may occur more frequently than once a year. The owner or operator will be notified of a pending inspection or re-inspection at least 48 hours in advance, unless the owner or operator has authorized a shorter notification period. Virginia did not estimate the number of RMP inspections that will be conducted each year, as this number will depend on the program's participation rate.

The owner or operator will receive an inspection report within 10 business days of the inspection. The final RMP regulations specify that the inspection report must include:

- Confirmation of all BMPs implemented, operated, and maintained with a notation of changes in the operation of any BMPs included in the RMP; and
- Any identified deficiencies that may include any components of the RMP that have not been satisfactorily implemented, components that need to be renewed, and any changes to the management unit that may need to be addressed through revision of the RMP.

DCR will provide the owner or operator with a written list of inspection deficiencies within 30 days of receipt of the inspection report. The owner or operator, with assistance from the RMP developer, will have 90 days to prepare and submit a corrective action agreement, including an implementation schedule to correct the identified deficiencies. DCR will have 30 days to evaluate the corrective action agreement and respond to the owner or operator about whether or not the corrective action agreement is satisfactory. If unsatisfactory, the owner or operator may revise the corrective action agreement and resubmit it to DCR. If DCR and the owner or operator are unable to concur on a final corrective action agreement within 90 days (or additional time that is acceptable to DCR) of the submission of the initial corrective action agreement to DCR, DCR shall revoke the owner's or operator's Certificate of RMP Implementation after an informal fact finding proceeding. DCR can also revoke a Certificate of RMP Implementation if a re-inspection determines that the owner or operator has failed to fully implement the corrective action agreement.

10.5 WIP Implementation Goals

An RMP requires an NMP that meets DCR standards for all cropland, hayland, and pasture. An RMP also requires a conservation plan for all cropland, hayland, and pasture. Finally, an RMP requires stream fencing on pasture to be implemented.

[38] http://www.dcr.virginia.gov/forms/DCR199-229.pdf

An RMP does not require an animal waste management system or barnyard runoff control because it does not address animal confinement. RMPs only address cropland, hay land and pasture.

An RMP does not require vegetated buffers on pastures.

Table 20. Priority BMPs, RMP Program

Priority BMP	Required Component	Notes
Nutrient Management	☑	4VAC50-70-40.A
Animal Waste Management Systems	☐	
Conservation Plans	☑	4VAC50-70-40.A
Barnyard Runoff Control	☐	
Stream Fencing on Pasture	☑	4VAC50-70-40.A.3.c
Vegetated Buffers on Pastures	☐	

10.6 RMP Program – Observations

- Since January 2014, the RMP Program has had 3 FTEs dedicated to program implementation and support.
- A farmer who chooses to participate in the RMP program agrees to implement certain BMPs, such as an NMP, conservation plan, and stream fencing on pasture. In exchange for preparing and implementing the RMP, farmers with RMPs will be assured of a "safe harbor" for nine years from new Commonwealth environmental regulations related to the Chesapeake Bay or local TMDLs, assuming the RMP is fully implemented
- Virginia has not identified a long-term source of funds for administration and implementation of the RMP program.
- DCR is awarding $472,640 in EPA CBRAP funds and other DCR grant funds for the development of 274 RMPs in the Virginia Chesapeake Bay Watershed covering a total of 47,264 acres.
- Virginia's RMP program requires three of the six priority BMPs.

11.0 Agricultural Stewardship Act (ASA) Program

The Agricultural Stewardship Act (ASA) which was passed in 1996, was developed in order to work with farmers to effectively and promptly resolve water quality problems concerning nutrients, sediment and toxins from agricultural activities (VDACS 2010). According to the VDACS website, "the ASA program gives the farmer an opportunity to correct a water quality problem voluntarily before any enforcement action is taken."[39] The program is administered by the VDACS Commissioners Office, which receives all complaints pertaining to agricultural operations. When VDACS determines that a complaint falls under the jurisdiction of the ASA, VDACS refers the complaint to the local SWCD for investigation. The SWCD has five days to tell VDACS whether or not it will investigate the complaint; the SWCD may choose not to investigate any complaints, in which cases VDACS is the investigating agency. If the SWCD chooses to investigate, the SWCD must conduct the investigation within 21 days of VDACS' receipt of the complaint. If the SWCD chooses not to investigate, VDACS will conduct the investigation within 21 days whenever possible even though not required by the ASA (VDACS, 2010).

The purpose of the ASA investigation is to determine if there is substantial evidence that the agricultural activity in question is causing or will cause water pollution from sediments, nutrients, or toxins – whichever is alleged in the complaint. The ASA's jurisdiction only extends to the terms of the received complaint. Therefore, the ASA investigation cannot require a farmer to address sources of pollution on site that were not alleged in the complaint. However, it is VDACS policy "activities that are causing or will cause pollution that were not the subject of the complaint should be pointed out to the owner or operator as areas that should be voluntarily addressed, even though these areas are not covered by the ASA complaint" (VDACS, 2010).

Regardless of whom conducts the investigation, VDACS reviews the findings and determines if the complaint is founded and requires further action under the ASA. If so, the farmer must develop a plan (ASA Plan) containing BMPs necessary to correct the water quality problem. Farmers are given up to 6 months to begin implementation of the ASA Plan and up to 18 months to complete the ASA Plan.

A farm cannot be investigated under the ASA unless VDACS receives a complaint. Water quality complaints pertaining to DEQ-permitted farms are referred to DEQ for follow up and investigation under the VPA or VPDES permit programs.

In cases where the ASA investigation does not produce sufficient evidence that the agricultural activity in question is causing a water quality problem and an ASA Plan is not warranted, the investigator offers suggestions to the owner or operator for improving management practices to prevent future complaints. According to Virginia, in most cases technical assistance regarding resource management is provided to the operator, even if outside the scope of the ASA investigation (Commonwealth of Virginia, 2010).

The Virginia ASA Guidelines outline a number of constraints that potentially limit the effectiveness of ASA investigations (VDACS, 2010).

1. VDACS is unable to investigate complaints that are "unclear and not site specific."

[39] http://www.vdacs.virginia.gov/stewardship/

2. VDACS can only respond to complaints where the cause of water pollution is sedimentation, nutrient enrichment, or toxins.
3. The scope of the ASA investigation cannot be broader than the scope of the complaint.
4. Neither the ASA nor the Virginia ASA Guidelines define what constitutes substantial evidence. The Virginia ASA Guidelines discusses collecting samples only when necessary to prove a case and that samples are not necessary when the investigator can see that pollutants are entering or will enter the water body in question and the case can be proven through photographs, maps, eye-witness testimony, or other general evidence.
5. The farmer can deny access to the ASA investigator. VDACS would then have to get a court order to conduct the complaint investigation.

11.1 Facility Universe

The ASA program covers all agricultural operations without DEQ permits, not just animal agriculture. The ASA program covers Virginia's estimated 2,166 unpermitted animal agriculture operations. The ASA does not establish size thresholds or specific characteristics of agriculture operations for which complaints may be submitted. The ASA Program does not cover agricultural activities already permitted by DEQ under a VPA or VPDES permit. If VDACS receives complaints about farms with VPA or VPDES permits, VDACS will inform complainant that VDACS has no jurisdiction over complaints concerning water pollution from activities that are covered by a VPDES or VPA permit.[40]

11.2 Resources Allocated

In FY2013, the ASA program had a budget of $324,187 and three FTEs committed to the ASA program. The SWCDs also support VDACS through on site investigation of ASA complaints in some cases (Commonwealth of Virginia, 2013a).

11.3 Data Systems

VDACS uses a Microsoft Access database to track ASA complaints and follow up activities. For each ASA complaint, the database stores name, contact information, SWCD, investigating agency, whether the complaint was anonymous, type of agricultural activity, type of complaint, complaint result, complaint status, and pertinent dates. VDACS updates the database at least once per month.

VDACS uses the database when developing the ASA Annual Report and other reports which use ASA data. VDACS also analyzes trends in types of complaints, location of complaints, complaint status, and other metrics that assist with ASA implementation. By analyzing the trends of the water quality issues encountered, VDACS targets various audiences and commodity groups with additional outreach and education on environmental compliance. Outreach efforts also focused on specific geographic regions based on trends (Commonwealth of Virginia, 2013a).

11.4 Compliance and Enforcement

ASA Plan inspections are conducted by VDACS when plan implementation has started and again when complete. Farmers are generally provided 6 months to begin implementation and up to 18 months to

[40] http://www.vdacs.virginia.gov/stewardship/pdf/guidelines.pdf

complete plan implementation. Following plan implementation, subsequent site visits may occur to ensure compliance; inspection frequency depends upon the nature of the complaint, as many cases will require less frequent inspections (VDACS, 2010).

If the owner or operator fails to implement BMPs after a plan is approved, VDACS will take enforcement action against the owner or operator. Enforcement actions include the issuance of a corrective order and civil penalties if the measures in the corrective order are not completed (Commonwealth of Virginia, 2010).

VDACS's April 1, 2013 – March 31, 2014 Virginia Agriculture Stewardship Act Annual Report states that VDACS received more than 140 inquiries regarding possible agricultural pollution during that program year (VDACS, 2013). A total of 80 of these cases became official complaints, of which 40% (32 out of 80) were determined to be founded and required ASA Plans. VDACS reported that approximately 72% (23 out of 32) of the founded complaints were at livestock operations: nine beef operations, seven dairy operations, three equine operations, two swine operations, one poultry operation, and one operation with sheep, goat and equine. No corrective orders or civil penalties were issued in FY2013 as a result of farmer compliance with ASA deadlines, including submittal and implementation of ASA Plans. The annual report did not provide additional information on the complaints or management practices implemented to resolve the water quality issues. EPA did not review ASA files for individual farm operations and thus was unable to determine the overall effectiveness of the ASA program at resolving water quality complaints at individual animal agriculture operations. EPA was unable to determine whether or not operations had other water quality issues that could not be addressed due to the scope limitations of the ASA program, and it is unknown what the environmental effects of the ASA Program were such as the extent of BMPs required by the ASA plans (feet of stream fencing, etc.). However, VDACS is exploring possibilities for a GIS-based tracking system to track all BMPs.

11.5 WIP Implementation Goals

The ASA does not require implementation of any specific management practices. In an ASA Plan, the farmer proposes which BMPs will be implemented to prevent the pollution, and VDACS determines whether or not the proposed BMPs are appropriate. VDACS can reject the ASA Plan and require it to be amended and resubmitted. Based on the information available for review it appears that the BMPs implemented as part of an ASA plan are not being tracked. However, VDACS is exploring possibilities for a GIS-based tracking system to track all BMPs.

Table 21. Priority BMPs, ASA

Priority BMP	Required Component	Notes
Nutrient Management	Each ASA Plan will identify BMPs to resolve the water quality issue(s) related to the founded complaint, some of which may be priority BMPs. The ASA does not set forth minimum BMPs for inclusion in every ASA Plan.	
Animal Waste Management Systems		
Conservation Plans		
Barnyard Runoff Control		
Stream Fencing on Pastures		
Vegetated Buffers on Pastures		

11.6 ASA Program – Observations

- In FY2013, the ASA Program had a budget of $324,187 and 3 FTEs dedicated to program implementation and support.
- From April 2013 through March 2014, VDACS received more than 140 inquiries regarding possible agricultural pollution. 80 inquiries became official complaints, of which 32 were determined to be founded complaints that required corrective actions to be implemented through an ASA Plan. 23 of the 32 founded complaints were at livestock operations.
- EPA did not review ASA files for individual farms and thus was unable to determine the overall effectiveness of the ASA program at resolving water quality complaints at individual animal agriculture operations. EPA was unable to determine whether or not operations had other water quality issues that could not be addressed due to the scope limitations of the ASA program or what BMPs were required to be implemented by the ASA Plans for these animal agriculture operations. Virginia's ASA program does not set forth minimum BMPs for inclusion in every ASA Plan. Rather, each ASA Plan will identify BMPs to resolve the water quality issue(s) related to the founded complaint, some of which may be priority BMPs.

12.0 Small AFO Evaluation and Assessment Strategy

The Small Animal Feeding Operations Evaluation and Assessment Strategy (Small AFO Strategy) is a cooperative strategy between VDACS and DEQ to proactively evaluate and assess small AFOs for water quality risks and impacts. The Small AFO Strategy resulted from Virginia's Phase I WIP commitment to address water quality issues at Small AFOs. The Small AFO Strategy complements DEQ's regulatory Animal Waste Program (i.e., VPDES and VPA permitting programs) and VDACS' complaint-based ASA program. VDACS and DEQ signed a Memorandum of Agreement on December 12, 2012 to establish guidelines for cooperation and coordination of the Small AFO Strategy.

Small AFOs are operations that fall below the minimum animal unit numbers required for a VPA permit – 300 animal units of livestock or 200 animal units of poultry. DEQ and VDACS recognize that the operation of small AFOs may present risks or impacts to water quality that require the implementation of management or control measures to reduce or eliminate water quality risks and impacts, particularly the management of nutrients from confined animals. The goal of the Small AFO Strategy is to proactively assess small unpermitted AFOs and, where water quality risks or impacts are present, to require corrective actions to address the water quality issues.

The purpose of the Small AFO Strategy is "to establish procedures that will use to identify, evaluate and assess Small AFOs for any risks/impacts to water quality that the operation may generate and to address the identified risks/impacts" (DEQ and VDACS, 2012). The Strategy focuses on those BMPs that are designed to prevent point source discharges and reduce the potential to discharge. The Small AFO Strategy includes several parts, as described below.

Prior to be evaluated by DEQ and VDACS, farmers are encouraged to perform a self-assessment to determine if their operation is an AFO and if water quality risks or impacts are present. DEQ and VDACS developed the Virginia Small AFO Self Assessment Checklist,[41] which is a two-page checklist with 21 questions "to assist the farmer in evaluating their operation from a water quality standpoint, and also to show the farmer many of the specific items that would be considered in an on-site assessment performed by DEQ or VDACS."

First, potential small AFOs in Virginia are evaluated by DEQ or VDACS to determine whether or not they meet the definition of an AFO. DEQ and VDACS have identified a list of potential small AFOs based on multiple sources. If a facility is not an AFO, the facility cannot be evaluated under the Small AFO Strategy.

If DEQ or VDACS determines that a facility is an AFO, DEQ or VDACS will perform an evaluation to determine whether or not an on-site assessment is necessary. DEQ or VDACS makes this determination based on the proximity of the operation to surface waters, whether the confined animals have access to surface waters in the production area, whether the nearby surface waters are impaired, and whether a waste storage system is present at the operation. During this evaluation, DEQ or VDACS may determine that an operation poses little or no risk to water quality and does not require an on-site assessment. DEQ or VDACS may also conduct a "non-assessment site visit" to support the in-office evaluation.

[41] http://www.fauquiercounty.gov/documents/departments/jmswcd/pdf/VA_small_AFO_Program.pdf

If DEQ or VDACS determines that an on-site assessment is required, DEQ or VDACS will contact the farmer and schedule the on-site assessment. Participation in the Small AFO Strategy is voluntary, and DEQ or VDACS cannot access a farm without the owner or operators consent. In addition, the owner or operator must be present for the on-site assessment. During the on-site assessment, DEQ and VDACS use an On-Site Assessment Checklist in order to determine "the actual presence of water quality risks/impacts." The On-Site Assessment Checklist documents information such as how animal waste is handled and stored, the presence of storm water conveyances, the proximity of the production area to surface waters, whether animals have access to surface waters in the production area, and whether the operation implements any nutrient management practices for land application of animal wastes.

If the on-site assessment identifies actual water quality risks or impacts, DEQ and VDACS will make a joint determination of whether or not corrective action is needed.

If DEQ and VDACS determine that corrective action is needed, DEQ and VDACS will encourage the owner or operator to seek technical assistance from the local SWCD, the local Virginia Cooperative Extension, or the local USDA Natural Resources Conservation Service staff. DEQ and VDACS will discuss different measures available to address the observed water quality issues with the owner or operator. Example measures that could be used include relocating livestock feeding areas, relocating stockpiles, installing stream fencing, or improving nutrient management practices. After discussing the different options available, a determination will be made about which measure(s) will be implemented.

After selecting the measures that will be implemented to address the water quality issues, DEQ and VDACS will determine the outcome that Virginia will use to ensure implementation of the measures. Potential outcomes include:

- Voluntary Approach: the owner or operator agrees to implement appropriate measures to address the water quality risk or impact, and a letter between the owner or operator and DEQ will document the changes to be made.
- ASA Plan: the operation is investigated using the ASA program and may be required to develop and implement an ASA Plan.
- VPA Animal Waste Permit: DEQ determines that the facility requires VPA permit coverage.
- Designation under the VPDES CAFO Program: DEQ designates the AFO as a significant contributor of pollutants thereby considering the operation a Small CAFO and requiring the owner/operator to apply for the VPDES CAFO permit.

In selecting an outcome, DEQ and VDACS will consider whether the owner or operator is cooperating, how quickly the water quality issue can be addressed, and what the degree of water quality impact.

DEQ and VDACS have supported the Small AFO Strategy with a considerable number of training sessions for stakeholders, farmers, SWCD staff, extension agents, and other interested parties, including 45 training events conducted across Virginia between January and June of 2013 (Commonwealth of Virginia, 2013a).

12.1 Facility Universe

Small AFOs are identified by DEQ or VDACS staff using a variety of available resources including windshield surveys, staff knowledge of operations, complaints, county or local websites, GIS resources, and others sources identified by the agencies and stakeholders (Commonwealth of Virginia, 2013a).

Virginia currently estimates that approximately 823 unpermitted dairy, beef, and poultry operations are eligible for the Small AFO Strategy. Virginia estimates that nearly 200 poultry operations are not covered by a VPA permit and will need to be assessed, though these operations have not been separated out by regional office yet. Table 22 distributes these operations by DEQ regional office.

Table 22. Small AFO Strategy Candidates, by DEQ Regional Office.

DEQ Regional Office	Small AFO Strategy Candidates
Tidewater	5
Piedmont	25
Northern	46
Valley	304
Blue Ridge	164
Southwest	79
Total	**623+200*=823**

*** 200 poultry operations have not yet been separated by DEQ regional office.**

In its response to EPA, Virginia estimated that there are approximately 1,860 AFOs in Virginia (Commonwealth of Virginia, 2013a). Currently, 1,037 AFOs are covered by VPA permits, while the remaining 823 are unpermitted Virginia has identified these 823 unpermitted AFOs as candidates for evaluation and assessment under the Small AFO Strategy.

An unknown number of small AFOs housing other livestock, horses, and non-traditional/exotic animals may be discovered as DEQ and VDACS continue the small AFO identification process (Commonwealth of Virginia, 2013a).

12.2 Resources Allocated

In FY2013, the Small AFO Evaluation and Assessment Strategy had a budget of $282,593 and 3.325 FTEs dedicated to program implementation and support. DEQ has a budget of $282,593 to support the Small AFO Strategy. VDACS works along with DEQ but does not have dedicated funding for the Small AFO Strategy. Approximately 24% of DEQ's total animal agriculture operating budget for FY2013 was allocated to the Small AFO Strategy. Approximately 2.95 FTEs from DEQ regional offices and 0.375 FTEs from DEQ central office are dedicated to the program. Additionally, the three FTEs from VDACS that are committed to the ASA program provide peripheral support to DEQ staff where requested by the farmer or when an ASA plan becomes a corrective action tool (Commonwealth of Virginia, 2013a).

Although not specifically included in the Small AFO Strategy, DCR has hired 1 FTE to work as a small farm specialist to work with farms smaller than 400 acres, beginning farmers, and underprivileged farmers. This FTE will work closely with six extension staff at Virginia State University in their Small Farm Outreach Program (VSU, 2012) with a specific goal to include small unpermitted dairies throughout Virginia.

12.3 Data Systems

DEQ and VDACS currently use a Microsoft Excel spreadsheet to track and manage Small AFO Strategy activities. The spreadsheet includes fields for: Small AFO Strategy Number; AFO (yes, no, or not determined); owner/operator name and contact information; physical address; animal type; evaluation date; permit number if the farm, owner or operator is associated with a DEQ permit; site visit date; on-site assessment needed (yes/no); on-site assessment date; voluntary BMPs observed during the on-site assessment (yes/no); action plan needed (yes/no); and action plan implementation date. Data is entered within five business days of the activity being recorded (Commonwealth of Virginia, 2013a).

DEQ and VDACS track facility-level Small AFO Strategy information for reporting and program administration purposes (Commonwealth of Virginia, 2013a).

12.4 Compliance and Enforcement

In 2011-2012, EPA, DEQ, and VDACS conducted a joint pilot of the Small AFO Strategy. In 2011, EPA inspected seven small AFOs in Virginia and observed water quality risks or impacts at six of the seven AFOs. Water quality issues included: cattle in stream, lack of vegetated buffers, excessively eroded cattle crossings, livestock lots without vegetation, cattle feeders near surface waters, improper disposal of milk parlor washwater, and runoff from manure storage areas.

DEQ and VDACS agreed to pilot the Small AFO Strategy on these six AFOs and conducted on-site assessments in 2012. As a result of these assessments, DEQ and VDACS received management plans with the corrective actions that the farmers would take to address the water quality issues. DEQ and VDACS used the voluntary approach for all six AFOs, documenting the corrective measures that would be taken and the timeframes for completion in a letter to the farmers. The corrective actions included: fencing cattle out of surface waters, establishing or enlarging vegetated buffers along surface waters, improving cattle crossings, moving feeders away from surface waters, re-establishing vegetation in livestock lots, developing an NMP, and installing a manure storage system. All six farmers worked cooperatively with DEQ and VDACS to implement the agreed-upon corrective measures.

As of 8/14/2013, Virginia has conducted in-office evaluations of 335 potential small AFOs, including 25 non-assessment site visits to assist DEQ and VDACS with their evaluation. Of these 335 evaluations, DEQ and VDACS have determined that on-site assessments are warranted at approximately 30% of the operations evaluated (105 operations) (Table 23). EPA was not provided access to documentation and thus was unable to determine the overall effectiveness of the Small AFO Strategy at identifying and addressing water quality issues at individual animal agriculture operations.

Table 23. Small AFO Strategy, Facility Universe as of 8/14/13

DEQ Regional Office	Small AFO Strategy Candidates	Evaluations completed	Non-Assessment Site Visits	On-site assessments completed
Tidewater	5	3	2	0
Piedmont	25	2	1	1
Northern	46	47	0	16
Valley	304	266	22	87
Blue Ridge	164	16	0	0
Southwest	79	1	0	1
Total	**623+200*=823**	**335**	**25**	**105**

*** 200 poultry have not been separated by DEQ regional Office at this time.**

Virginia reported observing the following types of water quality risks or impacts during its on-site assessments: livestock with access to stream, livestock feeding areas adjacent to surface waters, inappropriate handling of process wastewater with potential to discharge, inadequate manure storage, and inappropriate manure handling. The following corrective measures were used to address these issues: limit cattle access to stream, install stream fencing, move feeding areas away from nearby surface waters, improve wastewater handling, and improve manure handling.

Approximately 20% of the small AFOs that were assessed (19 out of 105) were observed to have water quality risks or impacts requiring corrective measures. DEQ and VDACS used the voluntary approach for 13 small AFOs, documenting the corrective measures in a letter between DEQ or VDACS and the owner/operator. The remaining 6 small AFOs were investigated under the ASA and were required by VDACS to develop and implement an ASA Plan (Commonwealth of Virginia, 2013a). Six of these small AFOs were part of the joint pilot project involving EPA; DEQ and VDACS observed water quality risks or impacts on approximately 12% of the remaining small AFOs assessed (13 out of 105).

12.5 WIP Implementation Goals

The Small AFO Strategy does not require implementation of any specific management practices. In order to address any water quality issues, the farmer proposes which BMPs will be implemented and DEQ and VDACS determine whether or not the proposed BMPs are appropriate. Virginia stated that assessments are conducted under the Small AFO Strategy primarily to ensure that point source discharges do not exist. Documenting existing BMPs to count towards Virginia's WIP BMP implementation goals, including BMPs that are required as a result of the on-site assessment to address water quality issues, is not a core function of the Small AFO Strategy. During the on-site assessments, DEQ and VDACS are asking all of the farms that they assess whether they would like to have voluntary BMPs that the farmer installed counted toward the Chesapeake Bay TMDL WIP goals, and if so, getting permission to have a SWCD employee contact the farmer to document these BMPs.

Table 24. Priority BMPs, Small AFO Strategy

Priority BMP	Required Component	Notes
Nutrient Management	The Small AFO Strategy works with individual farmers to identify appropriate BMPs to address water quality issues. The Small AFO Strategy may result in implementation of priority BMPs but does not require them as minimum components of any implementation measure or outcome.	
Animal Waste Management Systems		
Conservation Plans		
Barnyard Runoff Control		
Stream Fencing on Pasture		
Vegetated Buffers on Pastures		

12.6 Small AFO Evaluation and Assessment Strategy - Observations

- In FY2013, the Small AFO Evaluation and Assessment Strategy had a budget of $282,593 and 3.325 FTEs dedicated to program implementation and support.
- Virginia estimated that there are approximately 823 unpermitted AFOs in Virginia that are candidates for assessment under the Small AFO Strategy.
- DEQ and VDACS conducted a joint pilot of the Small AFO Strategy in 2011-2012 that resulted in voluntary corrective measures at six small AFOs which had been previously inspected by EPA.
- As of August 2013, Virginia had conducted 335 evaluations, resulting in 105 on-site assessments. Virginia determined that only 19 facilities had water quality risks or impacts requiring corrective measures. EPA was not provided access to documentation and thus was unable to determine the overall effectiveness of the Small AFO Strategy at identifying and addressing water quality issues at individual animal agriculture operations.
- The Small AFO strategy is designed only to identify and address operational deficiencies at an AFO that would result in a discharge. The Small AFO Strategy is not designed to document all BMPs implemented on farms assessed.
- Virginia's Small AFO Strategy does not require any priority BMPs as minimum components of any outcome. Instead, Virginia works with individual farmers to identify appropriate BMPs to address potential water quality issues.

13.0 Summary

This section summarizes the observations that EPA highlighted in each of the program sections above.

Virginia's Animal Agriculture WIP BMPs

1. **Virginia's regulatory programs require some but not all of the priority BMPs.**
2. **Virginia is relying heavily on programs with voluntary participation, such as the RMP program, Small AFO Strategy, and the Virginia Agriculture Cost-Share (VACS) program, in order to increase BMP implementation to meet Virginia's WIP goals.**
3. **There is currently uncertainty if and how the voluntary programs will ensure these reductions are met. For example, it is uncertain how many operations will voluntarily sign up for an RMP. EPA was unable to determine the full scope of BMP implementation that has resulted from implementation of the Small AFO Strategy, only that 19 out of 335 farms that have been evaluated were required to make operational changes or implement BMPs. Future reductions in nutrient and sediment loading will need to come from voluntary BMP installation at unpermitted operations, additional BMP requirements for permitted operations, or an increase in the number of operations that are required to implement BMPs or obtain permits.**

Nutrient Management Program

4. **In FY2014, DCR had approximately 5 FTEs dedicated to the Nutrient Management program and a budget of $1,417,718 for programmatic support for SWCD programs and $32,107,924 for agricultural BMP support. DCR also received EPA funding through the 319 Non-Point Source program and the Chesapeake Bay Implementation Grant (CBIG) totaling $1,073,500 in support the nutrient management program and $538,000 in support of the SWCDs.**
5. **Virginia's Nutrient Management Program only requires NMPs at farms covered by VPDES and VPA permits, which currently cover 1,037 farms. Approximately 945 of the 1,037 VPA-permitted operations have current NMPs, and an additional 97 NMPs have been developed for unpermitted dairies. As a result, NMPs currently cover approximately 56% of all 1,860 Virginia AFOs, approximately 4% of all 26,555 Virginia farms with livestock and poultry, and approximately 2% of all 46,030 Virginia farms.**
6. **VPA-permitted operations that are required to implement an NMP cover approximately 97% of swine, approximately 80% of the poultry AFOs, and approximately 13% of the dairy AFOs in Virginia.**
7. **NMP noncompliance was observed at approximately 20% of DEQ's VPA permit inspections.**

8. **VADEQ has yet to issue any VPDES CAFO permits, so there are no VPDES CAFO NMPs yet.**
9. **Virginia is trying to increase the number of NMPs at unpermitted operations by:**
    a. **Requiring NMPs for some VA or federal cost-share programs.**
    b. **Requiring NMPs for any operation who participates in Virginia's Resource Management Plan program.**
    c. **Developing a nutrient management training program for small unpermitted dairies.**
    d. **Making $152,000 in funding available for the development of NMPs at unpermitted dairies and confined beef operations.**
10. **Virginia DCR reviews 100 percent of NMPs for VPA- and VPDES-permitted operations.**
11. **Virginia's Nutrient Management program requires one or two of the six priority BMPs.**

Virginia Pollutant Abatement (VPA) Permit Program

12. **In FY2013, the VPA Program had a total budget of $620,776 and approximately 9.56 FTEs dedicated to the VPA program.**
13. **Any operation that meets the size threshold of a Medium or Large CAFO is required to obtain permit coverage under the VPA permit program.**
14. **The VPA AFO and Poultry Waste Management permit programs currently cover 1,037 farms. These 1,037 farms represent approximately 56% of all Virginia AFOs, approximately 4% of all Virginia farms with livestock and poultry, and approximately 2% of all Virginia farms. These 1,037 farms also represent approximately 97% of swine, approximately 80% of the poultry AFOs, and approximately 13% of the dairy AFOs in Virginia.**
15. **The percentage of total animals in confinement which are permitted is markedly greater than the percentage of farm sites permitted. For example, the dairy cow inventory in the 2012 Ag Census is 94,105 animals, and the corresponding number of dairy cattle on farms with VPA permits is 37,384 animals, representing approximately 40% of the total dairy animal population in Virginia.**
16. **The VPA Poultry Waste General Permit also establishes requirements for poultry waste brokers and end-users that receive poultry waste from a VPA-permitted AFO. The reissued 2014 VPA AFO General Permit establishes requirements for end-users that receive manure from a VPA-permitted AFO.**
17. **Prior to 2011, DEQ conducted annual inspections of VPA-permitted operations.**

18. **Since 2011, DEQ has conducted inspections at VPA-permitted operations in accordance with DEQ's Risk-based Inspection Strategy. Routine Inspections must be completed at least once every three to four years. Based on what Virginia reported in the questionnaire and what EPA observed during the file review, DEQ appears to be exceeding this frequency by inspecting every VPA-permitted facility at least once every two years.**
19. **In FY2013, DEQ inspected almost half of all VPA-permitted operations (497 out of 1,037 operations).**
20. **The DEQ Valley Regional Office conducts approximately 42% of its VPA inspections within 30 days of the calendar date of its previous inspection, rather than randomizing the time of inspection.**
21. **Inconsistency exists between DEQ regional offices in how they conduct inspections, how deficiencies are recorded in inspection reports, and how deficiencies are addressed.**
22. **DEQ inspection reports indicate that a detailed review of NMP records is conducted during each inspection, and numerous inspection reports identified over-application of nutrients, application to fields not in the NMP, and operating with an expired NMP.**
23. **NMP violations were the largest category of deficiencies identified in DEQ's inspection reports of VPA-permitted operations.**
24. **In FY2013, DEQ inspected 497 operations covered by VPA permits, of which 101 operations were found to be non-compliant with NMP requirements. Of the 101 AFOs out-of-compliance with NMP requirements, most were addressed with Informal Corrections while DEQ issued seven warning letters and one NOV. Virginia's Civil Enforcement Manual provides detailed information on when certain outcomes should be used, such as informal correction, warning letters, and NOVs.**
25. **Virginia's Civil Enforcement Manual does not appear to be consistently implemented at VPA-permitted animal agriculture operations, as facilities with similar noncompliance issues were often addressed differently.**
26. **Clear deadlines were not always provided to the facility for addressing deficiencies.**
27. **Violations that remained unresolved across consecutive annual inspections often were not escalated. Enforcement often was not elevated, even for facilities with multiple NOVs.**
28. **Virginia's VPA AFO permit and Poultry Waste Management general permit program requires one or two of the six priority BMPs.**

Virginia Pollutant Discharge Elimination System (VPDES) CAFO Permit Program

29. **In FY2013, the VPDES CAFO program had a total budget of $68,590 and approximately 0.725 FTEs dedicated to the VPDES CAFO program.**
30. **To date, approximately 86 CAFOs have submitted VPDES permit applications to DEQ, but DEQ has not issued any final VPDES CAFO permits.**
31. **In EPA's evaluation of Virginia's 2012-2013 Milestone Progress and 2014-2015 Milestone Commitments, one of the identified shortfalls was that "Virginia did not issue any CAFO permits as committed to by September 2012 and later deferred to December 2013; this milestone has been carried over to the 2014-2015 milestones."**
32. **In May 2014, DEQ submitted two draft VPDES CAFO permits for two swine operations to EPA for review and comment, EPA completed its review in October 2014, and Virginia plans to issue these two permits by January 2015. Afterwards, DEQ has stated that it intends to draft six additional VPDES CAFO permits for swine operations and four VPDES CAFO permits for poultry operations. Virginia estimates that the eight swine permits and associated NMPs will address approximately 40% of the permitted swine in Virginia.**
33. **DEQ has reviewed the remaining 75 VPDES permit applications and concluded that the majority of the facilities do not discharge and therefore do not require issuance of a VPDES permit. DEQ determined that two additional poultry facilities have drainage issues of concern and plans to begin processing these permit applications. DEQ has determined that the remaining 73 of 75 facilities will continue to be regulated under VPA permits. EPA has not to date provided a response to that conclusion.**
34. **Virginia's VPDES CAFO program requires between one and four of the six priority BMPs.**

Resource Management Plan (RMP) Program

35. **Since January 2014, the RMP Program has had 3 FTEs dedicated to program implementation and support.**
36. **A farmer who chooses to participate in the RMP program agrees to implement certain BMPs, such as an NMP, conservation plan, and stream fencing on pasture. In exchange for preparing and implementing the RMP, farmers with RMPs will be assured of a "safe harbor" for nine years from new Commonwealth environmental regulations related to the Chesapeake Bay or local TMDLs, assuming the RMP is fully implemented**

37. **Virginia has not identified a long-term source of funds for administration and implementation of the RMP program.**
38. **DCR is awarding $472,640 in EPA CBRAP funds and other DCR grant funds for the development of 274 RMPs in the Virginia Chesapeake Bay Watershed covering a total of 47,264 acres. It is unclear if the grant made available by DCR will be sufficient to fund RMP development in the Virginia Chesapeake Bay Watershed.**
39. **Virginia's RMP program requires three of the six priority BMPs.**

Agricultural Stewardship Act (ASA) Program

40. **In FY2013, the ASA Program had a budget of $324,187 and 3 FTEs dedicated to program implementation and support.**
41. **From April 2013 through March 2014, VDACS received more than 140 inquiries regarding possible agricultural pollution. 80 inquiries became official complaints, of which 32 were determined to be founded complaints that required corrective actions to be implemented through an ASA Plan. 23 of the 32 founded complaints were at livestock operations.**
42. **EPA was not provided access to documentation and thus was unable to determine the overall effectiveness of the ASA program at resolving water quality complaints at individual animal agriculture operations. It is unknown whether or not operations had other water quality issues that could not be addressed due to the scope limitations of the ASA program or what BMPs were required to be implemented by the ASA Plans that these animal agriculture operations.**
43. **Virginia's ASA program does not set forth minimum BMPs for inclusion in every ASA Plan. Rather, each ASA Plan will identify BMPs to resolve the water quality issue(s) related to the founded complaint, some of which may be priority BMPs.**

Small AFO Evaluation and Assessment Strategy

44. **In FY2013, the Small AFO Evaluation and Assessment Strategy had a budget of $282,593 and 3.325 FTEs dedicated to program implementation and support.**
45. **Virginia estimated that there are approximately 823 unpermitted AFOs in Virginia that are candidates for assessment under the Small AFO Strategy.**
46. **DEQ and VDACS conducted a joint pilot of the Small AFO Strategy in 2011-2012 that resulted in voluntary corrective measures at six small AFOs which had been previously inspected by EPA.**

47. **As of August 2013, Virginia has conducted 335 evaluations, resulting in 105 on-site assessments. Virginia determined that only 19 facilities had water quality risks or impacts requiring corrective measures. EPA was not provided access to documentation and thus was unable to determine the overall effectiveness of the Small AFO Strategy at identifying and addressing water quality issues at individual animal agriculture operations.**
48. **The Small AFO Strategy is designed only to identify operation deficiencies at an AFO that would result in a discharge. The Small AFO Strategy is not designed to document all BMPs implemented on farms assessed**
49. **Virginia's Small AFO Strategy does not require any priority BMPs as minimum components of any outcome. Instead, Virginia works with individual farmers to identify appropriate BMPs to address potential water quality issues.**

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