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Coastal Nonpoint Source Pollution Control Program Submittal

September 1995

DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

AUTHENTICATED U.S. GOVERNMENT INFORMATION GPO

COMMONWEALTH of VIRGINIA

Coastal Nonpoint Source Pollution Control Program Submittal

September 1995

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CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

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Table of Contents

Executive Summary

I.	INTRODUCTION	1-1
	Background Discussion	1-7
	Boundary Map	1-13
II.	IMPLEMENTATION PLAN	2-1
	Agricultural Measures	2-1
	Forestry Measures	2-2
	Urban Measures	2-2
	Marina and Boat Operation Measures	2-2
	Hyrdomodification and Wetland Measures	2-3
III.	AGRICULTURE	3-1
	Erosion and Sediment Control Management Measure	3-11
	Confined Animal Facility Management Measure (Large Units)	3-12
	Confined Animal Facility Management Measure (Small Units)	3-14
	Nutrient Management Measure	3-17
	Pesticide Management Measure	3-22
	Grazing Management Measure	3-27
	Irrigation Water Management Measure	3-31
IV.	FORESTRY	4-1
	Preharvest Planning	4-8
	Streamside Management	4-12
	Road Construction/Reconstruction	4-16
	Road Management	4-20

	Timber Harvesting	4-24
	Site Preparation	4-28
	Fire Management	4-33
	Revegetation of Disturbed Areas	4-36
	Forest Chemical Management	4-39
	Wetlands Forest Management	4-41
V.	URBAN DEVELOPMENT	5-1
	New Development Management Measure	5-7
	Watershed Protection Management Measure	5-10
	Site Development Management Measure	5-13
	Construction Site Erosion and Sediment Control Management Measure	5-17
	Construction Site Chemical Control Management Measure	5-20
	Existing Development	5-27
	New Onsite Disposal Systems Management Measure	5-29
	Operating Onsite Disposal System Management Measure	5-37
	Pollution Prevention Management Measure	5-41
	Management Measure for Planning, Siting, and Developing Roads and Highways	5-46
	Management Measure for Bridges	5-51
	Management Measure Construction Projects	5-57
	Management Measure for Construction Site Chemical Control	5-60
	Management Measure for Operation and Maintenance	5-68
	Management Measure for Road, Highway, and Bridge Runoff	5-71

VI.	MARINA AND BOAT OPERATION	6-1
	Marina Flushing Management Measure	6-4
	Water Quality Assessment Management Measure	6-6
	Habitat Assessment Management Measure	6-8
	Shoreline Stabilization Management Measure	6-12
	Storm Water Runoff Management Measure	6-15
	Fueling Station Design Management Measure	6-19
	Sewage Facility Management Measure	6-21
	Solid Waste Management Measure	6-23
	Fish Waste Management Measure	6-25
	Liquid Material Management Measure	6-26
	Petroleum Control Management Measure	6-27
	Boat Cleaning Management Measure	6-29
	Public Education Management Measure	6-30
	Maintenance of Sewage Facilities Management Measure	6-31
	Boat Operation Management Measure	6-32
VII.	HYDROMODIFICATION	7-1
	Management Measure for Physical and Chemical Characteristics of Surface Water	7-5
	Instream and Riparian Habitat Restoration Management Measure	7-9
	Management Measure for Erosion and Sediment Control	7-12
	Management Measure Chemical and Pollutant Control	7-15
	Management Measure for Surface Water Quality and Instream Riparian Habitat	7-21
	Stream Bank and Shoreline Erosion Management Measure	7-24

VIII.	WETLANDS	8-1
	Management Measure for Protection of Wetlands and Riparian Areas	8-4
	Management Measure for Restoration of Wetlands and Riparian Areas	8-9
	Management Measure for Vegetated Treatment Systems	8-12
IX.	BOUNDARY DISCUSSION	9-1
X.	ADMINISTRATIVE COORDINATION	10-1
XI.	MONITORING AND TRACKING	11-1
	Chesapeake Bay and Local Assistance Department	11-1
	Department of Conservation and Recreation	11-2
	Department of Forestry	11-4
	Department of Environmental Quality	11-5
	Department of Health	11-6
	Citizen Monitoring Programs	11-7
	BMP Tracking Programs	11-10
	Data Anaylsis	11-11
XII.	TECHNICAL ASSISTANCE	12-1
XIII.	APPENDICES	

A. Response to Threshold Review Comments from NOAA and EPA
B. Response to Public Comments
C. List of Participants
D. List of Referenced Documents
E. Index to Environmental Programs

Executive summary

VIRGINIA COASTAL NONPOINT SOURCE POLLUTION CONTROL PROGRAM

Implementation Summary

Agriculture

Although the Commonwealth of Virginia has deemed existing state programs sufficient to address the specified management measures, enactment of an agricultural water quality law would strengthen Virginia's agricultural water quality programs and it would help ensure program compliance. Accordingly, state agencies in Virginia plan to work with the agricultural community to develop an agricultural water quality law (bad actor law) that targets farm owners and operators who refuse to implement management practices to control known sources of nonpoint source pollution.

Forestry

Program implementation will not involve additional regulatory controls or programmatic changes to Virginia's forestry water quality programs. However, as part of a Section 319 grant, a guidebook for logger is being revised to stress the need for pre-harvest planning. This guidebook should strengthen the Commonwealth's well developed forestry water quality programs.

Urban

Virginia is in the process of revising Sewage Handling and Disposal regulations. If enacted, these regulations should address the requirements of the New Onsite Disposal management measure and bring the Commonwealth into compliance with the management measures specified for urban sources of nonpoint source pollution.

Marina and Boat Operation

To address the Fish Waste and Boat Operation management measures, Virginia will undertake a study to determine the significance of these source of nonpoint pollution and to determine what actions the Commonwealth could take to address these sources. If significant problems are identified through investigations, new statutory authority would likely be required to bring the Commonwealth into compliance with these management measures.

Hydromodification and Wetlands

Although no additional regulatory or programmatic changes are proposed at this time, an investigation is proposed to evaluate the nature and extent of nonpoint source pollution problems associate with of existing hydromodification projects. If significant nonpoint source pollution problems are identified, a management plan will be developed to address these problems.

WETLANDS, RIPARIAN AREAS, AND VEGETATED TREATMENT SYSTEMS

A. Protection of Wetlands and Riparian Areas **Meets**

Wetlands and riparian areas are protected statewide by the Virginia Water Protection Permit (Department of Environmental Quality) and the Submerged Lands Management Program (Virginia Marine Resources Commission). Further protection for such areas exists in coastal areas through the Wetland Management Program and Coastal Primary Sand Dune Program. Within Tidewater, the Chesapeake Bay Area Designation and Management Regulations protect wetland and riparian areas by establishing Resource Protection Areas (RPAs) which includes tidal and nontidal wetlands and other significant lands and a 100 foot wide buffer strip adjacent to such lands and all tributary streams. Agricultural cost share incentives are also available for woodland buffer strips, stream protection, grass filter strips, and stabilization of marshes.

B. Restoration of Wetlands and Riparian Areas **Meets**

Several state programs including, the Virginia Water Protection Permit Program, Coastal Primary Sand Dune/Beaches Program, and the Tidal Wetlands Management Program can require restoration of wetlands and riparian areas impacted by program violations. Wetlands restoration is also promoted by the Agricultural BMP Cost Share Program and the Shoreline Erosion Advisory Service.

C. Vegetated Treatment Systems **Meets**

The Chesapeake Bay Preservation Act promotes vegetated filter strips by establishing Resource Protection Areas (RPAs) which include tidal and nontidal wetlands and other significant lands and a 100 foot wide buffer strip adjacent to such lands and all tributary streams. The *Erosion and Sediment Control Handbook* describes and promotes erosion control practices such as vegetated filter strips. The Stormwater Management Law encourages the use of constructed wetlands and filter strips to treat and control runoff. Agricultural cost share incentives are available for woodland buffer strips, stream protection, grass filter strips, and stabilization of marsh filter strips.

Streambank and Shoreline Erosion

A. Eroding Streambanks and Shorelines **Meets**

Virginia has a number of voluntary programs, supported by cost-share financial incentives, which are intended to stabilize eroding streambanks and shorelines. The Shoreline Erosion Advisory Service (SEAS) promotes environmentally sound practices for shoreline stabilization and erosion control. Within the coastal zone streambanks and shorelines are protected by CBPAs as described in the Chesapeake Bay Area Designation and Management Regulations.

HYDROMODIFICATION

Channelization and Channel Modification

A. Physical and Chemical Characteristics of Surface Waters **Meets**

Through the Joint Permit review process, the Department of Environmental Quality (DEQ) reviews the design of all channelization/channel modification projects. Modeling of effects may be required if significant impacts are expected.

B. Instream and Riparian Habitat Restoration **Meets**

Through the Joint Permit review process, DEQ reviews the design of all channelization/channel modification projects and recommends or requires changes to minimize impacts to aquatic habitat. The Submerged Lands Management Program, administered by the Virginia Marine Resources Commission (VMRC), helps maintain, improve, and evaluate instream and riparian habitat.

Dams

A. Erosion and Sediment Control **Meets**

Dam construction projects disturbing greater than 10,000 square feet are required to develop an erosion and sediment control plan. The Dam Safety Act requires that all dams greater than 25 ft. and a storage volume of 50 acre/feet have an Operations and Maintenance Plan. The Joint Permit review process also requires such projects to comply with the Erosion and Sediment Control Law.

B. Chemical and Pollutant Control **Meets**

The Virginia Water Protection Permit (VWPP) program prohibits the contamination of state waters. The Chesapeake Bay Area Designation and Management Regulations and state erosion and sediment control BMPs help prevent the migration of toxic substances.

C. Protection of Surface Water Quality and Instream and Riparian Habitat **Meets**

Virginia Water Protection Permit issued for dam construction by DEQ can require implementation of BMPs to lessen the impact of impoundments upon water quality. When appropriate, fish passage systems are made a condition of the permit.

F. Public Education **Meets**

The Boater Safety and the Marina Education Programs provide outreach programs to educate the public regarding pollution prevention and proper waste disposal.

G. Maintenance of Sewage Facilities **Meets**

This management measure is met through the Virginia Department of Health's *Virginia Sanitary Regulations for Marinas and Boat Moorings*.

H. Boat Operation **Partially Meets**

"No Wake Zones" are not being used to protect shallow water habitat in Virginia; however, such designations are made based on safety considerations.

F. Fueling Station Design **Meets**

The Virginia Water Protection Permit requires fuel spill contingency plans for all new marinas with fuel facilities. The discharge of oil into or upon state waters, lands, or storm drains is prohibited by law (Article 11 Section 62.1 - 44.34 of the Code of Virginia).

G. Sewage Facility **Meets**

Virginia Water Protection Permit Regulations for new and expanding marinas require pumpout or dump facilities, depending upon marina size. The Virginia Department of Health's Virginia Sanitary Regulations for Marinas and Boat Moorings require all marinas and boat moorings to obtain a permit to construct and operate on-site sanitary facilities, pump-out facilities, and sewage dump stations.

Marina and Boat Operation and Maintenance

A. Solid Waste **Meets**

The Virginia Marine Resource Commission's (VMRC) marina siting criteria address solid waste disposal and require a solid waste recovery plan. Virginia's Solid Waste Management Regulations require disposal of solid waste in an approved solid waste disposal facility and prohibit the disposal of solid waste into waters of the Commonwealth.

B. Fish Waste **Partially Meets**

Virginia's Solid Waste Management Regulations prohibit the improper disposal of solid waste. However, existing programs do not meet management measure requirements, because they do not address fish waste management.

C. Liquid Material **Meets**

The Virginia Water Protection Permit Regulations prohibit the improper disposal of harmful liquid material and require the proper transfer, storage, and handling of such material. The Office of Litter Prevention and Recycling facilitates the recycling of liquid material.

D. Petroleum Control **Meets**

The Virginia Water Protection Permit Regulations prohibit bilge dumping. The discharge of oil into or upon state waters, lands, or storm drains is prohibited by law (Article 11, Section 62.1 - 44.34 of the Code of Virginia).

E. Boat Cleaning **Meets**

The Virginia Water Protection Permit Regulations prohibit in-water boat cleaning and direct dumping into waters of the Commonwealth.

MARINA AND BOAT OPERATION

Siting and Design

A. Marina Flushing **Meets**

The Virginia Marine Resource Commission's (VMRC) marina siting criteria address marina flushing. All proposed marinas and boat moorings must submit a joint permit application, typically such facilities require a Virginia Water Protection Permit (VWPP) and a Submerged Lands and Tidal Wetlands Permit.

B. Water Quality Assessment **Meets**

The Virginia Water Protection Permit and Submerged Lands and Tidal Wetlands Permit require water quality assessments as a part of marina siting and design approval.

C. Habitat Assessment **Meets**

The Submerged Lands and Tidal Wetlands Permit program specifically protects tidal wetlands and shellfish resources, the Virginia Water Protection Permit program requires surveys for endangered species, anadromous fish, submerged aquatic vegetation, wetlands, and shellfish. Within the coastal zone, the Chesapeake Bay Area Designation and Management Regulations further protect habitat designated as Chesapeake Bay Preservation Areas.

D. Shoreline Stabilization **Meets**

The Shoreline Erosion Advisory Services (SEAS) program inspects sites and provides technical advise regarding ecologically sensitive shoreline stabilization practices. Virginia Water Protection Permit Regulations and the Submerged Lands and Tidal Wetlands Permit regulations require that specific shoreline stabilization methods be identified by permit applicants.

E. Storm Water Runoff **Meets**

All proposed marinas and boat moorings must submit a joint permit application, typically such facilities require a Virginia Water Protection Permit (VWPP) and a Submerged Lands and Tidal Wetlands Permit. Although state regulations do not specify an 80% reduction in total suspended solids state program requirements, collectively, adequately address stormwater runoff at new and expanding marina facilities. Virginia Marine Resource Commission's (VMRC) siting criteria stipulate that boat maintenance facilities shall include plans to collect and remove maintenance by-products before they reach adjoining waterways.

F. Runoff Systems **Meets**

Virginia's Stormwater Management Regulations include provisions which can help remediate flooding or water quality problems. Stormwater management programs are optional for localities but are required for state agencies.

Roads, Highways, Bridges

A. Planning, Siting, and Developing Roads and Highways **Meets**

The Chesapeake Bay Preservation Area Designation and Management Regulations address all of the requirements of this management measure. Additionally, the Erosion and Sediment Control Regulations require cut and fill slopes to be designed and constructed to minimize erosion and the Stormwater Management Regulations encourage localities to consider nonstructural stormwater management controls. Through an interagency coordination process, the Virginia Department of Transportation's (VDOT) allows state agencies to identify potential environmental concerns early in the development process.

B. Bridges **Meets**

The programs listed for the Planning, Siting, and Developing Roads and Highways management measure also apply to this management measure. In addition, the Virginia Water Protection Permit (VWPP) program encourages the use of fugitive dust control and collection systems for sand blasting associated with bridge construction projects. The VWPP program limits the physical impact of bridges upon state waters and wetlands.

C. Construction Projects **Meets**

The requirements of the Erosion and Sediment Control Law and Regulations are applicable statewide and meet the requirements of this measure. Within the coastal zone, the Chesapeake Bay Preservation Area Designation and Management Regulations provide restrictions which exceed management measure requirements.

D. Construction Site Chemical Control **Meets**

Regulations adopted pursuant to the Virginia Pesticide Control Act, Virginia's Solid Waste Management Regulations, the State Water Control Law, and the Virginia Occupational Safety and Health program collectively manage toxic substances and material associated with construction sites. The Chesapeake Bay Preservation Area Designation and Management Regulations and the Erosion and Sediment Control Law and Regulations address nutrient applications. VDOT's road and bridge specifications also address this measure.

E. Operation and Maintenance **Meets**

Virginia meets the requirements of this management measure through operation and maintenance procedures outlined in the following documents: Chesapeake Bay Preservation Area Designation and Management Regulations, the *Erosion and Sediment Control Handbook*, and *Virginia Department of Transportation Road and Bridge Specifications.*

Preservation Area Designation and Management Regulations and the Erosion and Sediment Control Law and Regulations address nutrient applications.

Existing Development

A. Existing Development **Meets**

The Stormwater Management Regulations encourage localities to develop watershed management plans. Within the existing coastal zone, the Chesapeake Bay Preservation Area Designation and Management Regulations include water quality improvement requirements for redevelopment of urban areas.

Onsite Disposal Systems

A. New Onsite Disposal Systems **Partially Meets**

Virginia Department of Health Regulations establish criteria for the construction and operation of onsite disposal systems, and include provisions for siting, monitoring, and maintenance. The minimum required separation distance between the seasonal water table and the bottom of the soil absorption trench may not provide adequate water quality protection. However, regulations currently under development would address this concern. The Unified Statewide Building Code requires certain water conserving plumbing fixtures. The Chesapeake Bay Preservation Area Designation and Management Regulations require a disposal system pump-out every five years and require provisions for a reserve sewage disposal site.

B. Operating Onsite Disposal Systems **Meets**

Virginia Department of Health Regulations establish criteria for the construction and operation of onsite disposal systems, adequate maintenance and monitoring requirements have been established for discharging systems. but there are no requirements for the routine inspection of conventional septic systems beyond the requirements associated with lending institutions. Within the coastal zone, the Chesapeake Bay Preservation Area Designation and Management Regulations require disposal system pump-out every five years.

Pollution Prevention

A. Pollution Prevention **Meets**

Pollution prevention and education programs are currently in place which address the requirements of this measure. The following state agencies support pollution prevention activities: the Chesapeake Bay Local Assistance Department, the Department of Agriculture and Consumer Services, the Department of Conservation and Recreation, the Department of Environmental Quality, the Virginia Department of Health, the Virginia Cooperative Extension Service, and the Virginia Department of Transportation.

URBAN AREAS

Urban Runoff

A. New Development **Meets**

Virginia has several programs which address urban runoff; however, none of these programs specifically address total suspended solids. The Chesapeake Bay Preservation Area Designation and Management Regulations, applicable within the coastal zone, seek to prevent an increase in nonpoint source pollution resulting from new development. Virginia's Erosion and Sediment Control Law establishes minimum standards for erosion and sediment control statewide. The Stormwater Management Act enables localities to address changes in stormwater runoff caused by new development, but local stormwater programs are optional.

B. Watershed Protection **Meets**

Chesapeake Bay Preservation Area Designation and Management Regulations require localities to review and revise their comprehensive plans and zoning and subdivision ordinances to address the quality of state waters. Outside the existing coastal zone, watershed protection programs are voluntary. Throughout Virginia, the Erosion and Sediment Control Law enables localities to require conservation plans for areas subject to persistent soil erosion.

C. Site Development **Meets**

The Chesapeake Bay Preservation Area Designation and Management Regulations directly address all of the requirements of this management measure. Virginia's Erosion and Sediment Control Regulations, applicable statewide, require cut and fill slopes to be designed and constructed to minimize erosion and include requirements when working in watercourses. The Stormwater Management Regulations encourage localities to consider nonstructural measures, such as minimizing impervious surfaces and protecting wetlands, steep slopes, and vegetation.

Construction Activities

A. Construction Site E & S Control **Meets**

The requirements of the Erosion and Sediment Control Law and Regulations are applicable statewide and meet the requirements of this measure. Within the coastal zone, the Chesapeake Bay Preservation Area Designation and Management Regulations provide restrictions which exceed management measure requirements.

B. Construction Site Chemical Control **Meets**

Regulations adopted pursuant to the Virginia Pesticide Control Act, Virginia's Solid Waste Management Regulations, the State Water Control Law, and the Virginia Occupational Safety and Health Program collectively manage toxic substances and material associated with construction sites. The Chesapeake Bay

G. Fire Management **Meets**

BMPs for prescribed burning and wildfire suppression and rehabilitation are described in DOF's *Forestry Best Management Practices for Water Quality in Virginia*. Proper burning techniques are recommended for all forest operations. Wildfire suppression is coordinated by DOF, local fire departments, and federal agencies.

H. Revegetation of Disturbed Areas **Meets**

Department of Forestry BMPs encourage revegetation of bare soil to minimize erosion and sedimentation resulting from silvicultural operations. In addition to DOF's BMP program, DOF staff conduct routine site inspections and enforce the Silvicultural Water Quality Law.

I. Forest Chemicals **Meets**

The Virginia Department of Agriculture and Consumer Services administers the Virginia Pesticide Control Program which regulates pesticide use. DOF administers an aerial spray program which helps minimize the impacts of pesticide use on surface waters.

J. Wetlands Forest **Meets**

DOF's *Forestry Best Management Practices for Water Quality in Virginia* provides detailed guidance on silvicultural practices which should be applied to wetland forests. In addition to DOF's BMP program, DOF staff conduct routine site inspections and enforce the Silvicultural Water Quality Law.

FORESTRY

A. Preharvest Planning — Meets

In Virginia, preharvest planning is voluntary and is encouraged through a variety of incentive programs. The Department of Forestry (DOF) enforces the Silvicultural Water Quality Law which prohibits the pollution of streams by excessive sedimentation resulting from silvicultural operations. DOF staff provide free preharvest planning services to loggers and landowners.

B. Streamside Management Areas — Meets

DOF's voluntary best management practices (BMPs) program promotes streamside management practices which meet the requirements of the measure. The measure is further supported by routine site inspections and enforcement of the Silvicultural Water Quality Law by DOF staff. Within Tidewater, the Chesapeake Bay Preservation Area Designation and Management Regulations also encourage streamside management areas.

C. Road Construction/Reconstruction — Meets

DOF's voluntary BMP program encourages loggers to locate, design, and construct roads which minimize adverse impacts to water quality and aquatic habitat. In addition to DOF's BMP program, DOF staff conduct routine site inspections and enforce the Silvicultural Water Quality Law.

D. Road Management — Meets

DOF's voluntary BMP program encourages proper log road management, including, maintenance of drainage systems, road closure and revegetation. In addition to DOF's BMP program, DOF staff conduct routine site inspections and enforce the Silvicultural Water Quality Law.

E. Timber Harvesting — Meets

The BMPs included in DOF's *Forestry Best Management Practices for Water Quality in Virginia* promote proper timber harvesting practices. In addition to DOF's BMP program, DOF staff conduct routine site inspections and enforce the Silvicultural Water Quality Law.

F. Site Preparation and Forest Regeneration — Meets

The BMPs included in DOF's *Forestry Best Management Practices for Water Quality in Virginia* encourage mechanical planting on contour during favorable weather conditions, discourage disturbances in streamside management areas, and describes eight site preparation and forest regeneration practices. In addition to DOF's BMP program, DOF staff conduct routine site inspections and enforce the Silvicultural Water Quality Law. The Virginia Seed Tree Law addresses reforestation of pine and pine-hardwood tracts harvested in Virginia.

plan, prepared in accordance with Virginia Cooperative Extension's Integrated Pest Management Program. Approximately 80% of all land within Tidewater is classified as a Chesapeake Bay Preservation Area. Implementation of the nutrient management plan is required when a landowner or farmer seeks a reduction in the required 100 foot buffer. The Virginia Pesticide Control Act and Regulations meets some of the management measure requirements.

E. Grazing Management **Meets**

The Chesapeake Bay Preservation Area Designation and Management Regulations requires all agricultural land in water quality-targeted areas (Chesapeake Bay Preservation Areas) to have a soil and water conservation plan, prepared in accordance with the Natural Resources Conservation Service's FOTG. Approximately 80% of all land within Tidewater is classified as a Chesapeake Bay Preservation Area. Implementation of range and pasture components of the Conservation Management System (CMS) is required when a landowner or farmer seeks a reduction in the required 100 foot buffer.

F. Irrigation Water Management **Meets**

Because agricultural irrigation is not widespread in Virginia, it is not considered to be a significant water quality problem. Virginia has programs which address chemigation management. Surface and Ground Water Withdrawal Permits also limit water withdrawal for agricultural irrigation within portions of the coastal zone.

VIRGINIA COASTAL NONPOINT SOURCE POLLUTION CONTROL PROGRAM

Management Measure Summary

AGRICULTURE

A. Erosion and Sediment Control **Meets**

The Chesapeake Bay Preservation Area Designation and Management Regulations require that all agricultural land in water quality-targeted areas (Chesapeake Bay Preservation Areas) have a soil and water conservation plan which meets the standards outlined in the Natural Resources Conservation Service's Field Operations and Technical Guidance (FTOG). Approximately 80% of all lands within Tidewater is classified as a Chesapeake Bay Preservation Area. Implementation of the conservation plan is required when a landowner or farmer seeks a reduction in the required 100 foot buffer.

B1. Confined Animal Management **Meets**

Virginia meets the Management Measure for Facility Wastewater and Runoff from Confined Animal Facility Management (Large Units) through the Virginia Pollution Abatement (VPA) Permit program. Facilities which receive National Pollution Discharge Elimination System (NPDES) permits are exempt from the requirements of this measure.

B2. Confined Animal Management **Meets**

Virginia meets the Management Measure for Facility Wastewater and Runoff from Confined Animal Facility Management (Small Units) through the VPA Permit program. Facilities which receive NPDES permits are exempt from the requirements of this measure.

C. Nutrient Management **Meets**

The Chesapeake Bay Preservation Area Designation and Management Regulations require that all agricultural land in water quality-targeted areas (Chesapeake Bay Preservation Areas) have a soil and water conservation plan which meets the standards outlined in the Department of Conservation and Recreation's Nutrient Management Handbook. Approximately 80% of all land within Tidewater is classified as a Chesapeake Bay Preservation Area. Implementation of the nutrient management plan is required when a landowner or farmer seeks a reduction in the required 100 foot buffer.

D. Pesticide Management **Meets**

The Chesapeake Bay Preservation Area Designation and Management Regulations require all agricultural land in water quality-targeted areas (Chesapeake Bay Preservation Areas) to have a soil and water conservation

measure requirements. Through a process known as Threshold Review, EPA and NOAA provided feedback regarding state programs which address the federal guidance. Virginia has responded to these comments in this program submission.

Program Submission

In addition to developing a response to threshold review comments from NOAA and EPA, the following program elements have been developed: (1) a determination of the Section 6217 management area; (2) a description of the administrative framework which will be used to coordinate activities of involved agencies; (3) a description of technical assistance programs which address nonpoint source pollution control and costal resources management; (4) a description of water quality monitoring and tracking efforts needed to demonstrate water quality improvements; and, (5) an implementation plan to address areas of noncompliance.

Program Submission Summary

The following is a summary of findings for each source category specified in the Federal guidance.

For agricultural sources of nonpoint pollution, Virginia's existing programs address the management measure requirements within the 6217 management area (existing coastal zone).

The Department of Forestry addresses compliance with the management measures specified for forestry operations through its voluntary best management practices (BMP) program and enforcement authority provided by the Silvicultural Water Quality Law.

Virginia has several programs which address nonpoint source pollution in urban areas. Although, program requirements do not always match the specified management measures, from a practical standpoint, they achieve the same results.

The Commonwealth's existing programs address most of the management measures specified for marina and boat operations, hydromodifications, and wetland and riparian areas.

For each management measure, a concise discussion has been prepared which highlights the applicability of existing state programs. The program summary also indicates if existing state programs meet the specified management measure.

U. S. Environmental Protection Agency (EPA). The guidance recommends that states implement 55 management measures to control a variety of sources of pollutants. Management measures are defined in Section 6217(g)(5) as:

> "...economically achievable measures...which reflect the greatest degree of pollutant reduction achievable through the application of the best available nonpoint pollution control practices, technologies, processes, siting criteria, operating methods, or other alternatives."

In order to develop a federally approved program, states must support these management measures with enforceable policies or mechanisms such as laws, regulations, or executive orders that will ensure successful implementation. Generally, program development and management measure guidance developed by EPA and NOAA provides coastal zone states with considerable flexibility in program development, recognizing that circumstances vary from state to state.

Program Planning and Development

Since April of 1993, Virginia has been planning and developing a coastal nonpoint source pollution control program which would meet the requirements of Section 6217. The Department of Conservation and Recreation (DCR), the state's lead nonpoint source agency, has coordinated program development efforts with the help of a number of cooperating state agencies.

Public participation has been invited throughout the program planning and development process. A number of public meetings and presentations have been held to provide concerned citizens with information about program requirements and to receive their comments. At the request of the Secretary of Natural Resources, an Ad Hoc Advisory Committee was created to provide a broader forum for public participation.

Federal guidance divides sources of nonpoint source pollution into five categories: agriculture, forestry, urban areas, marina and boat operations, and hydromodifications. The guidance also specifies management measures for wetlands and riparian areas. Work groups were formed for each category to facilitate a comparison between existing state programs and the management measures required by Section 6217. Work group findings were compiled in a threshold review report which was submitted to NOAA and EPA in May of 1994 and form a basis for this Coastal Nonpoint Source Pollution Control Program submission.

This Program submission contains an analysis of existing state programs and identifies differences that may exist between these state programs and Section 6217 management

EXECUTIVE SUMMARY

Virginia Coastal Nonpoint Source Pollution Control Program

developed pursuant to

Section 6217 of the Coastal Zone Act Reauthorization Amendments

Introduction

In 1990, Congress reauthorized the Coastal Zone Management Act. Section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA) contains provisions that require states with federally approved coastal resources management programs to develop coastal nonpoint source pollution control programs to address sources of nonpoint pollution which degrade coastal water quality or face the loss of federal grant funds.

Section 6217 of CZARA defines nonpoint source pollution as:

> "...pollution of our nation's waters caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural pollutants and pollutants resulting from human activity, finally depositing them into lakes, rivers, wetlands, coastal waters and ground waters."

Both the biological and economic productivity of coastal and estuarine waters is threatened by increases in nonpoint source pollution. Coastal waters are natural resources which are vital for the well being of Virginia and the nation and controlling nonpoint source pollution is vital for protecting the well being of Virginia's coastal waters.

According to program guidance the central purpose of Section 6217 is:

> "to strengthen the links between Federal and state coastal zone management and water quality programs in order to enhance state and local efforts to manage land use activities that degrade coastal waters."

Federal guidance for coastal nonpoint source pollution control programs has been developed jointly by the National Oceanic and Atmospheric Administration (NOAA) and the

Introduction

CHAPTER 1

INTRODUCTION

Coastal Nonpoint Source Pollution Control Program Submission

Federal Guidance and State Program Planning and Development

In 1990, Congress reauthorized and amended the Coastal Zone Act. Section 6217 of the amendments requires that states with approved Coastal Resource Management Programs develop and implement coastal nonpoint source pollution control programs. The statute seeks to strengthen federal and state efforts to manage sources of nonpoint source pollution that degrade water quality and adversely affect coastal habitats. Coastal nonpoint source pollution control programs are intended to be implemented through changes to existing state nonpoint source and coastal resource management programs. Virginia's nonpoint source and coastal resource management programs are administered by the Department of Conservation and Recreation and the Department of Environmental Quality. Virginia's coastal nonpoint source pollution control program will be implemented within the existing coastal zone boundary.

Section 6217 is jointly administered by the Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA). NOAA and EPA are responsible for assisting states with development of state programs in conformity with technical and program approval guidance. In addition they are responsible for approving programs submitted pursuant to this statute.

This program submission describes how existing state coastal resources management and nonpoint source pollution control programs address the *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* issued under authority of the Section 6217(g) of the Coastal Zone Act Reauthorization Amendments (CZARA). A review of existing state programs has been undertaken to determine what programmatic changes are necessary to implement a coastal nonpoint source pollution control program in Virginia. Based on this review and comments received from NOAA and EPA through threshold review, it is the Commonwealth of Virginia's position that existing state programs address all but three of the 56 management measures specified in the federal guidance. In order to bring Virginia into compliance with Section 6217, programmatic and, or statutory changes have been determined to be necessary for the following areas:

(1) New Onsite Disposal Systems Management Measures: Existing state programs

do not fully meet requirements for a minimum separation distance between disposal system components and ground water.

(2) Fish Waste Management Measure: Existing state statues that make it illegal to throw, or dump waste into waters of the Commonwealth, exclude fish waste.

(3) Boat Operation Management Measure: Existing statutory authorities do not address the potential impact of boating operation in shallow water habitat areas.

These program gaps will need to be addressed before Virginia can be determined to be in full compliance with Section 6217. Consequently, the Commonwealth of Virginia is seeking conditional program approval in order to provide additional time to determine the significants of these sources of nonpoint source pollution and what steps may be needed to close these program gaps.

What is Nonpoint Source Pollution?

The term "nonpoint source pollution" is derived from language in the Federal Water Pollution Control Act of 1972, hereafter referred to as the Clean Water Act (CWA) which defines "point source" pollution. Point source pollution is released from discrete "points" such as pipes, ditches, and channels. "Nonpoint source pollution" generally refers to all water pollution not defined as point source pollution, including pollution emanating from diffuse sources, such as construction sites and agricultural activities.

EPA guidance issued under Section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA) has defined nonpoint source pollution as follows:

"Nonpoint pollution is the pollution of our nation's waters caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural pollutants and pollutants resulting from human activity, finally depositing them into lakes, rivers, wetlands, coastal waters, and ground waters (EPA Guidance, p. 1-5)."

Nonpoint source pollution is generated by a variety of land use and land disturbing activities. Nonpoint source pollution consists of sediments, nutrients, bacteria, and toxics which degrade water quality. Nonpoint source pollution can damage riparian and coastal ecosystems, reduce the biological productivity of state waters, contaminate shellfish beds, and threaten drinking water supplies. Nonpoint source pollution is a significant limiting factor in attaining the fishable and swimmable goals of the Clean Water Act. Significant reductions of nonpoint source pollution can often be achieved through the application of best management practices prescribed by Section 6217 guidance.

Nonpoint Source Pollution Problems in Virginia?

The Clean Water Act set a national goal of "water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water....". The CWA requires states to submit water quality assessments, or 305(b) reports, which characterize the current condition of state waters and describe progress being made to attain the nation's water quality goals.

In the 1992 305(b) report, the Department of Environmental Quality assessed 18,000 miles of Virginia's 54,905 miles of rivers and streams. DEQ summarized the findings of this assessment, as follows:

"In summary, of the almost 18,000 miles for Virginia's rivers and streams that were assessed for this report, 80% were found to fully support their designated uses, about 14% partially support the uses, while 6% do not support these uses. In estuarine waters, 78% of the 3,080 square miles assessed fully support, 20% partially support, and 2% do not support designated uses. All 120 coastal shore miles were evaluated to fully support overall uses. The sizes of these three of waterbodies that fully, partially, or do not support the CWA fishable and swimmable goals were also reported. Numerous causes and sources of use impairment were discussed. Among these, fecal coliform bacteria, pesticides (especially Kepone), and metals were the most extensive causes of impairment of rivers, while nutrient enrichment most affected estaurine waters. Agriculture and pasture land were major sources of pollutants to rivers and streams. A number of impairment sources were noted for estaurine waters, with the greatest amount of impact reported in the Chesapeake Bay and the lower James River Basin." (*1992 Virginia 305(b) Report*, p.3.1-18)

Virginia's coastal resources are of enormous value. The Chesapeake Bay and its tributaries comprise one of the nation's most productive estuaries. The Virginia Marine Resources Commission (VMRC) has estimated the 1990 total dockside commercial sale of fish and shellfish in Virginia to be over 74 million dollars. Clearly, the Chesapeake Bay and Virginia's other coastal resources represent a valuable economic asset, support Virginia's growing tourist industry, and provide irreplaceable recreational opportunities.

However, pollutants from both point and nonpoint sources have already significantly affected the productivity of Virginia waters. A number of monitoring stations across the state have reported fish tissue samples containing levels of toxic substances which exceed EPA trigger values; The Department of Health, Division of Shellfish Sanitation has condemned or seasonally condemned 102,710 acres of productive waters. Shellfish and several finfish species harvests have been dramatically reduced due to water quality

degradation and habitat loss.

Virginia's Nonpoint Source Pollution Control Efforts

Several state agencies are involved in a cooperative effort to reduce nonpoint source pollution in the Commonwealth of Virginia. These agencies include:

1) the Department of Conservation and Recreation (DCR);

2) the Chesapeake Bay Local Assistance Department (CBLAD);

3) the Department of Environmental Quality (DEQ);

4) the Virginia Marine Resource Commission (VMRC);

5) the Department of Forestry (DOF).

In addition, the Commonwealth has undertaken other initiatives to address sources of coastal nonpoint source pollution, perhaps the most significant of which is the Chesapeake Bay Agreement.

Program Coordination Requirements Under Section 6217

The coastal nonpoint source pollution control program is closely coordinated with Virginia's overall nonpoint source program under Section 319 of the Clean Water Act. Management of both program is undertaken by the Department of Conservation and Recreation, Division of Soil and Water Conservation. Staff works closely to integrate both programs as well as those under the Chesapeake Bay restoration program also managed by the Department. Support for development of the Section 6217 program was provided by agency staff represented on the Nonpoint Source Advisory Committee which also provides support to the Section 319 program. The integration of the programs within the same Department has assured close coordination of program development.

The Department of Conservation and Recreation

The Department of Conservation and Recreation's mission is to conserve Virginia's natural and recreational resources. Through a combination of education, technical assistance, and financial incentives, the Department of Conservation and Recreation, Division of Soil and Water Conservation promotes conservation practices which reduce

agricultural runoff. The Department also works with land owners and local officials to reduce nonpoint source pollution from urban areas.

The Department of Conservation and Recreation (DCR) has been designated the lead nonpoint source pollution control management agency for the state. Working in close cooperation with the state's coastal resource management agency (the Department of Environmental Quality), the Department of Conservation and Recreation in coordinating the planning and development of a coastal nonpoint source pollution control program.

In accordance with Section 319 of the Clean Water Act, the Department of Conservation and Recreation, Division of Soil and Water Conservation prepares a statewide nonpoint source pollution control management plan based on data contained in Virginia's 305(b) report. This management plan consists of two documents, the *Nonpoint Source Pollution Watershed Assessment Report* and the *Nonpoint Source Management Program Implementation Report*. These documents describe Virginia's efforts to control and reduce nonpoint source pollution, to protect water quality, and attain national water quality standards and goals established in the Clean Water Act.

Chesapeake Bay Local Assistance Department

The mission of the Chesapeake Bay Local Assistance Department is to protect the Chesapeake Bay and its tributaries from pollution caused by the use and development of land. To achieve this mission, the Department serves the citizens of the Commonwealth by working in partnership with local governments to implement programs to protect and improve water quality, while supporting a healthy economy.

The Chesapeake Bay Local Assistance Department provides technical assistance to Tidewater localities regarding the regulations and requirements of the Chesapeake Bay Preservation Act. Tidewater Virginia includes eighty-nine localities which border on tidal waters. The Chesapeake Bay Preservation Act requires localities within Tidewater to designate and protect Chesapeake Bay Preservation Areas (CBPAs) and to incorporate water quality protection measures into comprehensive plans and local ordinances.

Department of Environmental Quality

The mission of the Department of Environmental Quality's Water Division is to ensure Virginia's Coastal Resource Management Program (VCRMP), which was approved by NOAA in 1986, links regulatory programs which help manage and protect critical

resources. Core regulatory programs include the following:

1) Fisheries Management.
2) Subaqueous Lands Management.
3) Wetlands Management.
4) Dunes Management.
5) Nonpoint Source Pollution Control.
6) Point Source Pollution Control.
7) Shoreline Sanitation.
8) Air Pollution Control.

Virginia Marine Resources Commission

The Virginia Marine Resources Commission is responsible for managing the use of Virginia's submerged land, tidal wetlands, and coastal primary sand dunes. These programs protect critical coastal resources and are core components of Virginia's Coastal Resource Management Program. Through technical assistance and permit approval, VMRC protects coastal water quality and habitat.

Department of Forestry

The Virginia Department of Forestry (DOF) is the lead state agency for the implementation of forestry nonpoint source pollution control programs. DOF nonpoint source programs stress voluntary best management practices (BMPs) to achieve sediment reduction and other nonpoint source pollution control goals. This BMP program is complemented by the Virginia Silvicultural Water Quality Law which gives DOF enforcement authority to require corrective action to protect state waters.

Chesapeake Bay Program

In 1987, Virginia, Maryland, Pennsylvania, the District of Columbia, EPA, and the Chesapeake Bay Commission signed a new Bay agreement containing goals and priority commitments in six areas: living resources, water quality, population growth and development, public information/education/participation, public access, and governance. This agreement consists of three goals: (1) to provide for the restoration and protection of the living resources, their habitats and ecological relationships; (2) to support and enhance the present comprehensive cooperative and coordinated approach toward

management of the Chesapeake Bay system; and, (3) to provide for continuity of management efforts and perpetuation of commitments necessary to ensure long-term results. To achieve these goals, two strategies have been employed: a basin wide nutrient reduction strategy and a basin wide toxic reduction strategy.

In August 1992, the Executive Council of the Chesapeake Bay Program agreed to a tributary approach to Bay restoration efforts. Virginia is in the process of developing nutrient reduction strategies to protect the health of its tributaries to the Chesapeake Bay. Section 6217 of the Coastal Zone Act Reauthorization Amendments provides an opportunity to complement these initiatives and to build upon past accomplishments.

BACKGROUND DISCUSSION

Federal guidance developed under Section 6217(g) of CZARA was issued in January of 1993 by NOAA and EPA. The guidance specifies management measures for nonpoint source pollution affecting coastal waters. These measures are intended to help control nonpoint source pollution from new and existing sources through the use of economically achievable management practices. Management measures are specified for: agriculture, forestry, urban development, marina and recreational boat operation, and shoreline modification activities. Measures have also been developed to protect wetlands and riparian areas. Management measures are defined in Section 6217(g)(5) as:

"...economically achievable measures for the control of the addition of pollutants from existing and new categories and classes of nonpoint sources of pollution, which reflect the greatest degree of pollutant reduction achievable through the application of the best available nonpoint pollution control practices, technologies, processes, siting criteria, operating methods, or other alternatives."

Federal guidance requires these measures to be implemented to control significant sources of nonpoint source pollution that affect coastal waters. States can employ both regulatory and voluntary programs to ensure implementation of the measures, although voluntary programs must include some form of state enforceable authority. Federal guidance also encourages the use of alternatives and market-oriented incentive mechanisms such as pollution trading to help achieve pollution control. The guidance provides states with considerable flexibility in determining how best to comply with the specified management measures.

Federal guidance encourages states to develop and implement coastal nonpoint

source pollution control programs which build upon existing state nonpoint source pollution and coastal resource management programs. Development of a stand alone coastal nonpoint source pollution control program is not expected by NOAA and EPA.

The Commonwealth has until July 1995 to develop and submit a program for approval by NOAA and EPA. NOAA and EPA are required to evaluate the progress of States and territories in developing coastal nonpoint source pollution control programs, and grant conditional or final approval by January 1996. Full implementation of the specified management measures is required by 2004. However, if water quality monitoring indicates that water quality problems remain, additional management measures will need to be developed and implemented by 2009.

As specified in Section 6217(c)(3) and (4), failure to develop an approvable program will result in penalties in the form of reductions in grant funds under Section 306 of the Coastal Zone Management Act and Section 319 of the Clean Water Act. Penalties would start at 10 percent in FY 1996 and increase to 30 percent in FY 1999 and each fiscal year thereafter. Section 319 grant penalties would be based on the grant award for the preceding year.

Program Coordination

Section 6217 requirements for administrative coordination include identification of state, regional, and local agencies that will develop and implement the coastal nonpoint source pollution control program. In addition, a description of mechanisms that will be employed by the agencies to ensure effective coordination (for example, memoranda of understanding, statutory changes, or interagency advisory committees) of the program is required. A detailed description of cooperating agencies must also be submitted to NOAA and EPA.

Several state agencies in Virginia administer programs which protect coastal resources and water quality. The Virginia Coastal Resource Management Program, administered by the Department of Environmental Quality (DEQ), is a network of environmental programs which manage critical coastal resources. The Virginia Nonpoint Source Pollution Control Program, administered by the Department of Conservation and Recreation (DCR), is a core component of the Virginia's Coastal Resource Management Program and is coordinated through the Nonpoint Source Advisory Committee. The committee is comprised of state and federal agencies involved in nonpoint source pollution control management.

In Virginia, planning and development of a coastal nonpoint source pollution control program has been coordinated through the Ad Hoc Advisory Committee and through work groups formed for each source category of nonpoint source pollution identified in the Section 6217 (g) guidance. The work groups included staff from state agencies which administer programs applicable to the specified management measures, planning district commissions, and interested citizen organizations. Meetings have been held with certain planning district commissions, local governments, and soil and water conservation districts.

Public Participation

Extensive public involvement and close administrative coordination are specific requirements for program approval by EPA and NOAA. The guidance specifically requires that a schedule for public participation be prepared, and that funding for public participation be identified. Pubic participation must also provide for public education and target regulated or affected interest groups.

At the direction of Virginia's Secretary of Natural Resources, Department of Conservation and Recreation (DCR) staff formed an Ad Hoc Advisory Committee to help ensure that citizen organizations and planning district commissions have an opportunity to participate in the planning process. DCR staff also held informational meetings with local governments and planning district commissions, of committees of the Virginia Association of Soil and Water Conservation Districts and interested citizen organizations, such as the Virginia Poultry Federation and the Chesapeake Bay Foundation. In addition, public meetings focusing on the agricultural provisions of the guidance were held in Waynesboro, Warrenton, and West Point.

Interested citizen organizations have been participating in work groups and on the Ad Hoc Advisory Committee. This participation has ensured ongoing public involvement in the assessment and development of a coastal nonpoint source pollution control program. To ensure involvement in the program planning and development process, public informational meetings were held in the fall of 1993. Additional public meetings are planned during the program development process and prior to program implementation. Public meetings will also be held prior to any legislative changes that may be required.

Educational information regarding Section 6217 has also been included in newsletters and other publications, such as, the *Coastal Newsletter*, *Water News*, and *Grassroots*. These articles describe program requirements and discuss what actions the Commonwealth is taking to address coastal nonpoint source pollution.

Program Planning Process

As the designated lead nonpoint source pollution control management agency (Code of Virginia Section 10.1 - 104.1), the Department of Conservation and Recreation (DCR) has coordinated the Commonwealth of Virginia's efforts to respond to Section 6217. Working in close cooperation with the Department of Environmental Quality (the state coastal resource management agency), DCR has coordinated a review of the federal guidance and an assessment of how existing state programs address the management measures specified in the federal guidance.

As previously noted, work groups were formed for each source category to facilitate the review of federal guidance and assessment of state programs. Source categories include: agriculture, forestry, urban areas, marina and recreational boating, and hydromodification. Participation of state agency staff and citizen interest groups in these workgroups has helped to ensure that the federal guidance has been accurately reviewed and interpreted and that applicable state programs have been identified and assessed.

Information regarding geographic scope, applicability, and statutory authority of programs has been collected through agency comments received during work group meetings, interviews with agency personnel, and program work sheets. After relevant information regarding agency programs was collected, work groups analyzed how well all applicable state policies and mechanisms addressed each management measure. Work groups have completed review of applicable state programs and this report reflects the findings of these work groups. In addition to information collected through agency participation in work groups, agency heads have been requested to review and comment on work group findings.

Threshold Review

To help states develop coastal nonpoint source pollution control programs, NOAA and EPA created an optional planning process known as threshold review. The process is intended to provide feedback to states as they are developing coastal nonpoint source pollution control programs before substantial effort has been expended.

An assessment of how existing state programs address the management measures specified in the federal guidance is a key step in the threshold review process. Threshold review allows states to determine what programmatic changes are necessary to implement a coastal nonpoint source pollution control program.

Threshold review of Virginia's programs was held December 13 and 14 in Richmond. This review meeting involved representative from cooperating state agencies and staff from NOAA and EPA. Threshold review comments were received from NOAA and EPA on March 27, 1995. A coordinated repsonse to these comments was prepared by state agencies and is included in the appendices to this program submittal.

Program Development and Implementation

Following NOAA and EPA review of this program submittal, a plan will be developed to determine what steps will be needed to bring the Commonwealth into full compliance with Section 6217. This plan will include specific information regarding the programmatic and statutory changes needed to bring the Commonwealth into full compliance and a program development and implementation schedule.

Section 6217 Management Area

Virginia plans to implement a coastal nonpoint source pollution control program within the coastal zone management area. The existing coastal zone management area includes all of Tidewater Virginia as defined in Section 62.1-13.2 of the Code of Virginia. Although this geographic area does not extend inland as far as NOAA's recommended management area, it covers a significant geographic area and provides a sufficient area to meet the objectives of the program. The map on page 1-13 depicts the management area boundary.

Preliminary Findings

Preliminary findings of this report indicate that Virginia has already established numerous programs to help control nonpoint source pollution. Existing programs and initiatives may meet of many the management measures specified in the federal guidance.

Report Structure

This report reflects the findings of work groups, committees, and research by Department of Conservation and Recreation staff. Each of the following chapters of this report includes the management measures specified for each source category, a brief description of applicable state programs, and a compliance discussion which summarizes how all applicable programs address each specified management measure. The analysis considers how well existing state programs address the

specified management measure both within the existing coastal zone boundary and within the recommended 6217 management area.

The findings of work groups formed for each source category are summarized in tables which have been developed for each nonpoint source category included in the federal guidance. Matrices prepared for each source category depict which state programs apply to the specified management measures.

While the analysis focuses on state enforceable programs, certain federal and local programs are also discussed. Because Section 6217 guidance requires state enforceable policies and mechanisms, the discussion of federal and local programs is not comprehensive.

Implementation plan

CHAPTER 2

Implementation Plan

Coastal Nonpoint Source Pollution Control Program

This chapter describes actions the Commonwealth of Virginia plans to take to implement a coastal nonpoint source pollution control program under Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990. Specifically, this plan describes strategies for each source category that would help bring the Commonwealth into compliance with the federal guidance issued under Section 6217.

Agricultural Management Measures

In their threshold review comments, the National Oceanic and Atmospheric Administration (NOAA) and U.S. Enivironmental Protection Agency (EPA) noted Virginia has a well-developed agricultural water quality program within the designated coastal zone. However, comments indicate there may be a need for broader implementation of our programs within the management area. The comments also pose numerous questions regarding implementation of various programs such as the Chesapeake Bay Preservation Act and the Virginia Pollution Abatement Permitting Program.

The questions raised by NOAA and EPA in their threshold review comments have been addressed by Virginia (see Appendices to this document). Therefore, we believe Virginia fully complies with the agricultural management measures specified in the federal guidance. However, an agricultural water quality law would strengthen Virginia's existing programs and help ensure program compliance with the agricultural management measures.

To develop an agricultural water quality law for consideration by the Virginia General Assembly, state agencies plan to work with the agricultural community to develop a law. The Law should target farm owners and operators who refuse to implement management practices to control known sources of nonpoint source pollution.

Forestry Management Measures

NOAA and EPA state that Virginia's Silvicultural Water Quality Law in conjunction with the Forestry Best Management Practices Manual provide a sound basis for addressing the forestry management measures. The majority of their threshold review comments were related to acquiring additional information regarding our experience in implementing the law. This information is provided in Virginia's response to their threshold review comments. Additionally, DOF is in the process of revising a guidebook for loggers under a Section 319 grant. This revised loggers guide will stress the need for pre-harvest planning and should strengthen the Commonwealth's forestry water quality programs.

Urban Management Measures

In their threshold review comments, NOAA and EPA requested additional information regarding existing state programs which address urban sources of nonpoint source pollution. In particular, they requested additional information regarding how existing programs could be used to address program compliance gaps identified in our threshold review report.

Subsequent to submission of the threshold review report, Virginia completed a two year legislative subcommittee study to evaluate, among other things, existing criteria for water quality measures in stormwater management facilities, and state programs applicable to the specified management measures. As a result, we believe that we are much closer to full program compliance with the urban management measures than we originally believed when the threshold review report was completed. In preparing our response to the threshold review comments, we have attempted to provide a better description of how existing programs address the specified management measures. We believe this additional information should satisfy most concerns and questions raised by NOAA and EPA. One notable exception involves an acknowledged program gap in meeting the New Onsite Disposal management measure. The issue involves the separation distance between disposal system components and groundwater. If adopted, the proposed revisions to the Sewage Handling and Disposal regulations will correct this acknowledged problem and should bring the Commonwealth into compliance with this measure.

Marina and Boat Operation Management Measures

NOAA's and EPA's threshold review comments indicate that Virginia's existing programs address most of the management measure specified in the federal guidance. In particular, they note that our permitting programs address the marina siting and design

management measures quite well. However, they requested additional detail regarding program implementation and applicability for certain management measures.

The additional information provided in our response to the threshold review comments address most of the questions raised by NOAA and EPA, and the staff believes that Virginia is largely in compliance with the specified management measures. However, for the Fish Waste and Boat Operation management measures we only partially address the program requirements.

With respect to the Fish Waste management measure, we have a specific exemption in the Code of Virginia for disposal of fish and crab bait. We could substantially address this issue through pollution prevention and public education. However, to provide a state enforceable policy, we would need to change the exemption for disposal of fish and crab bait. These exemptions were no doubt created to avoid an onerous burden on recreational and commercial fishing and because disposal of this biodegradable waste was not deemed to be a significant water quality problem. Consequently, a proposal to eliminate this exemption could meet with public opposition. Nevertheless, where fish waste disposal is resulting in water quality degradation, such as at marinas, elimination of this exemption may be justified.

Virginia partially addresses the Boat Operation management measure through the marina siting criteria. The issue involves boat operation in sensitive shallow water habitat areas. Virginia law allows for designation of a "no wake" zone for safety considerations but not for the protection of shallow water habitat. To fully comply with this management measure, Virginia would need to develop an approach to protect these areas. An investigation to determine where boat operations are having an adverse impact on these types of areas will be completed. If a significant problem was to be identified, new statutory authority would likely be required to provide a mechanism for protecting these areas.

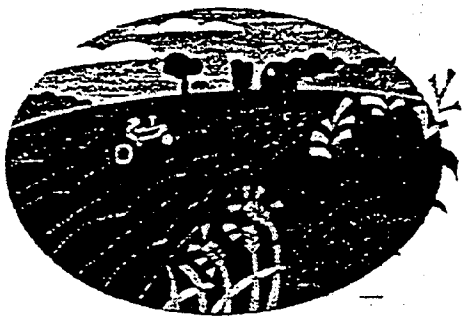
Hydromodification and Wetland Management Measures

In their threshold review comments regarding the Hydromodification and Wetland management measures, NOAA and EPA requested additional information to determine if Virginia's programs fully meet the specified management measures.

While the staff has attempted to provide additional information about the applicablity of state programs to the specified management measures, there remains some confusion regarding the intent of the management measures. As a consequence, NOAA and EPA

could conclude that Virginia's existing programs do not fully address all of the specified management measures. In particular, NOAA and EPA may find that Virginia programs do not fully address the Channelization and Channel Modification management measures.

In order to strengthen our program submittal and help ensure compliance with these measures, an investigation will be undertaken to evaluate the nature and extent of nonpoint source pollution problems associated with existing hydromodification projects. The investigation will also evaluate alternatives to address any identified problems.



Management measures for agriculture

Agricultural Management Measures

State Programs

	Erosion & Sediment Control	Facility Wastewater & Runoff from Confined Animal Facility (Large)	Facility Wastewater & Runoff from Confined Animal Facility (Small)	Nutrient Management	Pesticide Management	Grazing Management	Irrigation water Management
Chesapeake Bay Preservation Act	X			X	X	X	
Agricultural BMP Cost Share Program	X	X	X	X		X	
Virginia Income Tax Credits	X			X	X		X
Virginia Land Use Taxation	X					X	
Virginia Pollution Abatement Permit Program		X	X	X			
Nutrient Management Program				X			
Va. Sewage Handling and Disposal Regulations				X			
Surface & Groundwater Withdrawal Permits							X
Integrated Pest Management Program					X		
Virginia Pesticide Control Act					X		X
Plants & Plant Products Inspection Law					X		
Virginia Pest Law					X		
Virginia Cooperative Extension					X		
Virginia Water Withdrawal Reporting							X

September 1995

programs. The matrix on the following page identifies which state programs apply to each of the management measures. This chapter details the specific requirements of each management measure and describes applicable state programs. These descriptions focus on various aspects of programs that apply to the specified management measures. A table at the end of this section summarizes how well state programs address the agricultural management measures within the 6217 management area.

Virginia's agricultural nonpoint source pollution control programs have made strides in addressing nonpoint source pollution. Virginia's efforts in the Chesapeake Bay region are a model for programs in other states and countries. Virginia fully meets the management measures for erosion and sediment control, nutrient management, pesticide management, and grazing management within the coastal zone boundary. Virginia also fully meets the management measure for facility wastewater and runoff from confined animal facility management (large and small units) and for irrigation water management within the 6217 management area.

For each management measure the Agricultural Work Group has evaluated how well state programs comply with the federal guidance based on: (1) specific management measure requirements or performance standards, and (2) enforceable policies or mechanisms.

PROGRAM ASSESSMENT BY MANAGEMENT MEASURE

Each of the specified management measures for agriculture is identified and discussed in the section which follows. The management measures are presented as they appear in the program guidance issued by EPA and NOAA. For each management measure the applicable program descriptions are listed alphabetically and grouped together by the agency which administers them. In the compliance section which follows these descriptions, more consideration has been given to the relative importance of each of the individual programs.

This chapter identifies the requirements of each management measure, provides a brief program description of applicable state programs, and includes a discussion of how well these programs comply with the requirements of each management measure. Program descriptions are not comprehensive; rather, they focus on aspects of state programs applicable to the specified management measures. The management measure compliance discussion describes coordination between state programs and summarizes how well state programs meet management measure requirements.

Highly Erodible Land (HEL), who are also receiving USDA program benefits, must implement a conservation system which reduces erosion to the level of an Alternative Conservation System (ACS). These requirements are specified in the FOTG. HEL determinations are initiated by a request from the landowner or operator at the time they request USDA program benefits. Implementation of conservation systems is enforced through program reviews and spot checking termed status reviews. Less than 5% of all plans spot checked have been found not actively applying required conservation systems. Virginia has not sought to duplicate federal enforcement efforts for non point source pollution control in areas of the state where HEL acreage is significant.

Animal waste control facilities and grazing systems may also be implemented in conservation systems. Public Law 534 and ACP provide financial (cost-share) assistance to landowners to implement waste storage and proper utilization practices designed to improve waste and pasture management and water quality on a voluntary basis. Funds provided are tied to technical assistance and implementation assistance from USDA, SCS. SCS and ASCS, in Virginia, are currently working with Virginia Cooperative Extension to develop a "Grazing Lands Conservation Initiative" which will accelerate implementation of grazing management practices to improve the resource base and water quality. This effort will target areas with large concentrations of livestock and will be implemented through new ACP practices designed to achieve total resource management.

Work Group Assessment Process

Since June, 1993, the Agricultural Work Group has been comparing existing agricultural nonpoint source pollution control programs of the Commonwealth of Virginia with the Management Measures and program requirements included in Coastal Zone Act Reauthorization Amendments (CZARA) guidance documents issued by Environmental Protection Agency (EPA) and National Oceanic and Atmospheric Administration (NOAA). The Agricultural Work Group includes representatives from the Department of Conservation and Recreation, Chesapeake Bay Local Assistance Department, Department of Environmental Quality, Department of Health, Virginia Department of Agriculture and Consumer Services, and Virginia Cooperative Extension. The USDA Soil Conservation Service, Virginia Farm Bureau Federation and Chesapeake Bay Foundation also participated in this work group.

This assessment of state agricultural nonpoint source pollution control programs, was produced using information collected through work group meetings, interviews with state agency staff, review of existing regulations, and work sheets completed for applicable

Cooperative Extension.

Surface and Ground Water Withdrawal Permits

The Surface and Ground Water Withdrawal Permits program limits water withdrawal from surface and ground water sources in designated management areas. Two groundwater management areas have been established in Virginia: the Eastern Shore and Tidewater. Designation of a surface water management area is pending. This program will limit the amount of water available for irrigation. Permit holders will be required to monitor and report withdrawal quantities. Failure to report will be a permit violation.

Virginia also relies on local and federal programs to implement agricultural nonpoint source pollution abatement:

Zoning ordinances in several major poultry producing counties require nutrient management plans for poultry operations. Counties which currently have such ordinances include: Rockingham, Shenandoah, Cumberland, Rockbridge, and Highland. Three of the localities require nutrient management plan approval by the local soil and water conservation district prior to the issuance of a building permit for poultry facilities. Local government programs, adopted independent of state oversight, address local needs, but are not generally enforceable at the state level. Enforcement is the responsibility of individual counties.

Any discussion of agricultural nonpoint source pollution control in Virginia would be incomplete without including the contributions of the USDA Soil Conservation Service (SCS) and Agricultural Stabilization & Conservation Service (ASCS). USDA programs provide direct support to Virginia's water quality control efforts through technical and financial assistance to soil and water conservation districts; voluntary watershed projects such as Public Law 566 and Public Law 534; the Agricultural Conservation Program (ACP), cost-share; Water Quality Improvement Projects; and Farm Bill activities. SCS provides technical assistance for erosion control, nutrient management, pest management, grazing management, and irrigation water management. All agricultural water quality programs in Virginia, which require soil conservation planning as a program component or permit requirement, are assisted in some way by USDA personnel, guidelines such as the Soil Conservation Service's FOTG, or other technical publications.

The 1985 and 1990 Farm Bills, Food Security Act (FSA) and Food, Agriculture Conservation and Trade Act (FACTA) respectively, require that all farmers with

Plants and Plant Products Inspection Law

Under the Plants and Plant Products Inspection Law, each nursery in Virginia is subject to an inspection for plant pests at least annually during which all evident pests in the nursery's stock as well as the level of infestation is noted. Treatment is either recommended or required based on the degree of infestation. Treatment is ordered only for economic benefit or for control of dangerous plant pests. Integrated pest management is utilized to the extent practicable and as required by product labelling. Violation of the Plants and Plant Products Inspection Law can result in seizure of plant stock by the Commissioner and is a Class 1 misdemeanor.

Virginia Pollution Abatement Permit Program

The Virginia Pollution Abatement (VPA) Permit Program regulates animal feeding operations (AFOs). AFO may not discharge wastewater or runoff into state waters in amounts up to a 25 year 24 hour storm event. This restriction on AFOs implies that, for each facility, an approved treatment works confines both runoff and wastewater. VPA Permits issued to any facility with greater than 1000 AU require a nutrient management plan approved by the Department of Conservation and Recreation. A plan may also be required, at the discretion of the Department of Environmental Quality, for any operation less than or equal to 1000 AU having liquid waste. When a nutrient management plan is required, it is enforceable through implementation reporting and required monitoring of animal waste and sludge characteristics. A site specific nutriant management plan is required for general permits. Groundwater monitoring at the land application site can be required also.

Virginia Sewerage Regulations

The Virginia Sewerage Regulations require sludge owners to have a sludge management plan which covers treatment and quality control of residuals. Sludge owners who are not generators must have an operational plan. A sludge management plan can include a site-specific operational plan which addresses all management measure components. Land application sites are permitted under the VPA Permit program based on site-specific technical evaluations in accordance with the Sewerage Regulations and technical guidance for best professional judgement. Application rates are developed based on estimated crop yields, as established through the Land Grant Universities and Virginia

Virginia Pest Law

The Virginia Pest Law is intended to keep certain plant pests, such as gypsy moth, fire ant and brown snail from entering or becoming a problem in the Commonwealth due to their highly noxious nature. For pests not yet established in Virginia this program contains emergency response activities.

Virginia Pesticide Control Act

The VA Pesticide Control Act and the regulations promulgated under its authority have the effect of implementing in Virginia the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) as well as providing to the Virginia Pesticide Control Board (Board) additional powers relating to regulating pesticide use. Under the authority of the Act and FIFRA, the Board has promulgated regulations establishing certain mandatory programs, including Pesticide Applicator Certification and Pesticide Business Licensing, as well as establishing voluntary programs, such as the Pesticide Disposal Program and the Pesticide Container Recycling Program. Under the authority of FIFRA and in agreement with EPA, the Board's staff will enforce the Worker Protection Standard and will develop pesticide management plans for groundwater. Collectively, these programs regulate who and how pesticides will be used in the state by enforcing the federal label requirements and Worker Protection Standard and requiring training and licensing of individuals and businesses that apply pesticides. In addition, the Certification and Licensing Programs assure that pesticide users will have appropriate training, provided in cooperation with Virginia Cooperative Extension on the principals and practice of IPM. In addition to implementing FIFRA, the Board has the power to ban or restrict the use of a pesticide based on its potential to harm the environment. Pesticide labels provide the legal framework for the use of the product. Under federal and Virginia law no product may be used in a manner inconsistent with its label's requirements. Labels contain information on application rates, timing of application, appropriate IPM practices, other environmental concerns and can sometimes address calibration requirements. Certain Virginia regulations require that application equipment be in good working order and properly calibrated. Furthermore, these regulations require the use of back-flow preventers to protect water supply systems, lakes, other sources of water or other materials. Violation of these regulations triggers enforcement under the authority of the Act. Violations of the Virginia Pesticide Control Act can result in revocation or suspension of licenses and or assessment of penalties.

nutrient management techniques; and, assist farmers in soil nitrate testing, manure testing, and nutrient applicator calibration.

Virginia Agricultural BMP Cost-Share Program

The Virginia Agricultural BMP Cost-Share Program provides financial incentives statewide to agricultural landowners and operators for the voluntary implementation of approved best management practices on crop and pasture lands and animal feeding operations which improve water quality. A soil conservation plan, providing a level of treatment equivalent to an Alternative Conservation System (ACS), and a Conservation Management System as defined by the Virginia FOTG, must be in place prior to approval of cost-share funds. Animal waste and certain cover crop practices require a nutrient management plan, consistent with DCR's Nutrient Management Program, as a practice component. Participant compliance with program practice maintenance agreements is enforced through annual field audits. The current compliance rate is 97% for audited practices.

Virginia Income Tax Credits

Virginia income tax credits allow purchasers of no-till planters and no-till drills to receive an income tax credit of up to $2500.00 annually, or 25% of equipment and installation costs. Purchasers of approved advanced technology pesticide and fertilizer application equipment can receive an income tax credit of up to $3750.00, or 25% of equipment costs; the purchaser must have an approved nutrient management plan in place to be eligible for this tax credit.

Virginia Land-Use Assessment Law

The Virginia Land-Use Assessment Law allows local ordinances which provide landowners a special assessment tax rate for the preservation of agricultural, horticultural, forest or open space lands. In Virginia, 45 counties within the recommended management area have ordinances for agricultural preservation areas or districts. To qualify for agricultural or horticultural use, landowners must certify that the land in question is being used in a planned program of soil management and soil conservation practices.

improperly used or developed could lead to the degradation of an RPA. RPA's include a minimum 100 foot-wide vegetated area (buffer) along all perennial streams, and wetlands and water bodies hydrologically connected to perennial streams. Regulations require all agricultural land in locally-designated, water quality-targeted preservation areas in Tidewater Virginia to have a soil and water quality conservation plan prepared in accordance with the erosion component of a Conservation Management System as defined by the United States Department of Agriculture (USDA) Soil Conservation Service (SCS) *Field Office Technical Guide* (FOTG). Preservation area buffers can be grazed if management practices are followed which ensure that the buffer vegetation retards runoff, prevents erosion and filters nonpoint source pollution from runoff. Buffers must be maintained to prevent any concentrated flow of surface water from breaching the buffer. Soil and water quality conservation plans include a nutrient management plan component consistent with Department of Conservation and Recreation's (DCR) Nutrient Management Program and a pest management plan component consistent with Virginia Cooperative Extension's (VCE) Virginia Integrated Pest Management Program. Implementation of the soil and water quality conservation plan is required when a landowner or farm operator wishes to secure a reduction in the required 100 foot preservation area buffer.

Integrated Pest Management

The Integrated Pest Management Program utilizes over 100 county extension agents, area IPM agents (located in the Chesapeake Bay watershed), and extension specialists, to provide applied research, develop and or review voluntary and regulatory IPM plans, conduct educational programs for farmers, demonstrate appropriate management techniques, train field scouts, and assist farmers in implementing pest management and pesticide applicator calibration. VCE publishes an encyclopedic *Pest Management Guide*, annually, in cooperation with the States of Delaware and Maryland, which provides state of the art information on IPM and the use, handling and relative efficacy of commonly used pesticides in Virginia.

Nutrient Management Program

The Nutrient Management Program utilizes statewide nutrient management field specialists and program management personnel to develop and/or review voluntary and regulatory nutrient management plans; conduct educational programs for farmers fertilizer dealers, and consultants; demonstrate appropriate

threaten ground water supplies.

Virginia's agricultural nonpoint source management plan goals include:

- reducing nutrient loadings to the Chesapeake Bay and other river basins;
- reducing erosion on crop and pasture lands by the implementation of conservation plans;
- implementing effective nutrient and pesticide management programs in order to optimize agricultural benefits and reduce the potential for water quality impacts;
- providing effective educational, technical and financial assistance programs which optimize voluntary implementation of best management practices (BMPs);
- researching the BMP effectiveness on reducing agricultural nonpoint source water quality impacts on surface and ground waters and promoting effective and economically feasible BMPs; and,
- continuing development of effective modeling and other tools to quantify and track agricultural nonpoint source loadings and prioritize areas of the state for agricultural nonpoint source control.

In order to attain these goals, Virginia provides education and technical assistance through the Nutrient Management and Integrated Pest Management programs; local implementation of the agricultural requirements of the Chesapeake Bay Preservation Act Regulations; and, financial assistance through the Virginia Agricultural BMP Cost-Share Program.

The following state programs specifically address agricultural nonpoint source pollution abatement in Virginia:

Chesapeake Bay Preservation Area Designation and Management Regulations

Chesapeake Bay Preservation Area Designation and Management Regulations require that local governments designate Chesapeake Bay Preservation Areas. These areas include Resource Management Areas (RMA's) and Resource Protection Areas (RPA's). RMA's are locally-designated land features which if

CHAPTER 3

Management Measures for Agriculture

Agriculture is a large and diverse industry in Virginia. It accounts for approximately 9 million acres (30 percent) of Virginia's land use. Agricultural land uses within the existing coastal zone are predominated by row crop production of grains, forage, peanuts, cotton, and vegetables; pasture and hay production necessary for beef and dairy production; as well as, facilities for poultry, swine, beef, dairy, and equine operations; and ornamental nursery operations. With the exception of peanut and cotton production, these agricultural land uses also occur within the portion of the recommended section 6217 management area which lies outside the coastal zone. Livestock and poultry production supported by row crop forage, pasture and hay production are the predominant forms of agriculture in this area. Orchards and tobacco production are also common in this area. Vegetable production, on the other hand, occurs more frequently within the existing coastal zone than in other parts of the state.

According to the *1992 305(b) Virginia Water Quality Assessment,* crop and pasture land and other agricultural activities were the largest sources of pollutants causing non-attainment of designated water uses in Virginia's rivers. Agriculture is the largest source of nonpoint source pollution due to the amount of acreage devoted to this land use. The *Virginia Nonpoint Source Pollution Watershed Assessment Report* indicates that the pollution potential is greatest where agricultural activities occur on highly erodible soils, in areas of intensive crop and pasture production, and in areas of intensive livestock and poultry production. Nonpoint source pollution typically associated with agriculture include nutrients, sediment, animal wastes, salts, and pesticides. These pollutants can escape crop fields and livestock production areas and enter surface and ground water systems. These pollutants can have a negative impact on aquatic plant life, reduce dissolved oxygen, clog water treatment system filters, and weaken or destroy aquatic vertebrates and invertebrates and their habitat. Human use of the water becomes affected as a result of excessive aquatic plant growth, increased turbidity, damaged fisheries and wildlife habitat. Nonpoint source pollution associated with agricultural activities can also

A. *EROSION AND SEDIMENT CONTROL MANAGEMENT MEASURE*

Apply the erosion component of a Conservation Management System (CMS) as defined in the Field Office Technical Guide of the U.S. Department of Agriculture - Soil Conservation Service (FOTG) to minimize the delivery of sediment from agricultural lands to surface waters, or

Design and install a combination of management and physical practices to settle the settleable solids and associated pollutants in runoff delivered from the contributing area for storms of up to and including a 10-year, 24-hour frequency.

Applicability: EPA guidance (EPA-840-B-92-002) states: "This management measure is intended to be applied by States to activities that cause erosion on agricultural land and on land converted from other uses to agricultural lands. Agricultural lands include: cropland; irrigated cropland; range and pasture; orchards; permanent hayland; specialty crop production; and nursery crop production."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act
(Sec. 10.1-2100, *et seq.* of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Act (CBPA) program implements the management measure by requiring all agricultural land in locally-designated, water quality-targeted preservation areas to have a soil and water quality conservation plan, prepared in accordance with the erosion component of a Conservation Management System as defined by the Field Office Technical Guide (FOTG).

At the present time, implementation of soil and water quality conservation plans is required when a landowner or farm operator wishes to secure a reduction in the required vegetated buffer.

The program is administered through county and municipal zoning or other land use ordinances in the coastal plain region of Virginia (Tidewater) with oversight from the Virginia Chesapeake Bay Local Assistance Department. The program covers the Chesapeake Bay drainage area portion of the coastal zone boundary.

Within Tidewater, localities were required to designate as preservation areas lands which are considered environmentally significant with respect to water quality. To that end, preservation areas are jurisdiction-wide in some localities and only cover portions of others. The Chesapeake Bay Local Assistance Department estimates that approximately 80 % of all lands within Tidewater Virginia are water quality-targeted preservation areas.

Department of Conservation and Recreation

Agricultural BMP Cost-Share Program
(Sec. 10.1-500, *et seq.* of the *Code of Virginia*)

This well-accepted incentive program assists in the implementation of the management measure by requiring that a soil conservation plan, providing a level of treatment equivalent to an Alternative Conservation System, a CMS as defined by the Virginia FOTG, be in place prior to approval of cost-share funds.

The program is locally administered through soil and water conservation districts with Department of Conservation and Recreation oversight and tracking.

As a result of this program,1,586 crop and pasture land BMPs were installed in the Chesapeake Bay Basin during the 1992 program year. The average cost-share payment per BMP was $613.49 (68% of the average total cost). Participant compliance with program practice maintenance agreements is enforced through annual statewide field audits. The current compliance rate is 97% for randomly audited practices.

Virginia Department of Taxation

Virginia Income Tax Credit (Sec. 58.1-432, *et seq.* of the *Code of Virginia*)

Although this program does not specifically implement the management measure, it does assist in the implementation by encouraging producers to own the appropriate equipment. Purchasers of no-till planters and no-till drills can receive an income tax credit of up to $2500.00 annually, or 25% of equipment and installation costs.

This popular incentive program was designed to complement voluntary program efforts.

Virginia Land Use Assessment Law
(Sec. 58.1-3229, *et seq.* of the *Code of Virginia*)

Land Use Assessment ordinances implement the management measure by providing landowners a special assessment tax rate for the preservation of agricultural or horticultural lands. Land Use Assessments are available when the land in question is being used in either "a planned program of soil management and soil conservation practices," such as a conservation plan developed by USDA, SCS personnel in accordance with the FOTG, or when the land is "...devoted to and meeting the requirements and qualifications for payments or other compensation pursuant to a soil conservation program...," such as the Agricultural Stabilization and Conservation Service commodity programs.

Definition of a "planned program of soil management and soil conservation practices" is the responsibility of the local ordinances. Depending on the ordinance, "a planned program" may or may not apply the erosion component of a CMS. Plans required under the 1985 and 1990 Farm Bills for USDA benefits, including the commodity programs, meet the management measure through the application of a CMS as defined by the Virginia FOTG. These plans are required by the Land Use Assessment Law when land is qualified under the second item in the above paragraph.

MANAGEMENT MEASURE COMPLIANCE:

Virginia programs collectively meet the requirements of the management measure within Virginia's coastal management zone.

The planning requirement in the CBPA has the effect of applying a CMS on 80 percent of the agricultural land in Tidewater. These are the land types that could have the most significant impacts on water quality.

B1 and B2. MANAGEMENT MEASURE FOR FACILITY WASTEWATER AND RUNOFF FROM CONFINED ANIMAL FACILITY MANAGEMENT

(LARGE UNITS)

Limit the discharge from the confined animal facility to surface waters by:

(1) Storing both the facility wastewater and the runoff from confined animal facilities that is caused by storms up to and including a 25-year, 24-hour frequency storm. Storage structures should:

(a) Have an earthen lining or plastic membrane lining, or
(b) Be constructed with concrete, or
(c) Be a storage tank;

and

(2) Managing stored runoff and accumulated solids from the facility through an appropriate waste utilization system.

Applicability: EPA guidance (EPA-840-B-92-002) states: "This management measure is intended for application by States to all new facilities regardless of size and to all new or existing confined animal waste facilities that contain the following number of head or more:"

	Head	Animal Units
Beef Feedlots	300	300
Stables (horses)	200	400
Dairies	70	98
Layers or Broilers	15,000	150 (liquid manure sys.)
		495 (continuous overflow watering)
Turkeys	13,750	2,475
Swine	200	80

"...except those facilities that are required by Federal regulation 40 CFR 122.23 to apply for and receive discharge permits." "A confined animal facility is a lot or facility (other than aquatic animal production facility) where the following conditions are met: Animals (other than aquatic animals) have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period, and crops, vegetation forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility."

(SMALL UNITS)

Design and implement systems that collect solids, reduce contaminant concentrations, and reduce runoff to minimize the discharge of contaminants in both facility wastewater and in runoff that is caused by storms up to and including a 25-year, 24-hour frequency storm. Implement these systems to substantially reduce significant increases in pollutant loadings to ground water.

Manage stored runoff and accumulated solids from the facility through an

appropriate waste utilization system.

Applicability: EPA guidance (EPA-840-B-92-002) states: "This management measure is intended for application by States to all existing confined animal waste facilities that contain the following number of head or more:"

	Head	Animal Units
Beef Feedlots	50-299	50-299
Stables (horses)	100-199	200-399
Dairies	20-69	28-97
Layers or Broilers	5,000-14,999	50-149 (liquid manure systems) 165-494 (continuous overflow watering)
Turkeys	5,000-13,749	900-2,474
Swine	100-199	40-79

"...except those facilities that are required by Federal regulation 40 CFR 122.23 to apply for and receive discharge permits." "A confined animal facility is a lot or facility (other than aquatic animal production facility) where the following conditions are met: Animals (other than aquatic animals) have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period, and crops, vegetation forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility."

Applicable State Programs

Department of Conservation and Recreation

Agricultural BMP Cost-Share Program
(Sec. 10.1-500, *et seq.* of the *Code of Virginia*)

This well-accepted incentive program assists in the implementation of the management measure by encouraging the use of agricultural best management practices. For practices such as animal waste control facilities and composting facilities, the program is intended to assist facilities in existence prior to 1987 and 1994, respectively. To this end an operation and management plan is required as a practice component for each animal waste facility. These plans are enforceable through the program's audit and compliance process.

As a result of this program, 72 animal waste BMPs were installed in the Chesapeake Bay Basin during the 1992 program year. The average cost-share payment per BMP was $7,807.97 (38% of the average total cost). Approximately 60% of the program budget is being utilized to install animal waste facilities.

Department of Environmental Quality

Virginia Pollution Abatement Permit Program (VPA Permits)
State Water Control Law (Sec. 62.1-44.2, *et seq.* of the *Code of Virginia*)
Virginia Pollutant Discharge Elimination System (VPDES) and Virginia Pollution Abatement (VPA) Permit Program Regulations (VR 680-14-01)

The VPA Permit Program regulates animal feeding operations (AFOs). No AFO may discharge, wastewater or runoff, in an amount up to a 25 year 24 hour storm event, to state waters as a point source. This restriction on AFOs implies that, for each facility, an approved treatment works confines both runoff and wastewater. Since point source discharge from AFOs is not allowed, these facilities are not permitted under the Virginia Pollution Discharge Elimination System (VPDES).

Poultry operations are not typically permitted under VPA Permits. These operations tend to be enclosed facilities with dry waste products. Operations with either liquid wastewater systems instead of dry litter or litter contaminated stormwater runoff are permitted under the VPA Program.

When an AFO has greater than 1000 animal units (AUs), it is classified as a concentrated animal feeding operation (CAFO) and the permit addresses waste characteristics, soils, ground water, land application rates and agronomic practices as well as including both a nutrient management plan and monitoring requirements. Failure to monitor and report is a permit violation.

AFOs greater than 300 AU and less than or equal to 1000 AU are classified as intensified animal feeding operations (IAFO). IAFOs must meet similar requirements as CAFOs although with fewer restrictions and less monitoring. A nutrient management plan may also be required at the discretion of the Department. Failure to maintain specified records on agronomic practices and application rates is a permit violation.

The third category of AFOs are any operations that do not meet the previous size criteria but which do or could pollute state waters. These operations are issued permits to address the identified need and can be as restrictive as those for CAFOs.

MANAGEMENT MEASURE COMPLIANCE:

The VPA Permit program adequately addresses the intent of the management measure components. Management measure guidance (EPA-840-B-92-002) pages 2-33 and 2-43 state that facilities permitted under Federal regulation 40 CFR 122.23 are exempt from the management measure. In Virginia, the NPDES permitting requirements for CAFOs are met through the VPA Permit program. CAFOs in Virginia are prohibited from discharging up to a 25 year, 24 hour storm to state waters and therefore are not required to have a federal discharge permit. Without the VPA Permit program, facilities currently permitted under the state program could be required to secure a NPDES permit.

VPA Permits differ from the proposed management measure in the numeric criteria for "large units" and by the size of the design storm, up to, not including, a 25 year, 24 hour storm. The VPA Permit regulation, as it exists, is able to require permitting of the third category of AFOs to the extent of the management measure.

C. *NUTRIENT MANAGEMENT MEASURE*

Develop, implement, and periodically update a nutrient management plan to: (1) apply nutrients at rates necessary to achieve realistic crop yields, (2) improve the timing of nutrient application, and (3) use agronomic crop production technology to increase nutrient use efficiency. When the source of the nutrients is other than commercial fertilizer, determine the nutrient value and the rate of availability of the nutrients. Determine and credit the nitrogen contribution of any legume crop. Soil and plant tissue testing should be used routinely. Nutrient management plans contain the following core components:

(1) Farm and field maps showing acreage, crops, soils, and waterbodies.

(2) Realistic yield expectations for the crop(s) to be grown, based primarily on the producer's actual yield history, State Land Grant University yield expectations for the soil series, or SCS Soils-5 information for the soil series.

(3) A summary of the nutrient resources available to the producer, which at a minimum include:

- *Soil test results for Ph, phosphorus, nitrogen, and potassium;*
- *Nutrient analysis of manure, sludge, mortality compost (birds, pigs, etc.), or effluent (if applicable);*

- *Nitrogen contribution to the soil from legumes grown in the rotation (if applicable); and*
- *Other significant nutrient sources (e.g., irrigation water).*

(4) *An evaluation of field limitations based on environmental hazards or concerns, such as:*

- *Sinkholes, shallow soils over fractured bedrock, and soils with high leaching potential,*
- *Lands near surface water,*
- *Highly erodible soils, and*
- *Shallow aquifers.*

(5) *Use of the limiting nutrient concept to establish the mix of nutrient sources and requirements for the crop based on a realistic yield expectation.*

(6) *Identification of timing and application methods for nutrients to: provide nutrients at rates necessary to achieve realistic crop yields; reduce losses to the environment; and avoid applications as much as possible to frozen soil and during periods of leaching or runoff.*

(7) *Provisions for the proper calibration and operation of nutrient application equipment.*

Applicability: EPA guidance (EPA-840-B-92-002) states: "This management measure is intended to be applied by States to activities associated with the application of nutrients to agricultural lands."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act
(Sec. 10.1-2100, *et seq.* of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Act (CBPA) program implements the management measure by requiring all agricultural land in locally-designated water quality-targeted preservation areas to have a soil and water quality conservation plan. Chesapeake Bay Local Assistance Board policy requires a nutrient

management plan, prepared in accordance with the Department of Conservation and Recreation Nutrient Management Handbook (current edition), as a component of the conservation plan. Plans prepared in accordance with the *Nutrient Management Handbook* meet all of the management measure components.

At the present time, implementation of the nutrient management plan is required when a landowner or farm operator wishes to secure a reduction in the required 100 foot preservation area buffer.

The program is administered through county and municipal zoning or other land use ordinances in the coastal plain region of Virginia (Tidewater) with oversight from the Virginia Chesapeake Bay Local Assistance Department. The program covers the Chesapeake Bay drainage area portion of the coastal zone boundary. Within Tidewater, localities were required to designate as preservation areas lands which are considered environmentally significant with respect to water quality. To that end, preservation areas are jurisdiction-wide in some localities and only cover portions of others. The Chesapeake Bay Local Assistance Department estimates that approximately 80 % of all lands within Tidewater Virginia are water quality-targeted preservation areas.

Department of Conservation and Recreation

Agricultural BMP Cost-Share Program
(Sec. 10.1-500, *et seq.* of the *Code of Virginia*)

This well-accepted incentive program assists in the implementation of this management measure by requiring nutrient management plans as practice components for four practices: animal waste control facilities, loafing lot management systems, composting facilities and legume cover crop. When required as part of a cost-share practice installation, nutrient management plans are enforceable through the audit and compliance process of the cost-share program.

As a result of this program, 865 BMPs installed statewide required nutrient management plan implementation during the 1992 program year. Approximately 60% of the program budget is being utilized to install animal waste control facilities and loafing lot management systems.

Nutrient Management Program (Sec. 10.1-104.1, *et seq.* of the *Code of Virginia*)

Virginia's comprehensive approach to nutrient management was used as a model in developing the components of this management measure, therefore, the program provides nutrient management plans which address the component of this measure.

The program utilizes nutrient management field specialists to develop and or review voluntary and regulatory nutrient management plans, conduct educational programs for farmers, demonstrate appropriate nutrient management techniques, and assist farmers in soil nitrate testing, manure testing, and nutrient applicator calibration. Plans are prepared in accordance with the *Nutrient Management Handbook*. The program is voluntary unless nutrient management plans are required through other programs described within this section.

Since program inception in 1989, 1,620 nutrient management plans have been developed on 275,900 acres in Virginia. Nitrogen and phosphate usage reductions, estimated on a plan by plan basis, are 5 million pounds and 4.8 million pounds respectively.

Department of Environmental Quality

Virginia Pollution Abatement Permit Program (VPA Permits)
State Water Control Law (Sec.62.1-44.2, *et seq.* of the *Code of Virginia*)
Virginia Pollutant Discharge Elimination System (VPDES) and Virginia Pollution Abatement (VPA) Permit Program Regulations (VR 680-14-01)

VPA Permits issued to any facility with greater than 1000 AU require a nutrient management plan approved by the Department of Conservation and Recreation. A plan may also be required, at the discretion of the Department of Environmental Quality, for any operation less than or equal to 1000 AU having liquid waste. When a nutrient management plan is required, it is enforceable through annual implementation reporting and required monitoring of animal waste and sludge characteristics. Groundwater monitoring at the waste storage or land application sites can be required also. Nutrient management plans developed under this regulation exceed the core components of the management measure.

Virginia Department of Health

Virginia Sewerage Regulations
State Water Control Law (Sec. 62.1-44.2, *et seq.* of the *Code of Virginia*)
Virginia Pollutant Discharge Elimination System (VPDES) and Virginia

Pollution Abatement (VPA) Permit Program Regulations (VR 680-14-01)

The regulations implement the management measure by requiring a sludge management plan of sludge owners which covers treatment and quality control of residuals. Sludge owners who are not generators must have an operational plan. A sludge management plan can include a site-specific operational plan which addresses all management measure components.

Sludge is actively utilized in Virginia as a no-cost source of nutrients. Land application sites are permitted under the VPA Permit program based on site-specific technical evaluations in accordance with the Sewerage Regulations and technical guidance for best professional judgement. The Department of Health recommends specific sites for sludge use at a rate of over 25,000 acres per year. Sludge contractors apply sludge on approximately 15,000 acres annually and maintain an inventory of about 50,000 acres of approved sites. Approximately 400 dry tons per day of sewage sludge is land applied in Virginia with about 50% of this amount coming from out-of-state sources. Loading rates are developed based on estimated crop yields, as established through the Land Grant Universities and Virginia Cooperative Extension.

Virginia Department of Taxation

Virginia Income Tax Credit
(Sec. 58.1-337 and Sec. 58.1-436 of the *Code of Virginia*)

This program implements the management measure by requiring that purchasers of approved nutrient management equipment who wish to receive a tax credit, have in place a nutrient management plan approved by the Department of Conservation and Recreation. Purchasers of spray equipment must have a calibration kit. Purchasers of approved nutrient management equipment with approved nutrient management plans can receive an income tax credit of up to $3750.00, or 25% of a maximum equipment cost of $15,000.00.

This unique and innovative incentive program was designed to complement the voluntary nutrient management program and is technically administered by DCR.

MANAGEMENT MEASURE COMPLIANCE:

Virginia programs collectively meet the requirements of the management measure within Virginia's coastal management zone.

The nutrient management planning requirement in the CBPA, which provides plans consistent with the management measure, affects 80 percent of the agricultural land in Tidewater. These are the land types that could have the most significant impact on water quality.

D. PESTICIDE MANAGEMENT MEASURE

To reduce contamination of surface water and ground water from pesticides:

(1) Evaluate the pest problems, previous pest control measures, and cropping history;

(2) Evaluate the soil and physical characteristics of the site including mixing, loading, and storage areas for potential leaching or runoff of pesticides. If leaching or runoff is found to occur, steps should be taken to prevent further contamination;

(3) Use integrated pest management (IPM) strategies that:

(a) Apply pesticides only when an economic benefit to the producer will be achieved (i.e., applications based on economic thresholds); and

(b) Apply pesticides efficiently and at times when runoff losses are unlikely;

(4) When pesticide applications are necessary and a choice of registered materials exists, consider the persistence, toxicity, runoff potential, and leaching potential of products in making a selection;

(5) Periodically calibrate pesticide spray equipment; and

(6) Use anti-backflow devices on hoses used for filling tank mixtures.

Applicabiity: EPA guidance (EPA-840-B-92-002) states: "This management measure is intended to be applied by States to activities associated with the application of pesticides to agricultural lands."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act
(Sec. 10.1-2100, *et seq.* of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Act (CBPA) program implements the management measure by requiring all agricultural land in locally-designated water quality-targeted preservation areas to have a soil and water quality conservation plan. Chesapeake Bay Local Assistance Board policy requires a pest management plan, prepared in accordance with the Virginia Cooperative Extension Integrated Pest Management Program, as a component of the conservation plan. Plans prepared in accordance with the Integrated Pest Management Program meet management measure components 1 through 5.

At the present time, implementation of the pest management plan is required when a landowner or farm operator wishes to secure a reduction in the required 100 foot preservation area buffer.

The program is administered through county and municipal zoning or other land use ordinances in the coastal plain region of Virginia (Tidewater) with oversight from the Virginia Chesapeake Bay Local Assistance Department. The program covers the Chesapeake Bay drainage area portion of the coastal zone boundary. Within Tidewater, localities were required to designate as preservation areas lands which are considered environmentally significant with respect to water quality. To that end, preservation areas are jurisdiction-wide in some localities and only cover portions of others. The Chesapeake Bay Local Assistance Department estimates that approximately 80 % of all lands within Tidewater Virginia are water quality-targeted preservation areas.

Virginia Cooperative Extension

Integrated Pest Management Program

Virginia's comprehensive approach to pest management provides assistance to producers which address all of the measure components. Pest management plans prepared through this program meet management measure components 1 through 5.

The program utilizes over 100 county extension agents, area IPM agents (located in the Chesapeake Bay watershed), and extension specialists, to provide applied research, develop and or review voluntary and regulatory IPM plans, conduct educational programs for farmers, demonstrate appropriate management techniques, train field scouts, and assist farmers in implementing pest management and pesticide applicator calibration.

Cooperative Extension publishes an encyclopedic Pest Management Guide, annually, in cooperation with the States of Delaware and Maryland, which provides state of the art information on IPM and the use, handling and relative efficacy of commonly used pesticides in Virginia. This document, in conjunction with pesticide labeling, provides the technical framework for use of pesticides in Virginia.

Virginia Department of Agriculture and Consumer Services

Plants and Plant Products Inspection Law
(Sec. 3.1-188.32, *et. seq.* of the *Code of Virginia*)
Nursery Inspection General Rules (VR115-04-15)
Registration and Certification of Grape Nursery Stock (VR 115-04-17)

This program implements the management measure in nursery establishments by providing for the timely, economic treatment of plant pests based on an identified need.

Each nursery in Virginia is subject to an inspection for plant pests at least annually during which all evident pests in the nursery's stock as well as the level of infestation is noted. Treatment is either recommended or required based on the degree of infestation. Treatment is ordered only for economic benefit or for control of dangerous plant pests. Integrated pest management is utilized to the extent practicable and as required by product labelling.

Violation of the Plants and Plant Products Law can result in seizure of plant stock by the Commissioner and is a Class 1 misdemeanor.

Virginia Pest Law (Sec. 3.1-188.20 *et seq.* of the *Code of Virginia*)
Cotton Boll Weevil Quarantine (VR 115-04-14)
Gypsy Moth Quarantine (VR 115-04-12)

This program does not directly implement the management measure but does support the intent of the measure by reducing the need for treatment of difficult pests. The intent of this law is to keep certain plant pests, such as gypsy moth, fire ant and brown snail from entering or becoming a problem in the Commonwealth due to their highly noxious nature. For pests not yet established in Virginia this program contains emergency response activities.

Virginia Pesticide Control Act (Sec.3.1-249.27 *et. seq.* of the *Code of Virginia*)
Rules and Regulations for Enforcement of Virginia Pesticide Law
(VR 115-04-03)
Regulations Governing Licensing of Pesticide Businesses Operating Under Authority of Virginia Pesticide Control Act (VR 115-04-22)
Regulations governing Pesticide Applicator Certification Under Authority of Virginia Pesticide Control Act (VR 115-04-23)
Worker Protection Standard (57 FR 38102)

The VA Pesticide Control Act and the regulations promulgated under its authority implement the management measure both directly and indirectly. Certification and Licensing Programs assure that pesticide users will have appropriate training, provided in cooperation with Virginia Cooperative Extension, on the principals and practices necessary for producers to implement measure components 1 through 4. The regulations directly require the implementation of components 5 and 6.

Beyond the scope of the management measure, the VA Pesticide Control Act regulations collectively have the effect of implementing in Virginia the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) as well as providing to the Virginia Pesticide Control Board (Board) additional powers relating to regulating pesticide use. Under the authority of the Act and FIFRA, the Board has promulgated regulations establishing mandatory programs, including Pesticide Applicator Certification and Pesticide Business Licensing, as well as establishing voluntary programs, such as the Pesticide Disposal Program and the Pesticide Container Recycling Program. Under the authority of FIFRA and in agreement with EPA, the Board's staff will enforce the Worker Protection Standard and will develop pesticide management plans for groundwater. These programs regulate who and how pesticides will be used in the state by enforcing the federal label requirements and Worker Protection Standard and requiring training and licensing of individuals and businesses that apply pesticides.

In addition to implementing FIFRA, the Board has the power to ban or restrict the

use of a pesticide based on its potential to harm the environment. A comparison of the general powers of the federal and Virginia law to restrict or ban the use of a pesticide based on its potential to cause environmental harm suggests that the Act gives the Board broader powers than those granted to EPA under FIFRA.

Pesticide labels provide the legal framework for the use of the product. Under federal and Virginia law no product may be used in a manner inconsistent with its label's requirements. Labels contain information on application rates, timing of application, appropriate IPM practices, other environmental concerns and can sometimes address calibration requirements.

The regulations require that application equipment be in good working order and properly calibrated. Furthermore, these regulations require the use of backflow preventers to protect water supply systems, lakes, other sources of water or other materials. Violation of these regulations triggers enforcement under the authority of the Act.

Violations of the Virginia Pesticide Control Act can result in revocation or suspension of licenses and or assessment of penalties. Enforcement is administered through 10 regional offices with investigation staffs. Unannounced, random field inspections of applications are utilized.

Virginia Department of Taxation

Virginia Income Tax Credit
(Sec. 58.1-337 and Sec. 58.1-436 of the *Code of Virginia*)

Although this program does not specifically implement the management measure, it does assist in the implementation by encouraging producers and applicators to have available state-of-the-art equipment for environmentally sound application of pesticides. Purchasers of approved pesticide application equipment can receive an income tax credit of up to $3750.00, or 25% of a maximum equipment cost of $15,000.00. Calibration kits are required for tax credits on new sprayer equipment. The purchaser must have in place a Department of Conservation and Recreation approved nutrient management plan to be eligible for the tax credit.

MANAGEMENT MEASURE COMPLIANCE:

Virginia programs collectively meet the requirements of the management measure within Virginia's coastal management zone.

The pest management planning requirement in the CBPA, which provides plans consistent with management measure components 1 through 4, affects 80 percent of the agricultural land in Tidewater. These are the land types that could have the most significant impact on water quality.

The VA Pesticide Control Act and its regulations directly require the implementation of components 5 and 6, statewide.

E. GRAZING MANAGEMENT MEASURE

Protect range, pasture and other grazing lands:

(1) By implementing one or more of the following to protect sensitive areas (such as streambanks, wetlands, estuaries, ponds, lake shores, and riparian zones):

(a) Exclude livestock,
(b) Provide stream crossings or hardened watering access for drinking,
(c) Provide alternative drinking water locations,
(d) Locate salt and additional shade, if needed, away from sensitive areas, or
(e) Use improved grazing management (e.g., herding) to reduce the physical disturbance and reduce direc loading of animal waste and sediment caused by livestock; and

(2) By achieving either of the following on all range, pasture, and other grazing lands not addressed under (1):

(a) Implement the range and pasture components of a Conservation Management System (CMS) as defined in the Field Office Technical Guide of the USDA-SCS by applying the progressive planning approach of the USDA-Soil Conservation Service (SCS) to reduce erosion, or

(b) Maintain range, pasture, and other grazing lands in

accordance with activity plans established by either the Bureau of Land Management of the U.S. Department of the Interior or the Forest Service of USDA.

Applicability: EPA guidance (EPA-840-B-92-002) states: "This management measure is intended to be applied by States to activities on range, irrigated and nonirrigated pasture and other grazing lands by domestic livestock." "Range is those lands on which the native vegetation (climax or natural potential plant community) is predominately grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing use." "Pastures are those lands that are primarily used for the production of adapted, domesticated forage plants for livestock. Other grazing lands include woodlands, native pastures, and croplands producing forages."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act
(Sec. 10.1-2100, *et seq.* of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Act (CBPA) program regulations require that a 100 foot-wide, minimum, vegetated area (buffer) be established along all tributary streams, wetlands and waterbodies within locally designated preservation areas. Preservation area buffers can be grazed when the management is such that the buffer vegetation retards runoff, prevents erosion and filters nonpoint source pollution from runoff. Buffers must be maintained to prevent any concentrated flow of surface water from breaching the buffer. Management measure components listed under item 1, above, are utilized as BMPs to maintain the integrity of the vegetated buffers.

The CBPA program further implements the management measure by requiring all agricultural land, including pastures, in locally-designated water quality-targeted preservation areas to have a soil and water quality conservation plan, prepared in accordance with the erosion component of a Conservation Management System as defined by the Field Office Technical Guide (FOTG) of the USDA-SCS.

At the present time, implementation of the soil and water quality conservation plan is required when a landowner or farm operator wishes to secure a reduction in the required vegetated buffer.

The program is administered through county and municipal zoning or other land use ordinances in the coastal plain region of Virginia (Tidewater) with oversight from the Virginia Chesapeake Bay Local Assistance Department. The program covers the Chesapeake Bay drainage area portion of the of the coastal zone boundary. Within Tidewater, localities were required to designate as preservation areas lands which are considered environmentally significant with respect to water quality. To that end, preservation areas are jurisdiction-wide in some localities and only cover portions of others. The Chesapeake Bay Local Assistance Department estimates that approximately 80% of all lands with Tidewater Virginia are water quality-targeted preservation areas.

Department of Conservation and Recreation

Agricultural BMP Cost-Share Program
(Sec. 10.1-500, *et seq.* of the *Code of Virginia*)

This well-accepted incentive program assists in the implementation of the management measure by requiring that a soil conservation plan, providing a level of treatment equivalent to an Alternative Conservation System, a CMS as defined by the FOTG of the Virginia USDA-SCS, be in place prior to approval of cost-share funds.

The program is locally administered through soil and water conservation districts with Department oversight and tracking.

Program participants which implement the Animal Waste Control Facility, Loafing Lot Management System, Grazing Land Protection, Stream Protection and Woodland Buffer Filter Area BMPs are required to exclude livestock from sensitive areas as a practice component. Grazing Land Protection and Loafing Lot Management BMPs provide alternative water sources as needed. Grazing Land Protection, Loafing Lot Management System and No-till Pasture and Hayland BMPs require grazing or herd management operation plans.

Participant compliance with program practice maintenance agreements is enforced through annual statewide field audits. The current compliance rate is 97% for randomly audited practices.

Virginia Department of Taxation

Virginia Land Use Assessment Law
(Sec. 58.1-3229, *et seq.* of the *Code of Virginia*)

Land Use Assessment ordinances implement the management measure by providing landowners a special assessment tax rate for the preservation of agricultural or horticultural lands when the land in question is being used in either "...a planned program of soil management and soil conservation practices" such as a conservation plan developed by USDA SCS personnel in accordance with the FOTG or when the land is "...devoted to and meeting the requirements and qualifications for payments or other compensation pursuant to a soil conservation program..." such as the Agricultural Stabilization and Conservation Service commodity programs.

Definition of a "planned program of soil management and soil conservation practices" is the responsibility of the local ordinances. Depending on the ordinance, "a planned program" may or may not apply the erosion component of a CMS. Plans required under the 1985 and 1990 Farm Bills for USDA benefits, including commodity programs, meet the management measure through the application of a CMS as defined by the Virginia FOTG. These plans are required by the Land Use Assessment Law when land is qualified under the second item in the above paragraph.

MANAGEMENT MEASURE COMPLIANCE:

Virginia programs collectively meet the requirements of the management measure within Virginia's coastal management zone.

The planning requirement in the CBPA has the effect of applying a CMS on 80 percent of the agricultural land in Tidewater. These are the land types that could have the most significant impacts on water quality.

The planning and implementation requirements for participation in the Agricultural BMP Cost-Share Program meet both components of the management measure statewide.

Any implemented plan that meets the CMS requirement, such as one meeting the requirements of the 1985 and 1990 Farm Bills, that is used to comply with the Land Use Assessment Law meets the management measure. However, the Land Use Assessment Law does not provide coverage within the entire coastal zone boundary.

F. IRRIGATION WATER MANAGEMENT

To reduce nonpoint source pollution of surface waters caused by irrigation:

(1) Operate the irrigation system so that the timing and amount of irrigation water applied match crop water needs. This will require, as a minimum: (a) the accurate measurement of soil-water depletion volume and the volume of irrigation water applied, and (b) uniform application of water.

(2) When chemigation is used, include backflow preventers for wells, minimize the harmful amounts of chemigated waters that discharge from the edge of the field, and control deep percolation. In cases where chemigation is performed with furrow irrigation systems, a tailwater management system may be needed.

The following limitations and special conditions apply:

(1) In some locations, irrigation return flows are subject to other water rights or are required to maintain stream flow. In these special cases, on-site reuse could be precluded and would not be considered part of the management measure for such locations.

(2) By increasing the water use efficiency, the discharge volume from the system will usually be reduced. While the total pollutant load may be reduced somewhat, there is the potential for an increase in the concentration of pollutants in the discharge. In these special cases, where living resources or human health may be adversely affected and where other management measures (nutrients and pesticides) do not reduce concentrations in the discharge, increasing water use efficiency would not be considered part of the management measure.

(3) In some irrigation districts, the time interval between the order for and the delivery of irrigation water to the farm may limit the irrigator's ability to achieve the maximum on-farm application efficiencies that are otherwise possible.

(4) In some locations, leaching is necessary to control salt in the soil profile. Leaching for salt control should be limited to the leaching requirement for the root zone.

(5) Where leakage from delivery systems or return flows supports wetlands or wildlife refuges, it may be preferable to modify the system to achieve a high level of efficiency and then divert the "saved water" to the wetland

or wildlife refuge. This will improve the quality of water delivered to wetlands or wildlife refuges by preventing the introduction of pollutants from irrigated lands to such diverted water.

(6) In some locations, sprinkler irrigation is used for frost or freeze protection, or for crop cooling. In these special cases, applications should be limited to the amount necessary for crop protection, and applied water should remain on-site.

Applicability: EPA guidance (EPA-840-B-92-002) states: "This management measure is intended to be applied by States to activities on irrigated lands, including agricultural crop and pasture land (except for isolated fields of less than 10 acres in size that are not contiguous to other irrigated lands); orchard land; specialty cropland; and nursery cropland."

Applicable State Programs

Virginia Department of Agriculture and Consumer Services

Virginia Pesticide Control Act (Sec. 3.1-249.27, *et seq.* of the *Code of Virginia*)
Rules and Regulations for Enforcement of the Virginia Pesticide Law
(VR 115-04-03)

This regulation requires that all pesticide application equipment, as well as all hoses, pumps, or other equipment used to fill pesticide handling, storage, or application equipment, be fitted with an effective valve or device to prevent backflow into water supplies, streams, lakes or other sources of water.

The Virginia Department of Agriculture and Consumer Services (VDACS) enforces these regulations through use of inspections and referrals. Violators are subject to revocation or suspension of their applicators license and penalties.

Virginia Department of Environmental Quality

Surface and Ground Water Withdrawal Permits
State Water Control Law
(Sec. 62.1-242 through Sec. 62.1-270 of the *Code of Virginia*)

Groundwater Withdrawal Regulations (VR 680-13-07)
Water Withdrawal Reporting (VR 680-15-01)
Surface Water Management Area Regulation (VR 680-15-03)

Permit program limits water withdrawal from surface and ground water sources in designated management areas. Two groundwater management areas have been defined as Eastern Shore and Tidewater. Designation of the surface water management area is pending. This program will limit the amount of water available for irrigation purposes.

Permit holders will be required to monitor and report withdrawal quantities. Failure to report will be a permit violation.

Department of Taxation

Virginia Income Tax Credit
(Sec.58.1-337 and Sec. 58.1-436 of the *Code of Virginia*)

This voluntary program assists in the implementation of the management measure by providing an income tax credit for the purchase of equipment added to irrigation systems which provide a more precise pesticide and nutrient application. Eligible necessary equipment includes: 1) Accessories which prevent backflow or back siphoning; and, 2) a flow sensor to monitor water flow and adjust the injection rate of pesticide and fertilizer to achieve the appropriate application rate. Purchasers of approved equipment with nutrient management plans as approved by the Department of Conservation and Recreation (DCR) can receive an income tax credit of up to $3,750, or 25% of a maximum equipment cost of $15,000.00.

This unique and innovative incentive program is available statewide and is technically administered by DCR.

MANAGEMENT MEASURE COMPLIANCE:

Virginia meets the second component of the management measure throughout the Commonwealth.

Agriculture in Virginia is typically not dependant on irrigation for crop production since Virginia receives, on average, 45 inches of rain annually. Agricultural irrigation in Virginia, when used, is typically supplemental. The Surface and Ground Water Permits

limit water withdrawal for irrigation within the coastal zone boundary; consequently, efficient use of irrigation water is promoted out of necessity to optimize crop production while abiding by permit regulations.

AGRICULTURE	Coastal Zone
A. Erosion and Sediment Control	Meets
B1. Confined Animal Management	Meets
B2. Confined Animal Management	Meets
C. Nutrient Management	Meets
D. Pesticide Management	Meets
E. Grazing Management	Meets
F. Irrigation Water Management	Meets

Management measures for forestry

CHAPTER 4

Management Measures for Forestry

Virginia has approximately 16 million acres of forested land (63% of the state is forested). According to the *Forest Statistics for Virginia, 1992* resource bulletin, approximately 79% of forest land in Virginia is comprised of hardwoods such as oak and hickory and the remaining 21% consists of soft wood species such as loblolly pine, Virginia pine, and white pine. Approximately 43% of the average annual harvest is softwood and 57% is hardwood.

The primary pollutant associated with forestry operations is sediment resulting from soil loss. Forestry activities can accelerate soil erosion depositing sediment into state waters. High sediment concentrations can smother bottom dwelling organisms, damage aquatic plants, and damage the gills of some fish species. Improper silvicultural practices can also lead to increases in water temperature due to the removal of streamside vegetation, nutrient enrichment, and the introduction of toxic chemicals such as herbicides, pesticides, and petroleum products.

Estimates by Department of Forestry staff indicate that silvicultural operations account for only 5% of the nonpoint source pollution affecting Virginia rivers. However, the potential for localized water quality impacts is significant where intensive forestry practices occur and best management practices (BMPs) have not been implemented. The *Virginia Nonpoint Source Pollution Watershed Assessment Report* indicates that the pollution potential is greatest where forestry activities take place on steep slopes and highly erodible soils.

The Virginia Department of Forestry (DOF) is the lead state agency for the implementation of forestry nonpoint source programs. In cooperation with forest industry, DOF has implemented an innovative forest nonpoint source program which is supported by financial incentives such as cost-share. DOF nonpoint pollution programs stress voluntary BMPs to achieve sediment reduction and other nonpoint source pollution goals.

This non-regulatory program is complemented by the Virginia Silvicultural Water Quality Law which gives DOF enforcement authority to issue stop work orders, levy fines, and require corrective action to protect waters of the Commonwealth from excessive sedimentation originating from forestry operations.

The primary components of Virginia's forestry nonpoint source program are listed below:

1) the development of an aggressive and successful forestry water quality educational and training program showing the potential impact of silvicultural activities and ways to prevent erosion and subsequent sedimentation through the implementation of forestry BMPs;

2) the adoption of a silvicultural water quality law which gives the DOF the ability to stop harvesting operations and impose civil fines if water quality degradation is occurring from sediment;

3) a DOF policy of inspecting each harvesting operation over five acres in size twice to ensure compliance with the BMP program and the Silvicultural Water Quality Law;

4) the establishment of a Silvicultural Water Quality Task Force composed of forest industry, loggers, private landowners, and consultants which provides direction for the voluntary BMP program;

5) consistent with the 1987 Chesapeake Bay Agreement, a sediment reduction goal of 40% from forestry operations with interim goals of 10% by 1991 and 30% by 1995 has been established (the 1991 reduction goal was exceeded);

6) the adoption of the position that DOF's main priority would be the protection of water quality and the integration of BMP's into every silvicultural activity;

7) the installation of a statewide water quality monitoring program documenting the possible impacts of harvesting operations on water quality; and,

8) a cooperative agreement between consultant foresters and DOF has established the critical importance of maintaining water quality and instituting BMPs.

Timber harvesting in Virginia typically occurs only once every 15 to 30 year on a single logging tract. As a consequence, only a relatively small percentage of forested land is harvested annually. The following table illustrates that the annual average forestland

harvested during 1991 was approximately 1% within some of the major basins of the Chesapeake Bay:

BASIN	TOTAL FORESTED ACRES	ACRES HARVESTED	% HARVESTED
Rappahannock	1,111,122	13,681	1.2
York	890,127	10,775	1.2
James	4,298,076	35,661	0.8
Coastal	264,244	3,280	1.2
TOTAL	6,563,569	63,397	Avg.% 1.1

A cooperative study was undertaken by the Department of Conservation and Recreation, Division of Soil and Water Conservation and DOF to assess the erosion potential of forestry activities within 491 hydrologic units. Information on harvesting levels, soils, slope, site preparation, and regeneration activities was collected and expressed as the total erosion potential for forestry lands in a high, medium, or low potential category. Within the Chesapeake Bay watershed, most hydrologic units had low to medium ranking. Nine out of 336 (3%) had a high ranking. It is important to note that this data reflects erosion potential rather than actual erosion, and installation of BMP's can significantly reduce nonpoint source pollution.

The Department of Forestry in cooperation with the forest industry is committed to the BMP program established in 1988. The following list highlights some of the accomplishments achieved since 1988:

1) Thirty BMP training workshops were held for loggers and foresters from November 1988 to April 1989. A total of 1,900 loggers, foresters, technicians, tree farmers, and state and federal agency staff persons attended.

2) The *Forestry Best Management Practices for Water Quality in Virginia* publication was revised and updated and a section focussing on wetland harvesting methods was added, and a pocket-sized BMP manual was developed in cooperation with Virginia Tech.

3) Eight meetings of local forestry leaders were held statewide to provide information on the BMP program and establish commitment on the part of industry leadership. Over 200 leaders attended these meetings.

4) DOF personnel participated in special training workshops on preparing preharvest BMP plans, BMP's in fireline construction and reforestation, and BMP recommendations in forest stewardship plans for landowners.

5) BMP training sessions were held at five field locations for forest industry and consulting foresters in 1988 and eight sessions in 1989. In total, over 900 people attended these sessions.

6) BMP's were featured at the following events: (1) Spring and Fall Forestry Bus Tours sponsored by the DOF, forest industry and Virginia Tech, (2) the Virginia Forestry Association (VFA) spring and fall meetings, and (3) the East Coast Logging Exposition in Richmond which was attended by 15,000 people.

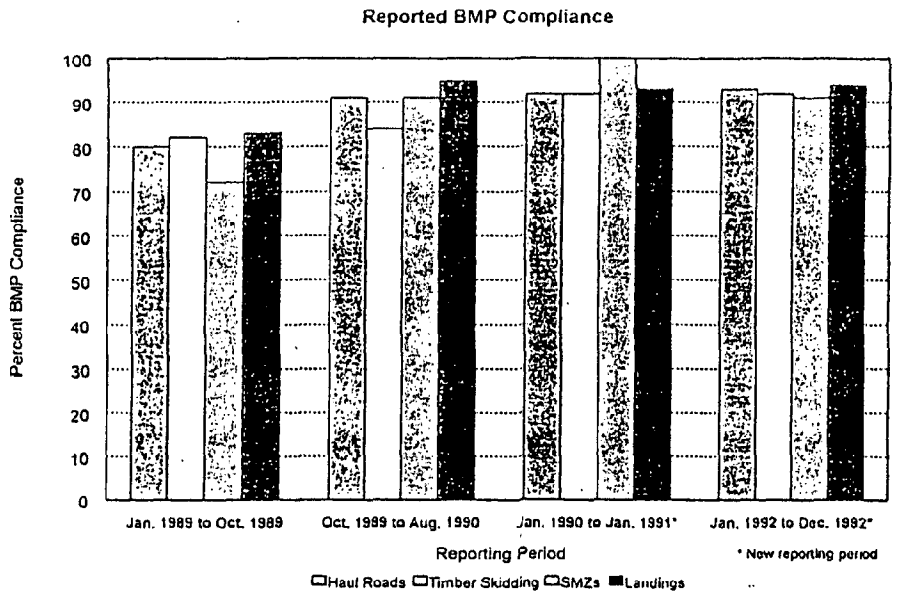
7) In cooperation with Virginia Tech, a Soil Rutting Workshop was sponsored. During this workshop experts in hydrology, soils, water quality and forestry explained the necessity of preventing soil rutting and maintaining soil integrity during harvesting operations. The workshop was attended by 200 people from across the United States.

BMP inspections performed by DOF personnel represent the core component of the forestry nonpoint source program. An average of 2,000 BMP inspections are performed annually. During a BMP inspection, timber harvesting activity is compared to acceptable standards as documented in the BMP manual. Activities which do not meet the standards set forth in the manual are identified and timber harvesters are informed of any necessary corrections. Adherence to BMP standards is attained in most cases. The chart on the following page illustrates the success rate since the initiation of the BMP inspections procedure.

Compliance rates for the major BMP's began at a high level in 1989 and have continued to improve. In 1992, BMP implementation rates exceeded 92% for these practices. Moreover, the Streamside Management Zone (SMZ), vital to the maintenance of water quality, continues to be the most well-implemented BMP. To help further improve BMP implementation rates, a BMP audit program has been initiated that randomly selects tracts of land for inspection.

Another process which improves BMP implementation and encourages compliance with the Silvicultural Water Quality Law is the DOF Water Quality Complaint System. DOF

and industry personnel investigate all water quality complaints involving forestry operations to document the nature of the problem. If a water quality problem can be attributed to a silvicultural practices, immediate action is taken to remedy the problem. In the past, DOF has handled between 8 and 15 complaints per year with a 100% resolution rate.



Through educational and technical assistance programs, DOF has taken considerable effort to heighten water quality awareness among Virginia's forestry industry. These programs, combined with the BMP audit and inspection programs and the Water Quality Complaint System, improve compliance with the Silvicultural Water Quality Law.

Work Group Assessment Process

Since April, 1993, the Forestry Work Group has been comparing existing Virginia nonpoint source pollution control and forestry management programs with the Management Measures and program requirements included in Coastal Zone Act Reauthorization Amendments guidance documents issued by Environmental Protection Agency (EPA) and National Oceanic and Atmospheric Administration (NOAA). The

Forestry Work Group includes representatives from the Department of Conservation and Recreation, Department of Forestry, Chesapeake Bay Local Assistance Department, the George Washington National Forest, the Virginia Tech Forestry Department, the Virginia Forestry Association, the forest industry, and forest landowners.

This assessment of state nonpoint source pollution control and forestry management programs was produced using information collected through work group meetings, interviews with state agency staff, and work sheets completed for applicable programs. The matrix on the following page indicates which state programs apply to each of the management measures for forestry operations. This chapter details the specific requirements of each management measure and describes applicable state programs. The descriptions focus on aspects of these programs that apply to the specified management measures. The table at the end of this chapter summarizes how existing state programs address the management measures for silvicultural operations. As indicated in the table, the forestry BMP/Water Quality Program in Virginia meets the Management Measures guidance issued for Section 6217 of the Coastal Zone Act Reauthorization Amendments.

In certain instances, existing state programs address silvicultural nonpoint source pollution in a different manner than that specified in the management measures guidance. Although nonpoint source pollution resulting from silvicultural activities can occur throughout the recommended 6217 management area, management measures which address activities such as skyline logging operations may have limited applicability.

For each management measure the forestry work group has evaluated how well state programs comply with the federal guidance based on: (1) specific management measure requirements or performance standards, and (2) enforceable policies or mechanisms.

Forestry Management Measures

State Programs

	Preharvest Planning	Streamside Management Areas	Road Construction	Road Management	Timber Harvesting	Site Preparation & Forest Regeneration	Fire Management	Revegetation of Disturbed Areas	Chemical Management	Wetlands Management
Silvicultural Water Quality Law	X	X	X	X	X	X	X	X		X
State Cost Share Programs	X		X	X		X	X	X		
Chesapeake Bay Preservation Act		X			X	X		X		
Virginia Seed Tree Law	X					X		X		
Aerial Spray Program									X	
Submerged Lands & Tidal Wetland Permit Program			X							X
Virginia Water Protection Permits			X							X
Wetlands Board Permit Program			X							X
Forestry BMP Manual	X	X	X	X	X	X	X	X	X	X
Debris In Streams Law		X	X		X	X				
Virginia Cooperative Extension		X	X	X	X					
Land Use Taxation	X									
Oil Spills Statute					X					
OSHA Manual					X					
Air Emission Standards						X	X			
Integrated Pest Management Program									X	
Virginia Pesticide Control Act									X	
Preharvest Planning	X								X	

September 1995

PROGRAM ASSESSMENT BY MANAGEMENT MEASURE

Each of the specified management measures for forestry is identified and discussed in the section which follows. The management measures are presented as they appear in the program guidance issued by EPA and NOAA. For each management measure the applicable program descriptions are listed alphabetically and grouped together by the agency which administers them. In the compliance section which follows these descriptions, more consideration has been given to the relative importance of each of the individual programs.

This chapter identifies the requirements of each management measure, provides a brief program description of applicable state programs, and a discussion of how well these programs comply with the requirements of each management measure. Program descriptions are not comprehensive; rather, they focus on aspects of state programs applicable to the specified management measures. The management measure compliance discussion describes coordination between state programs and summarizes how well state programs meet management measure requirements.

A. PREHARVEST PLANNING

Perform advance planning for forest harvesting that includes the following elements where appropriate:

(1) Identify the area to be harvested including location of waterbodies and sensitive areas such as wetlands, threatened or endangered aquatic species habitat areas, or high-erosion-hazard areas (landslide-prone areas) within the harvest unit.

(2) Time the activity for the season or moisture conditions when the least impact occurs.

(3) Consider potential water quality impacts and erosion and sedimentation control in the selection of silvicultural and regeneration systems, especially for harvesting and site preparation.

(4) Reduce the risk of occurrence of landslides and severe erosion by identifying high-erosion-hazard areas and avoiding harvesting in such areas to the extent practicable.

(5) Consider additional contributions from harvesting or roads to any known existing water quality impairments or problems in

watersheds of concern.

Perform advance planning for forest road systems that includes the following elements where appropriate:

(1) Locate and design road systems to minimize, to the extent practicable, potential sediment generation and delivery to surface waters. Key components are:

- *locate roads, landings, and skid trails to avoid to the extent practicable steep grades and steep hillslope areas, and to decrease the number of stream crossings;*
- *avoid to the extent practicable locating new roads and landings in Streamside Management Areas (SMAs); and*
- *determine road usage and select the appropriate road standard.*

(2) Locate and design temporary and permanent stream crossings to prevent failure and control impacts from the road system. Key components are:

- *size and site crossing structures to prevent failure;*
- *for fish-bearing streams, design crossings to facilitate fish passage.*

(3) Ensure that the design of road prism and the road surface drainage are appropriate to the terrain and that road surface design is consistent with the road drainage structures.

(4) Use suitable materials to surface roads planned for all-weather use to support truck traffic.

(5) Design road systems to avoid high erosion or landslide hazard areas. Identify these areas and consult a qualified specialist for design of any roads that must be constructed through these areas.

Each State should develop a process (or utilize an existing process) that ensures that the management measures in this chapter are implemented. Such a process should include appropriate notification, compliance audits, or other mechanisms for forestry activities with the potential for significant adverse nonpoint source effects based on the type and size of operation and the presence of stream crossings or SMAs.

Applicability: "The planning process components of this management measure are intended to apply to commercial harvesting on areas greater than 5 acres and any associated road construction activities ... determined to be ... of a sufficient size to potentially impact the receiving water or that involve SMAs or stream crossings.... This measure does not apply to harvesting conducted for precommercial thinning or noncommercial firewood cutting."

APPLICABLE STATE PROGRAMS

Department of Conservation and Recreation

Cost Share Programs

The Department of Forestry administers several programs that provide financial assistance for BMP installation. These programs include the Reforestation of Timberlands Program, the Stewardship Incentive Program, the Federal Agricultural Conservation Program, and the Forestry Incentive Program. The Reforestation of Timberlands Program will provide cost share assistance within the boundary for the approved Reforestation of Timberlands project.

The Department of Conservation and Recreation manages the Virginia Agricultural Cost Share Program, which also provides assistance to land owners for BMP installation. Harvest plans are required for forest operations which receive cost-share assistance through state and federal programs.

Department of Forestry

Forestry Best Management Practices

Forestry Best Management Practices for Water Quality in Virginia encourages voluntary preharvest planning for all forestry operations. After a five-year, educational program, loggers have demonstrated knowledge of the use of BMP's to protect water quality. Although preharvest planning is not required, the Forestry BMP program helps ensure that forestry operations meet the Silvicultural Water Quality Law.

Preharvest Planning Service

Department of Forestry (DOF) personnel, located in each county, provide technical advice to forest landowners. This free service includes preparation of harvest plans, timberland examinations, and on-site discussion with loggers and landowners regarding the design and location of Best Management Practices.

Silvicultural Water Quality Law (Sec. 10.1-1181.1, *et seq.* of the *Code of Virginia*)

The Silvicultural Water Quality Law (Sec. 10.1-1181.1, *et seq.* of the *Code of Virginia*), administered by DOF, makes it unlawful to cause excessive sediment pollution to enter a stream. This law gives DOF personnel the authority to issue stop work orders, levy fines, and require corrective action for any forestry activity which causes or is likely to cause changes to the physical, chemical, or biological properties of state waters resulting from sediment.

DOF personnel perform routine site inspections on tracts greater than five acres for compliance with this law.

Virginia Seed Tree Law (Sec. 10.1 - 1163, *et seq.* of the *Code of Virginia*)

The Virginia Seed Tree Law §10.1 - 1163, *et seq.* of the *Code of Virginia*, administered by DOF, requires that a preharvest plan be prepared and approved by the State Forester or that a forest operation be subject to the requirement that eight cone-bearing trees with a minimum 14 inch diameter be preserved. As well, this law may require an alternate management plan to address reforestation for pine tracts harvested in Virginia.

Virginia Department of Taxation

Virginia Land Use Assessment Law
(Sec. 58.1-3229 *et seq.* of the *Code of Virginia*)

Local Governments can adopt a land-use taxation option which provides a reduction in property tax for participating landowners. A forest management plan, including a harvest plan, is required for the landowner to receive this tax reduction. This program is overseen by the State Land-use Evaluation Advisory Council, and is administered by local governments. This tax incentive encourages the preparation of harvest plans. At the present time 65 of 95 counties have adopted this program.

MANAGEMENT MEASURE COMPLIANCE

Virginia has several programs that address preharvest planning. In particular, *Forestry Best Management Practices for Water Quality in Virginia* encourages voluntary

preharvest planning for all forestry operations. The high level of compliance with BMPs for streamside management (94% implementation for this BMP) suggests that a great majority of Virginia loggers routinely conduct informal pre-harvest planning. The Silvicultural Water Quality Law reinforces the need for preharvest planning and provides a strong incentive for the application of other best management practices to protect state waters from sediment depositions which may result from silvicultural operations.

Incentive programs which encourage pre-harvest planning in the 6217 management area include use-value assessment and cost-share assistance programs. For land owners to be eligible for use-value assessments and cost-share assistance, a preharvest plan is required. These plans are usually prepared by the Department of Forestry (DOF), which offers free preharvest planning assistance to forest land owners.

The Virginia Seed Tree Law requires preharvest planning on some forest tracts. Preharvest planning also occurs where landowners request preparation of a plan by a professional forester, and it is required on all National Forest lands.

In summary, preharvest planning is encouraged in Virginia through a variety of incentive and nonregulatory programs. Although preharvest planning is not a regulatory requirement for forestry operations in the 6217 management area, the combination of voluntary and incentive programs and the Silvicultural Water Quality Law may equal or exceed the effectiveness of the preharvest planning management measure in protecting coastal waters.

B. STREAMSIDE MANAGEMENT AREAS

Establish and maintain a streamside management area along surface waters, which is sufficiently wide and which includes a sufficient number of canopy species to buffer against detrimental changes in the temperature regime of the waterbody, to provide bank stability, and to withstand wind damage. Manage the SMA in such a way as to protect against soil disturbance in the SMA and delivery to the stream of sediments and nutrients generated by forestry activities, including harvesting. Manage the SMA canopy species to provide a sustainable source of large woody debris needed for instream channel structure and aquatic species habitat.

Applicability: "(This measure) is intended to apply to surface waters bordering or within the area of operations. SMAs should be established for perennial waterbodies as well as for intermittent streams that are flowing during the time of operation."

APPLICABLE STATE PROGRAMS

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-2100 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Area (CBPA) Designation and Management Regulations (VR 173-02-01), implemented through 84 local governments in the Chesapeake Bay watershed area of the coastal management zone, require all local governments in this area to adopt ordinances to control land use activities and to protect water quality.

Silvicultural operations in Chesapeake Bay Preservation Areas that do not adhere to the Department of Forestry BMP Handbook must comply with the local CBPA ordinance requirements. However, the only CBPA ordinance requirement pertaining to silviculture that can be enforced is the requirement for a 100-foot wide vegetative buffer area along all tidal wetlands, tidal shores, tributary streams, and nontidal wetlands connected by surface flow and contiguous to the other features (Resource Protection Areas). As such, the SMA requirement can be enforced within the Bay drainage of Tidewater Virginia. If a SMA violation occurs it would also be considered a CBPA buffer area violation and revegetation of the full 100-foot wide CBPA buffer area and any associated wetland would be required.

The Chesapeake Bay Local Assistance Department has estimated that approximately 80% of all lands within Tidewater Virginia have been designated as CBPA. The Resource Protection Area component of CBPAs includes all perennial flowing waterbodies within Tidewater Virginia. CBPAs do not cover the entire region as most local governments did not designate their entire jurisdiction. Preservation areas in these localities were targeted to include land types that could have the most significant impacts on water quality.

Department of Forestry

Debris in Streams Law (Sec. 62.1-194.2, *et seq.* of the *Code of Virginia*)

Under section 62.1-194.2 of the Code of Virginia, Department of Forestry staff can cite a logger or forestry operator placing logging debris in a stream if flow is impeded or habitat and water quality degraded. This law applies statewide and encourages proper streamside management.

Forestry Best Management Practices

Forestry Best Management Practices for Water Quality in Virginia encourages landowners to maintain Streamside Management Zones (SMZ) to trap and filter out suspended sediments before these particulate reach state waters. SMZ's are encouraged along all perennial streams and around lakes, ponds, and natural springs. A minimum 50 foot buffer area with limited harvesting is recommended.

Silvicultural Water Quality Law (Sec. 10.1-1181.1, *et seq.* of the *Code of Virginia*)

The Silvicultural Water Quality Law (Code of Virginia, Section 10.1-1181.1 *et seq.*) is administered by the Department of Forestry (DOF) throughout the entire state. This law makes it unlawful to cause excessive sediment pollution to enter a stream. DOF staff routinely inspect logging operations to help ensure proper installation of SMA's as detailed in *Forestry Best Management Practices for Water Quality in Virginia* and to ensure compliance with the Silvicultural Water Control Law. This law gives DOF personnel authority to stop work, issue fines, and require corrective action for any forestry activity which causes or is likely to cause changes to the physical, chemical, or biological properties of state waters resulting from sediment.

To assist with implementation of this law, the forest industry provides DOF with monthly listings of tracts where logging will be initiated.

Virginia Cooperative Extension (VCE)

Logger Education and Assistance

Through cooperative extension, Virginia Tech offers technical assistance, training

sessions, and education materials to loggers on all aspects of road construction and logging. These recommendations are based on the *Forestry Best Management Practices for Water Quality in Virginia* and are designed to protect water quality. This service is available to all loggers within the coastal zone. A monthly newsletter highlights current activities and available services.

MANAGEMENT MEASURE COMPLIANCE

The state enforceable and voluntary programs described above, promote streamside management for forestry operations. *Forestry Best Management Practices for Water Quality in Virginia* encourages loggers to maintain buffer areas along streams and around lakes, ponds, and natural springs. Compliance with the Silvicultural Water Quality Law reinforces the need to maintain streamside management areas and to follow other best management practices to protect state waters from sediment depositions resulting from silvicultural activities. As stated above, this law gives DOF personnel authority to issue stop work orders, levy fines, and require corrective action for any forestry activity which causes or is likely to cause changes to the physical, chemical, or biological properties of state waters resulting from sediment. Another state program which applies throughout the state is the Debris in Stream Law. This law is intended to protect aquatic habitats from excessive debris associated with forestry operations. These complimentary programs apply throughout the Commonwealth of Virginia.

Incentive programs which promote streamside management in the 6217 management area include use-value assessment and cost-share assistance programs. Best management practices including streamside management are required for all private lands which receive cost-share financial assistance. Similarly, land owners eligible for use-value assessments must follow forestry BMP's. These incentive programs are supported by the Virginia Cooperative Extension Service which provides BMP training and assistance to loggers.

The Streamside Management Areas measure can be enforced within the Bay drainage of Tidewater Virginia. If a Streamside Management Zone (SMZ) is not maintained in accordance with the *Forestry Best Management Practices for Water Quality in Virginia*, it would also be considered a Chesapeake Bay Preservation Areas (CBPA) buffer area violation and revegetation of the full 100-foot wide CBPA buffer area and any associated wetland would be required. Forestry operations within CBPAs that do not adhere to the Department of Forestry BMP Handbook must comply with the local CBPA ordinance requirements. Specifically, forestry operations would be required to maintain a 100-foot wide vegetative buffer area along all tidal wetlands, tidal shores, tributary streams, and nontidal wetlands connected by surface flow and contiguous to the other features

(Resource Protection Areas).

In addition to the applicable state programs, several localities have adopted programs which address the requirements of this management measure. For example, several Virginia localities have adopted reservoir protection ordinances and watershed management programs which require streamside management areas. As well, the George Washington National Forest designates all streamside areas and wetlands for special management considerations under a "Streamside Area Management" policy. To protect streamside zones, the George Washington National Forest staff designate all riparian management areas in management plans and timber sale contracts. Sales contracts are used to specify conditions of logging operations in streamside management areas.

C. ROAD CONSTRUCTION/RECONSTRUCTION

(1) Follow preharvest planning (as described under Management Measure A) when constructing or reconstructing the roadway.

(2) Follow designs planned under Management Measure A for road surfacing and shaping.

(3) Install road drainage structures according to designs planned under Management Measure A and regional storm return period and installation specifications. Match these drainage structures with terrain features and with road surface and prism designs.

(4) Guard against the production of sediment when installing stream crossings.

(5) Protect surface waters from slash and debris material from roadway clearing.

(6) Use straw bales, silt fences, mulching, or other favorable practices on disturbed soils on unstable cuts, fills, etc.

(7) Avoid constructing new roads in SMAs to the extent practicable.

Applicability: This measure is intended to apply to all road construction/reconstruction for silvicultural purposes.

APPLICABLE STATE PROGRAMS

Department of Forestry

Debris in Streams Law (Sec. 62.1-194.2, *et seq.* of the *Code of Virginia*)

The Department of Forestry administers the Debris in Stream Law which applies statewide. DOF staff can cite a logger or forestry operator for placing logging debris in a stream if stream flow is impeded or habitat and water quality are degraded.

Forestry Best Management Practices

Forestry Best Management Practices for Water Quality in Virginia encourages log road location, design, and construction which minimizes erosion. In particular, the handbook sets forth guidelines for proper maintenance of drainage systems, road closure and revegetation, and restriction of traffic during unfavorable or wet conditions.

Silvicultural Water Quality Law (Sec. 10.1-1181.1, *et seq.* of the *Code of Virginia*)

The Silvicultural Water Quality Law (Sec. 10.1-1181.1, *et seq.* of the *Code of Virginia*) is administered by the Department of Forestry (DOF) throughout the state. This law makes it unlawful to cause excessive sediment pollution to enter a stream. To minimize erosion from log road construction or reconstruction, field inspections by DOF staff help ensure proper installation of BMPs as detailed in the *Forestry Best Management Practices for Water Quality in Virginia* and to ensure compliance with the Silvicultural Water Quality Law. This law gives DOF personnel authority to stop work, issue fines, and require corrective action for any forestry activity which causes or is likely to cause changes to the physical, chemical, or biological properties of state waters resulting from sediment.

To assist with implementation of this law, the forest industry provides DOF with monthly listings of tracts where logging will be initiated.

Department of Forestry / Department of Conservation and Recreation

Cost Share Programs

The Department of Forestry administers several programs that provide financial assistance to stabilize logging roads. These programs include the Reforestation of Timberlands Program, Stewardship Incentive Program, the Federal Agricultural Conservation Program, and the Forestry Incentive Program. The Reforestation of Timberlands Program will cost share log road stabilization if the road is within

the boundary for the approved Reforestation of Timberlands project.

The Department of Conservation and Recreation manages the Virginia Agricultural Cost Share Program which provides assistance to land owners for log road stabilization practices such as grading and vegetative stabilization.

Virginia Cooperative Extension

Logger Education and Assistance

The Cooperative Extension Program, Virginia Tech offers technical assistance, training sessions, and training and education materials to loggers on all aspects of road construction and logging. These recommendations are based on the *Best Management Practices Handbook for Forestry Operations in Virginia* and are designed to protect water quality. This service is available to loggers statewide. A monthly newsletter highlights current activities and available services.

Virginia Marine Resources Commission

Submerged Lands and Tidal Wetlands Permit Program and the Local Wetlands Board Permit Program
(Sec. 28.2-1200 through 28.2-1300, of the *Code of Virginia*)

The Virginia Marine Resources Commission (VMRC) administers the Submerged Lands and Tidal Wetlands Permit Programs and is charged with the review of all tidal wetlands permit decisions of local wetland boards. The Tidal Wetlands Permit Program applies throughout Tidewater, Virginia. The Submerged Lands Permit Program applies to all state-owned submerged lands. Generally this includes waterways with flows greater than five cubic feet per second (CFS) or drainage areas greater than five square miles.

Permits are issued through a Joint Permit Review process involving local, state, and federal agencies. Permits are reviewed based on compliance with statutory requirements, and Commission guidelines as well as advisory assistance provided by cooperating state and federal agencies. Permit review comments are received from the Department of Environmental Quality, Water Division, the Department of Conservation and Recreation and the Department of Game and Inland Fisheries prior to issuing a permit.

Virginia State Police

Road Safety

The Virginia State Police can correct safety hazards resulting from the accumulation of mud on paved roads. Citizen complaints in the past have provided the impetus for the State Police to use their enforcement powers.

MANAGEMENT MEASURE COMPLIANCE

The state enforceable and voluntary programs described above address the Road Construction/ Reconstruction Management Measure. The *Forestry Best Management Practices for Water Quality in Virginia* encourages loggers to locate, design, and construct roads which minimize adverse impacts to water quality and aquatic habitat. DOF field staff including forest engineers and a hydrologist are available for assistance in log road design, location and construction.

The Silvicultural Water Quality Law reinforces proper road construction by making it unlawful to construct logging roads which cause or have the potential to cause water quality degradation. As stated above, this law gives DOF personnel authority to issue stop work orders, levy fines, and require corrective action for any forestry activity which causes or is likely to cause changes to the physical, chemical, or biological properties of state waters resulting from sediment. These voluntary and enforceable programs apply throughout the Commonwealth of Virginia.

Incentive programs which promote proper road design and construction include use-value assessment and cost-share assistance programs. Best management practices for haul road construction are required for all private lands which receive cost-share financial assistance. Similarly, land owners eligible for use-value assessments must follow forestry BMP's. These incentive programs are supported by the Virginia Cooperative Extension Service which provides BMP training and assistance to loggers. The Virginia Department of Forestry (DOF) also provides road design and construction training to its staff, the forest industry, and loggers.

Another state program which applies throughout the state is the Debris in Stream Law. This law protects aquatic habitats from excessive debris associated with forestry operations including road construction and reconstruction. DOF can use the debris in streams law through civil action to require a logger to remove debris from road construction from an impacted stream. As well the Virginia State Police can correct

safety hazards from mud on hard surface roads traceable to a logging operation.

In addition to the applicable state programs, the George Washington National Forest staff meet annually with their timber purchasers and contractors for training, information exchange and clarification of road specifications. The George Washington National Forest requires logging contractors to construct log roads in compliance with the Forest's road construction manuals and specifications. Many large forest product companies have road building manuals that are distributed to loggers and contractors. These specifications are in compliance with the *Best Management Practices Handbook for Forestry Operations in Virginia.*

Collectively, the voluntary and regulatory programs and policies stated above equal or exceed the effectiveness of the road construction/reconstruction management measure.

D. ROAD MANAGEMENT

(1) Avoid using roads where possible for timber hauling or heavy traffic during wet or thaw periods on roads not designed and constructed for these conditions.

(2) Evaluate the future need for a road and close roads that will not be needed.. Leave closed roads and drainage channels in a stable condition to withstand storms.

(3) Remove drainage crossings and culverts if there is a reasonable risk of plugging or failure from lack of maintenance.

(4) Following completion of harvesting, close and stabilize temporary spur roads and seasonal roads to control and direct water away from the roadway. Remove all temporary stream crossings.

(5) Inspect roads to determine the need for structural maintenance. Conduct maintenance practices, when conditions warrant, including cleaning and replacement of deteriorated structures and erosion controls, grading or seeding of road surfaces, and, in extreme cases, slope stabilization or removal of road fills where necessary to maintain structural integrity.

(6) Conduct maintenance activities, such as dust abatement, so that chemical contaminants or pollutants are not introduced into surface waters to the extent practicable.

(7) Properly maintain permanent stream crossings and associated fills and approaches to reduce the likelihood (a) that stream overflow will divert onto roads, and (b) that fill erosion will occur if the

drainage structures become obstructed.

Applicability: "(This measure) is intended to apply to active and inactive roads constructed or used for silvicultural operations."

APPLICABLE STATE PROGRAMS

Department of Forestry

Forestry Best Management Practices

Forestry Best Management Practices for Water Quality in Virginia encourages proper log road management to minimize erosion. In particular, the handbook sets forth guidelines for proper maintenance of drainage systems, road closure and revegetation, and restriction of traffic during unfavorable or wet conditions.

Silvicultural Water Quality Law (Sec. 10.1-1181.1, *et seq.* of the *Code of Virginia*)

The Silvicultural Water Quality Law (Code of Virginia, Section 10.1-1181.1 *et seq.*) is administered by the Department of Forestry (DOF) throughout the state. This law makes it unlawful to cause excessive sediment pollution to enter a stream.

To assist with implementation of this law, the forest industry provides DOF with monthly listings of tracts where logging will be initiated. Field inspections visits by DOF field staff help ensure proper installation of BMPs as detailed in the *Forestry Best Management Practices for Water Quality in Virginia* to prevent erosion from log roads actively used for logging or site preparation access and violations of the Silvicultural Water Quality Law. This law gives DOF personnel authority to issue stop work orders, levy fines, and require corrective action for any forestry activity which causes or is likely to cause changes to the physical, chemical, or biological properties of state waters resulting from sediment.

Department of Forestry / Department of Conservation and Recreation

Cost Share Programs

The Department of Forestry administers several programs that provide financial

assistance to stabilize logging roads. These programs include the Reforestation of Timberlands Program, the Stewardship Incentive Program, the Federal Agricultural Conservation Program, and the Forestry Incentive Program. The Reforestation of Timberlands Program will cost share log road stabilization if the road is within the boundary for the approved Reforestation of Timberlands project.

The Department of Conservation and Recreation manages the Virginia Agricultural Cost Share Program which also provides assistance to landowners for log road stabilization practices such as grading and vegetative stabilization.

Virginia Cooperative Extension

Logger Education and Assistance

The Virginia Tech Cooperative Extension Program offers technical assistance, training sessions, and educational material to loggers on all aspects of road stabilization and maintenance. This assistance is based on the *Best Management Practices Handbook for Forestry Operations in Virginia* and is designed to protect water quality. This service is available to loggers statewide. A monthly newsletter highlights current activities and available services.

Virginia State Police

Road Safety

The Virginia State Police can correct safety hazards resulting from the accumulation of mud on hard surface roads. Citizen complaints in the past have provided the impetus for the State Police to use their enforcement powers.

MANAGEMENT MEASURE COMPLIANCE

The state enforceable and voluntary programs described above promote proper log road management and maintenance in Virginia. The *Forestry Best Management Practices for Water Quality in Virginia* encourages loggers to maintain drainage systems and to restrict traffic during unfavorable or wet conditions to minimize adverse water quality impacts. In addition, the handbook encourages proper grading, installation of drainage structures such as water bars, and seeding with native grasses or wild flowers. DOF

field staff including forest engineers and a hydrologist are available for assistance in log road design, location and construction. These voluntary and enforceable programs apply throughout the Commonwealth of Virginia.

Compliance with the Silvicultural Water Quality Law reinforces proper road management by making it unlawful to construct logging roads which cause or have the potential to cause water quality degradation. As stated above, this law gives DOF personnel authority to issue stop work orders, levy fines, and require corrective action for any forestry activity which causes or is likely to cause changes to the physical, chemical, or biological properties of state waters resulting from sediment.

Incentive programs which provide financial assistance to stabilize logging roads include use-value assessment and cost-share assistance programs. Best management practices for truck haul road construction, are required for all private lands which receive cost-share financial assistance. Similarly, land owners eligible for use-value assessments must follow forestry BMP's. These incentive programs are supported by the Virginia Cooperative Extension Service which provides training and education materials to loggers on all aspects of road stabilization and maintenance. The Virginia Department of Forestry (DOF) also provides road management training to its staff, the forest industry, and loggers.

The Department of Forestry encourages road closings when logging and reforestation have been completed. Log road restoration can be funded through the Reforestation of Timberlands Cost-share Program and the Stewardship Incentive Program. Both of these programs are administered by the Department of Forestry.

In addition to the statewide programs discussed above, the Virginia State Police can correct safety hazards from mud on hard surface roads traceable to a logging operation. This state enforceable authority, encourages proper road management.

In addition to the applicable state programs, the George Washington National Forest requires logging contractors to maintain temporary roads in compliance with the Forest Service road operation specifications. These requirements are administered through timber harvest contracts. The George Washington National Forest often uses roads constructed as a result of timber harvest for continued access for recreation, wildlife management, hunting, fishing and forest management throughout the life of the next stand of timber. Roads are maintained to strict standards and specifications outlined in USDA Forest Service manuals. The George Washington National Forest staff meet annually with loggers and contractors for training, information exchange and clarification of road specifications, including maintenance.

Collectively, the voluntary and regulatory programs and policies stated above equal or exceed the effectiveness of the preharvest planning management measure.

E. TIMBER HARVESTING

The timber harvesting management measure consists of implementing the following:

(1) Timber harvesting operations with skid trails or cable yarding follow layouts determined under Management Measure A.
(2) Install landing drainage structures to avoid sedimentation to the extent practicable. Disperse landing drainage over sideslopes.
(3) Construct landings away from steep slopes and reduce the likelihood of fill slope failures. Protect landing surfaces used during wet periods. Locate landings outside of SMAs.
(4) Protect stream channels and significant ephemeral drainages from logging debris and slash material.
(5) Use appropriate areas for petroleum storage, draining, dispensing. Establish procedures to contain and treat spills. Recycle or properly dispose of all waste materials.

For cable yarding:

(1) Limit yarding corridor gouge or soil plowing by properly locating cable yarding landings.
(2) Locate corridors for SMAs following Management Measure B.

For groundskidding:

(1) Within SMAs, operate groundskidding equipment only at stream crossings to the extent practicable. In SMAs, fell and endline trees to avoid sedimentation.
(2) Use improved stream crossings for skid trails which cross flowing drainages. Construct skid trails to disperse runoff and with adequate drainage structures.
(3) On steep slopes, use cable systems rather than groundskidding where groundskidding may cause excessive sedimentation.

Applicability: "(This measure) is intended to apply to all harvesting, yarding, and hauling conducted as part of normal silvicultural activities on harvest units larger than 5 acres. This measure does not apply to harvesting conducted for precommercial thinnings or noncommercial firewood cutting."

APPLICABLE STATE PROGRAMS

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-2100 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Area (CBPA) Designation and Management Regulations (VR 173-02-01), implemented through 84 local governments in the Chesapeake Bay watershed area of the coastal mamgement zone, require all local governments in this area to adopt ordinances to control land use activities and to protect water quality. Each local CBPA ordinance requires silvicultural operations to adhere to the water quality protection procedures in the Department of Forestry BMP Handbook.

The Chesapeake Bay Local Assistance Department has estimated that approximately 80% of all lands within Tidewater Virginia have been designated as CBPAs. The Resource Protection Area component of CBPAs includes all perennial flowing waterbodies within Tidewater, Virginia. CBPAs do not cover the entire region as most local government did not designate their entire jurisdiction. Preservation areas in these localities were targeted to include land types that could have the most significant impacts on water quality.

Department of Environmental Quality

Oil Spills (Art. 11, Sec. 62.1-44.34 of the *Code of Virginia*)

Article 11 Section 62.1 - 44.34 of the Code of Virginia prohibits the discharge of any volume of oil. Specifically, it states that the discharge of oil into or upon state waters, land, or storm drain systems is prohibited within the Commonwealth of Virginia.

Department of Forestry

Debris in Streams Law (Sec. 62.1-194.2, *et seq.* of the *Code of Virginia*)

The Department of Forestry administers the Debris in Stream Law which applies statewide. DOF staff can cite a logger or forestry operator for placing logging debris in a stream if stream flow is impeded or if habitat and water quality are degraded.

Forestry Best Management Practices

Forestry Best Management Practices for Water Quality in Virginia encourages proper harvest management to minimize erosion. The handbook sets forth guidelines for proper design and construction of log decks, landings, portable sawmill locations, and skidding trails. These guidelines address proper location of landings and skid trails, protection of streams and streambanks, waste management, and other appropriate erosion control practices. Department sponsored forestry BMP training sessions have reached over 1,800 loggers.

Silvicultural Water Quality Law (Sec. 10.1-1181.1, *et seq.* of the *Code of Virginia*)

The Silvicultural Water Quality Law (Sec. 10.1-1181.1, *et seq.* of the *Code of Virginia*) is administered by the Department of Forestry (DOF) throughout the state. This law makes it unlawful to cause excessive sediment pollution to enter a stream.

To assist with implementation of this law, the forest industry provides DOF with monthly listings of tracts where logging will be initiated. Field inspections by DOF staff help ensure proper installation of BMPs as detailed in *Forestry Best Management Practices for Water Quality in Virginia* to prevent erosion from timber harvesting operations and possible violations of the Silvicultural Water Quality Law. This law gives DOF personnel authority to issue stop work orders, levy fines, and require corrective action for any forestry activity which causes or is likely to cause changes to the physical, chemical, or biological properties of state waters resulting from sediment.

Virginia Cooperative Extension

Logger Education and Assistance

Through the Cooperative Extension Program, Virginia Tech offers technical assistance, training sessions, and educational material to loggers on skidding. This assistance is based on the *Best Management Practices Handbook for Forestry* and is designed to protect water quality. This service is available to loggers statewide. A monthly newsletter highlights current activities and available services.

Virginia Forestry Association and the Lumber Manufacturers Association

Occupational Safety and Health Administration

Two Virginia organizations, the Lumber Manufacturers and the Virginia Forestry Association provide materials to loggers regarding Occupational Safety and Health Administration (OSHA) requirements. A training manual is available through these organizations which includes Best Management Practices information.

MANAGEMENT MEASURE COMPLIANCE

The Department of Forestry inspects all logging sites for compliance with Best Management Practices and to enforce the Silvicultural Water Quality Law. Department of Forestry programs include: preharvest planning services, on-site logger meetings, logger training, site inspections, enforcement of the Debris in Streams Law and the Silvicultural Water Quality Law. Technical assistance is also provided to landowners and loggers by DOF forest engineers and a hydrologist.

The Department of Forestry encourages forestry operations to implement BMPs which address the requirements specified in the Timber Harvesting management measure. Specific BMP's include: proper design and construction of log decks, landings, portable sawmill locations, and skidding trails. Proper waste management and appropriate erosion control practices are also encouraged. The Virginia Tech Cooperative Extension Program and DOF provide training for loggers in skidding techniques. Regional conferences, such as one on wetland logging in coastal areas, have been sponsored and conducted by university staff. Training materials and a video are also available.

The Department of Environmental Quality, Water Division can take actions for oil spills

on logging skid trails, landings or decks with problems if notified of the situation. This authority is also enforceable statewide.

In addition to the applicable state programs, the George Washington National Forest requires logging contractors to develop and use skid trails in compliance with the Forest's specifications. These requirements are administered through logging contracts. The George Washington National Forest uses timber sale contracts to prevent improper skidding. Annually, Forest Service staff meet with contractors to discuss specifications and procedures for logging and timber sale contracts.

Tree cutting and skidding are two of the most dangerous silvicultural activities. Insurance carriers sponsored by the Virginia Forestry Association and the Lumber Manufacturers Association conduct training programs emphasizing safety, BMPs, and equipment maintenance. These training programs are available to all loggers. In addition, Department of Labor and Industry Safety officers periodically inspect logging operation for safety hazards and violation of worker safety laws. They work with the Department of Forestry to improve all aspects of logging, including BMP compliance.

Silvicultural operations in Chesapeake Bay Preservation Areas that do not adhere to the Department of Forestry BMP Handbook must comply with the local CBPA ordinance requirements. However, the only CBPA ordinance requirement pertaining to silviculture that can be enforced is the requirement for a 100-foot wide vegetative buffer area along all tidal wetlands, tidal shores, tributary streams, and nontidal wetlands connected by surface flow and contiguous to the other features (Resource Protection Areas). As such, timber harvesting activities can be addressed in the SMA only. If a timber harvesting violation occurs in the SMA, it would also be considered a CBPA buffer area violation and revegetation of the full 100-foot wide CBPA buffer area and any associated wetlands would be required.

Collectively, the voluntary and regulatory programs and policies stated above equal or exceed the effectiveness of the requirements for road management specified in the guidance.

F. *Site Preparation and Forest Regeneration*

Confine on-site potential NPS pollution and erosion resulting from site preparation and the regeneration of forest stands. The components of the management measure for site preparation and regeneration are:

(1) *Select a method of site preparation and regeneration suitable for the site conditions.*
(2) *Conduct mechanical tree planting and ground-disturbing site preparation activities on the contour of sloping terrain.*
(3) *Do not conduct mechanical site preparation and mechanical tree planting in streamside management areas.*
(4) *Protect surface waters from logging debris and slash material.*
(5) *Suspend operations during wet periods if equipment used begins to cause excessive soil disturbance that will increase erosion.*
(6) *Locate windrows at a safe distance from drainages and SMAs to control movement of the material during high runoff conditions.*
(7) *Conduct bedding operations in high-water-table areas during dry periods of the year. Conduct bedding in sloping areas on the contour.*
(8) *Protect small ephemeral drainages when conducting mechanical tree planting.*

Applicability: "(This measure) is intended to apply to all site preparation and regeneration activities as part of normal silvicultural activities on harvest units larger than 5 acres."

APPLICABLE STATE PROGRAMS

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-2100 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Area (CBPA) Designation and Management Regulations (VR 173-02-01), implemented through 84 local governments in the Chesapeake Bay watershed area of the coastal mamgement zone, require all local governments in this area to adopt ordinances to control land use activities and to protect water quality.

The Chesapeake Bay Local Assistance Department has estimated that approximately 80% of all lands within Tidewater Virginia have been designated as CBPA. The Resource Protection Area component of CBPAs includes all perennial flowing waterbodies within Tidewater Virginia. CBPAs do not cover the entire region as most local government did not designate their entire jurisdiction. Preservation areas in these localities were targeted to include land types that could have the most significant impacts on water quality.

Silvicultural operations in Chesapeake Bay Preservation Areas that do not adhere to the Department of Forestry BMP Handbook must comply with the local CBPA ordinance requirements. However, the only CBPA ordinance requirement pertaining to silviculture that can be enforced is the requirement for a 100-foot wide vegetative buffer area along all tidal wetlands, tidal shores, tributary streams, and nontidal wetlands connected by surface flow and contiguous to the other features (Resource Protection Areas). As such, site preparation activities are prohibited in the SMA. If site preparation occurs in the SMA it would be considered a CBPA buffer area violation and revegetation of the full 100-foot wide CBPA buffer area and any associated wetland would be required.

Department of Environmental Quality

Emission Standards for Open Burning (Rule 4-40)

Prescribed burning activities are regulated by the Department of Environmental Quality, Air Division under Emission Standards for Open Burning (Rule 4-40). Additionally, the Department of Forestry has developed, *A Guide to Wildland Fuels Smoke Management.* Training based on these voluntary guidelines have been given to all Department employees and to many forest industry employees.

Department of Forestry

Debris in Streams Law (Sec. 62.1-194.2, *et seq.* of the *Code of Virginia*)

Under section 62.1-194.2 of the Code of Virginia, Department of Forestry staff can cite a logger or forestry operator placing logging debris in a stream if flow is impeded or habitat and water quality degraded. This law encourages proper streamside management and applies statewide.

Forestry Best Management Practices

Forestry Best Management Practices for Water Quality in Virginia encourages the use of suitable methods of site preparation and forest regeneration. These guidelines recommend mechanical planting on contour during favorable weather conditions and discourage mechanical site preparation and planting in Streamside Management Zones (SMZs). The handbook describes guidelines for eight site

preparation and forest regeneration practices.

Silvicultural Water Quality Law (Sec. 10.1-1181.1, *et seq.* of the *Code of Virginia*)

The Silvicultural Water Quality Law (Code of Virginia, Section 10.1-1181.1 *et seq.*) is administered by the Department of Forestry (DOF) and applies to the entire state. This law makes it unlawful to cause excessive sediment pollution to enter a stream, and it can be used to take corrective actions, levy fines or issue stop work orders on mechanical site preparation activities which threatens water quality.

Virginia Seed Tree Law (Sec. 10.1 - 1163, *et seq.* of the *Code of Virginia*)

The Virginia Seed Tree Law §10.1 - 1163 of the Code of Virginia, administered by DOF, requires that a preharvest plan be prepared and approved by the State Forester or that a forest operation be subject to the requirement that eight cone-bearing trees with a minimum 14 inch diameter be preserved. This law may also require an alternate management plan to address reforestation for pine or pine-hardwood tracts harvested in Virginia. DOF also provides landowner assistance regarding site preparation methods and reforestation requirements.

Department of Forestry / Department of Conservation and Recreation

Cost Share Programs

The Department of Forestry administers the Reforestation of Timberlands Program, the Stewardship Incentive, the federal Agricultural Conservation Program, and Forestry Incentive Program.

The Department of Conservation and Recreation manages the Virginia Agricultural Cost Share Program and also provides assistance to land owners for site preparation and revegetation.

MANAGEMENT MEASURE COMPLIANCE

DOF guidelines published in *Forestry Best Management Practices for Water Quality in Virginia* are intended to increase the benefits received from forest land while maintaining

water quality. These guidelines also address many of the requirements specified in the site preparation and forest regeneration management measure. Specifically, the handbook encourages mechanical planting on contour during favorable weather conditions and discourages mechanical site preparation operations in Streamside Management Zones (SMZs). The handbook also describes eight site preparation and forest regeneration practices intended to protect water quality. DOF field staff, forest engineers, and a hydrologist, are available to provide technical assistance.

The Silvicultural Water Quality Law gives DOF personnel authority to issue stop work orders, levy fines, and require corrective action for site preparation and forest regeneration activities which degrade or have the potential to degrade water quality. These voluntary and enforceable programs apply throughout the Commonwealth of Virginia.

The Virginia Stewardship Incentive Program and Reforestation of Timberlands Cost Share Program require preparation of a management plan for funded activities. The Virginia Reforestation of Timberlands program is managed by DOF staff with an advisory board. Appropriate site preparation and seedling planting practices are required by these incentive programs. All site preparation methods are prioritized for cost-effectiveness and impacts to the environment. Mechanical site preparation methods have a low priority and thus are infrequently funded. Mechanical tree planting is not frequently used for reforestation or site preparation in Virginia. Mechanical tree planters are sometimes used in hardwood areas or for open field planting.

The Virginia Agricultural Cost Share Program, also provides financial assistance to landowners for BMPs used during site preparation and revegetation. This program is administered by the Department of Conservation and Recreation.

Prescribed burning is regulated by the Department of Environmental Quality under the Emission Standards for Open Burning Regulations. Smoke management plans are written for each prescribed burn funded through cost-share programs and/or conducted by the Department of Forestry. While primarily prepared for human health purposes, smoke management plans also address pertinent environmental concerns. For example, fire lanes are placed on contour where possible, and BMPs are installed on all fire lanes on burns conducted by DOF.

The Virginia Seed Tree Law addresses reforestation for pine or pine-hardwood tracts harvested in Virginia. As well, DOF provides landowner assistance regarding site preparation methods and reforestation requirements.

Silvicultural operations in Chesapeake Bay Preservation Areas that do not adhere to the Department of Forestry BMP Handbook must comply with the local CBPA ordinance requirements. However, the only CBPA ordinance requirement pertaining to silviculture that can be enforced is the requirement for a 100-foot wide vegetative buffer area along all tidal wetlands, tidal shores, tributary streams, and nontidal wetlands connected by surface flow and contiguous to the other features (Resource Protection Areas). As such, site preparation activities are prohibited in the SMA. If site preparation occurs in the SMA, it would be considered a CBPA buffer area violation and revegetation of the full 100-foot wide CBPA buffer area and any associated wetlands would be required.

Collectively, state programs and enforceable policies enable Virginia to meet the Site Preparation and Forest Regeneration Management Measure.

G. FIRE MANAGEMENT

Prescribe fire for site preparation and control or suppress wildfire in a manner which reduces potential nonpoint source pollution of surface waters:

(1) Intense prescribed fire should not cause excessive sedimentation due to the combined effect of removal of canopy species and the loss of soil-binding ability of subcanopy and herbaceous vegetation roots, especially in SMAs, in streamside vegetation for small ephemeral drainages, or on very steep slopes.

(2) Prescriptions for prescribed fire should protect against excessive erosion or sedimentation to the extent practicable.

(3) All bladed firelines, for prescribed fire and wildfire, should be plowed on contour or stabilized with water bars and/or other appropriate techniques if needed to control excessive sedimentation or erosion of the fireline.

(4) Wildfire suppression and rehabilitation should consider possible NPS pollution of watercourses, while recognizing the safety and operational priorities of fighting wildfires.

Applicability: "(This measure) is intended to apply to all harvesting, yarding, and hauling prescribed burning conducted as part of normal silvicultural activities on harvest units larger than 5 acres and for wildfire suppression and rehabilitation on forest land."

APPLICABLE STATE PROGRAMS

Department of Environmental Quality

Emission Standards for Open Burning (Rule 4-40)

Prescribed burning activities are regulated by the Department of Environmental Quality, Air Division under Emission Standards for Open Burning (Rule 4-40). In addition, the Department of Forestry has prepared a smoke management guide which provides a plan format to be followed for each prescribed burn. This plan is used on each site on the day of the burn. The Department of Forestry regional offices are notified and keep a log of each silvicultural prescribed burn.

Department of Forestry

Forestry Best Management Practices

Forestry Best Management Practices for Water Quality in Virginia addresses wildfire reclamation and encourages the use of prescribed burning practices which protect surface waters from excessive sedimentation. Specific practices for wild fire reclamation include reforestation of bare soil and stabilization of firelines, eroding gullies, and access roads. The handbook also discourages plowing firelines directly into streams. BMP's for prescribed burning encourage construction of firelines along Streamside Management Areas to protect the integrity of these areas. As well, water bars and turnouts are encouraged to disperse runoff and to prevent runoff from being channeled directly into streams.

The Department of Forestry provides private forest landowners with information on prescribed fire operations. In addition, the Department develops and trains private contractors to provide prescribed fire services.

Silvicultural Water Quality Law (Sec. 10.1-1181.1, *et seq.* of the *Code of Virginia*)

The Silvicultural Water Quality Law (Code of Virginia, Section 10.1-1181.1 *et seq.*) is administered by the Department of Forestry (DOF) over the entire state. This law makes it unlawful to cause excessive sediment pollution to enter a stream. This law can be used to take corrective actions, levy fines or stop work on a site preparation operation which threatens water quality due to mechanical site preparation activities. As well it reinforces prescribed burning BMP's detailed in

Forestry Best Management Practices for Water Quality in Virginia. DOF staff routinely inspect logging operations to help ensure compliance with this law.

Department of Forestry / Department of Conservation and Recreation

State Cost Share Programs

The Department of Forestry administers the Reforestation of Timberlands Program, the Stewardship Incentive Program, the federal Agricultural Conservation Program, and Forestry Incentive Program. These programs provide financial assistance for prescribed burning which must be conducted in accordance with the *Forestry Best Management Practices Manual.*

MANAGEMENT MEASURE COMPLIANCE

The Commonwealth of Virginia addresses fire management through a combination of voluntary, incentive, and regulatory programs. Best Management Practices (BMP's) for prescribed burning and wildfire suppression and rehabilitation are outlined in *Forestry Best Management Practices for Water Quality in Virginia.* These practices promote wildfire reclamation and encourage the use of prescribed burning practices which protect surface waters from excessive sedimentation. Proper burning techniques, in accordance with the Department of Forestry BMP handbook, must be used on all forest operations using cost-share assistance and Department of Forestry supervised burns.

Wildfire suppression is coordinated by the Department of Forestry, local fire departments and Federal agencies. Extensive training is provided to all fire fighters and managers on the Incident Command System for fire fighting protocol. The Department of Forestry provides stabilization recommendations to landowners experiencing permanent land disturbance from a severe wildfire. On occasion, Soil and Water Conservation Districts have funded stabilization projects.

The Department of Forestry must be notified for all silvicultural prescribed burns conducted in Virginia and site inspections are performed to ensure that prescribed burning and wildfire suppression and rehabilitation activities comply with the Silvicultural Water Quality Law.

The George Washington National Forest uses prescribed burning as a site preparation technique and actively suppresses all wildfire unless within a specially designated wilderness area.

Collectively, the voluntary and regulatory programs and policies stated above protect water quality as effectively as the specified fire management measure.

H. Revegetation of Disturbed Areas

Reduce erosion and sedimentation by rapid revegetation of areas disturbed by harvesting operations or road construction:

(1) Revegetate disturbed areas (using seeding or planting) promptly after completion of the earth-disturbing activity. Local growing conditions will dictate the timing for establishment of vegetative cover.

(2) Use mixes of species and treatments developed and tailored for successful vegetation establishment for the region or area.

(3) Concentrate revegetation efforts initially on priority areas such as disturbed areas in SMAs or the steepest areas of disturbance near drainages.

Applicability: "(This measure) is intended to apply to all disturbed areas resulting from harvesting, road building, and site preparation conducted as a part of normal silvicultural activities."

APPLICABLE STATE PROGRAMS

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-2100 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Area (CBPA) Designation and Management Regulations (VR 173-02-01), implemented through 84 local governments in the Chesapeake Bay watershed area of the coastal mamgement zoney, require all local governments in this area to adopt ordinances to control land use activities and to protect water quality. Each local CBPA ordinance requires silvicultural operations to adhere to the water quality protection procedures in the Department of Forestry BMP Handbook.

The Chesapeake Bay Local Assistance Department has estimated that approximately 80% of all lands within Tidewater Virginia have been designated

sometimes address calibration requirements.

Certain Virginia regulations require that application equipment be in good working order and properly calibrated. Furthermore, these regulations require the use of backflow preventers to protect water supply systems, lakes, other sources of water or other materials. Violation of these regulations triggers enforcement under the authority of the Act.

Violations of the Virginia Pesticide Control Act can result in revocation or suspension of licenses and/or assessment of penalties. Enforcement is administered through 10 regional offices with investigation staffs. Unannounced, random field inspections of pesticide applications are used to enforce the Virginia Pesticide Control Act.

MANAGEMENT MEASURE COMPLIANCE

Virginia's approach to pesticide management fully meets the forest chemical management measure. Voluntary practices set forth in *Forestry Best Management Practices for Water Quality in Virginia* encourage proper planning and application of pesticides and fertilizers to protect surface waters. In addition the Department of Forestry (DOF) administers an aerial spraying program which helps ensure that pesticide application is conducted in manner which minimizes impacts to surface waters.

The Virginia Department of Agriculture and Consumer Services (VDACS) administer the Virginia Pesticide Control Program which regulates who and how pesticides will be used in the state by enforcing the federal label requirements and Worker Protection Standard and requiring training and licensing of individuals and businesses that apply pesticides.

J. Wetlands Forest

Plan, operate, and manage normal, ongoing forestry activities (including harvesting, road design and construction, site preparation and regeneration, and chemical management) to adequately protect the aquatic functions of forested wetlands.

Applicability: "(This measure) is intended to apply specifically to forest management activities in forested wetlands and to supplement the previous management measures by addressing the operational circumstances and management practices appropriate for forested wetlands."

APPLICABLE STATE PROGRAMS

Department of Forestry

Forestry Best Management Practices

Forestry Best Management Practices for Water Quality in Virginia devotes considerable attention to properly managing forested wetlands. The handbook includes a discussion of wetlands soils, types of forested wetlands, and BMP guidelines specifically suitable for silvicultural operations in wetland forests. The following wetland BMP topics are described in the handbook: preharvest planning, truck haul roads, skid trails, log decks, streamside management zones, and cross drainage.

Silvicultural Water Quality Law (Sec. 10.1-1181.1, *et seq.* of the *Code of Virginia*)

The Silvicultural Water Quality Law (Section 10.1-1181.1, *et seq.* of the *Code of Virginia*), is administered by the Department of Forestry (DOF) throughout the state. This law makes it unlawful to cause excessive sediment pollution to enter a stream.

To assist with implementation of this law, the forest industry provides DOF with monthly listings of tracts where logging will be initiated. Routine field inspections of logging operations by DOF field staff ensure proper installation of BMPs and compliance with the Silvicultural Water Quality Law. This law gives DOF personnel authority to issue stop work orders, levy fines, and require corrective action for any forestry activity which causes or is likely to cause changes to the physical, chemical, or biological properties of state waters resulting from sediment.

Virginia Marine Resources Commission

Submerged Lands and Tidal Wetlands Permit Program and the Local Wetlands Board Permit Program
(Sec. 28.2-1200 through 28.2-1300, of the *Code of Virginia*)

The Virginia Marine Resources Commission (VMRC) administers the Submerged

Lands and Tidal Wetlands Permit Program and is charged with the review of all tidal wetland permit decisions of local wetlands boards. The Tidal Wetlands permit program applies throughout Tidewater, Virginia. The Submerged Lands Permit Program applies statewide to all State-owned submerged lands. Generally, this includes waterways with flows greater than five cubic feet per second (CFS) or drainage areas greater than five square miles.

Silvicultural activities in wetland areas may require a permit. Permits are issued through a joint permit review process involving local, state, and federal agencies. Permits are reviewed based on compliance with statutory requirements, Commission guidelines, and advisory assistance provided by cooperating state and federal agencies. Involved agencies include the Department Environmental Quality, Department of Conservation and Recreation, Department of Health, and Department of Game and Inland Fisheries.

MANAGEMENT MEASURE COMPLIANCE

The Department of Forestry's BMP handbook provides detailed guidance on silvicultural practices that should be applied in forested wetlands. Implementation of these wetland BMPs protects Virginia's wetland resources. Routine field inspections by DOF staff encourage the proper installation of wetland BMPs and compliance with the Silvicultural Water Quality Law. This law gives DOF personnel authority to issue stop work orders, levy fines, and require corrective action for any forestry activity which degrades state waters.

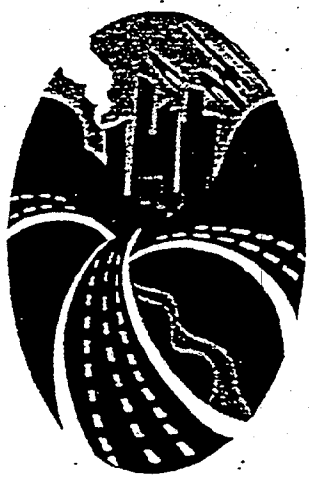
The Tidal Wetlands permit program administered by Virginia Marine Resources Commission (VMRC) applies throughout Tidewater, Virginia, and may be used to protect state waters. Silvicultural activities in wetland areas may require a permit.

The George Washington National Forest designates all streamside areas and wetlands for special management considerations under their "Streamside Area Management" policy. To protect stream side zones, the George Washington National Forest staff designate all riparian management areas in management plans and timber sale contracts. Sales contracts are used to specify conditions of logging operations in streamside management areas.

State enforceable policies and mechanisms meet the requirements specified in the management measure for Wetland Forests.

FORESTRY

A. Preharvest Planning	Meets
B Streamside Management Areas	Meets
C. Road Construction/Reconstruction	Meets
D. Road Management	Meets
E. Timber Harvesting	Meets
F. Site Preparation and Forest Regeneration	Meets
G. Fire Management	Meets
H. Revegetation of Disturbed Areas	Meets
I. Forest Chemicals	Meets
J. Wetlands Forest	Meets



Management measures for urban areas

CHAPTER 5

Management Measures for Urban Areas

Environmental Protection Agency (EPA) and National Oceanic and Atmospheric Administration (NOAA) have identified six broad categories of urban activities that may adversely affect coastal waters. These include developing areas, construction sites, existing development, onsite disposal systems, general sources, and roads, highways and bridges. These urban activities have been targeted because increases in impervious area, associated with urbanization, result in increased volumes of runoff, greater peak discharges, higher velocities, and increases in pollutant loads.

In May 1993, an Urban Work Group was formed to compare existing state nonpoint source pollution control programs of the Commonwealth of Virginia with the Management Measures and program requirements included in Coastal Zone Act Reauthorization Amendments guidance documents issued by the Environmental Protection Agency and the National Oceanic and Atmospheric Administration. The Urban Work Group included representatives from the Department of Conservation and Recreation, Chesapeake Bay Local Assistance Department, Department of Environmental Quality, Department of Health, and the Virginia Department of Transportation. The Home Builders Association of Virginia, Chesapeake Bay Foundation, Lower James River Association, Crater Planning District Commission (PDC), Hampton Roads PDC, Northern Virginia PDC, and RADCO PDC have also participated in the work group.

This assessment of state nonpoint source pollution control programs, was produced using information collected through work group meetings, interviews with state agency staff, and work sheets completed for applicable programs. The matrix on page 4-3 identifies which state programs apply to the management measures for urban areas. This chapter details the specific requirements of each measure and describes applicable state programs. Program descriptions are not comprehensive; rather, they focus on aspects of state programs applicable to the specified management measures. A table at the end of the chapter summarizes how state programs address the urban areas management measures within the coastal zone.

Urban Management Measures

State Programs

	New Development	Watershed Protection	Site Development	Construction Site E&S Control	Construction Site Chemical Control	Existing Development	New Onsite Disposal Systems	Operating Onsite Disposal Systems	Pollution Prevention	Developing Roads & Highways	Bridges	Construction Projects	Construction Site Chemical Control	Operation & Maintenance	Runoff Systems
Stormwater Management Act	X	X								X	X			X	X
Erosion and Sediment Control Law			X	X	X					X	X	X	X	X	
Chesapeake Bay Preservation Act	X	X	X	X		X	X	X		X	X	X		X	
Sewage Handling & Disposal Regulations							X	X	X						
Virginia Department of Transportation										X	X	X	X	X	
Nutrient Management Program									X						
Pesticide Regulations					X								X		
Solid Waste Management Regulations					X								X		
Recycling Programs					X				X						
Pollution Prevention and Waste Reduction Programs									X						
Virginia Water Protection Permit Regulations			X							X	X				
Oil Spill Contingency Plan					X								X		
UST					X								X		
Virginia Marine Resources Commission			X							X	X				

September 1995

For each management measure, the Urban Work Group has evaluated how well state programs comply with the federal guidance based on: (1) specific management measure requirements or performance standards, and (2) enforceable policies or mechanisms.

Relationship to the NPDES Stormwater Discharge Permit Program

EPA is excluding all stormwater discharges that are covered by Phase I of the NPDES stormwater discharge permit program from coverage under section 6217(g) guidance. This includes any discharge from a municipal storm sewer system serving a population of 100,000 or more; any discharge of stormwater associated with an industrial activity; any discharge that has already been permitted; and any discharge for which EPA or the state makes a determination that the stormwater discharge contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.

State Program Descriptions

The Department of Conservation and Recreation and the Chesapeake Bay Local Assistance Department administer programs that are applicable to several management measures. These programs are described here; specific program requirements are noted for each management measure.

Department of Conservation and Recreation

Erosion and Sediment Control Law

The Erosion and Sediment Control Law was adopted in 1973 (§ 10.1-560, et seq., Code of Virginia). Minimum criteria, standards and guidelines established in the 1974 Virginia Erosion and Sediment Control Handbook evolved into the Virginia Erosion and Sediment Control Regulations (VR 625-02-00) adopted in 1990 by the Soil and Water Conservation Board.

The state erosion and sediment control program addresses erosion and sediment transport that occur from land development during project construction. The regulations establish minimum standards for local erosion and sediment control programs and state agency projects and are applicable to land development projects disturbing 10,000 square feet or more.

This regulatory program is implemented statewide through 171 local erosion and sediment control programs and the Department of Conservation and Recreation. Localities implement the program through the adoption of local ordinances. Localities may reduce the 10,000 square foot threshold and may adopt criteria more stringent than the minimum requirements contained in the regulations.

Localities oversee compliance with local program requirements on private land development projects. Enforcement options specified in the law include stop work orders, criminal penalties, a schedule of civil penalties, and civil charges (§§ 10.1-562.J, 10.1-566.C, 10.1-569, 10.1-569.1, Code of Virginia).

Compliance with the erosion and sediment control regulations is compulsory for state agencies. State agencies must submit erosion and sediment control plans to the Department of Conservation and Recreation for review and approval before any land-disturbing activity may commence.

The Department of Conservation and Recreation has oversight responsibilities for local programs and state agency projects. If a locality is found to have a program which does not comply with the minimum requirements, the Soil and Water Conservation Board will notify the program authority and identify the required corrective action. If the corrective action is not implemented, the Soil and Water Conservation Board may revoke its approval of the local program (§ 10.1-562.E, Code of Virginia). In extreme cases, the Soil and Water Conservation Board may issue a stop work order for a private land development project if the local program fails to take necessary enforcement action (§ 10.1-569.1, Code of Virginia).

Stormwater Management Act

In 1989, the General Assembly adopted the Stormwater Management Act (§ 10.1-603, et seq., Code of Virginia) enabling the establishment of comprehensive stormwater management programs. The Department of Conservation and Recreation adopted the Virginia Stormwater Management Regulations (VR 215-02-00) in 1990.

The state stormwater management program addresses the permanent changes in stormwater runoff that occur as a result of land development. The regulations specify minimum technical and administrative requirements for local programs and state agency projects and are applicable to development projects that disturb one acre of land or more. The technical requirements include water quality and water quantity control criteria.

Localities are provided the option of adopting local stormwater management programs. Localities choosing to adopt a stormwater management program must comply with the minimum criteria established in the regulations. Localities may reduce the one-acre threshold and may adopt criteria more stringent than the minimum requirements contained in the regulations. Localities implement the program through the adoption of local ordinances.

Localities oversee compliance with local program requirements on private land development projects. Enforcement options specified in the law include criminal penalties, civil penalties and civil charges (§ 10.1-603.14, Code of Virginia).

Compliance with the minimum stormwater management criteria is compulsory for state agencies. State agencies must submit stormwater management plans to the Department of Conservation and Recreation for review and approval before any land-disturbing activity may commence.

The Department of Conservation and Recreation has oversight responsibilities for local programs and state agency projects. If a locality is found to have a program which does not comply with the minimum requirements, the Department of Conservation and Recreation may issue an order requiring the necessary corrective action be taken (§ 10.1-603.12.B, Code of Virginia).

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act

The Chesapeake Bay Local Assistance Department (CBLAD) administers the Chesapeake Bay Preservation Act (§ 10.1-2100, et seq., Code of Virginia). This regulatory program is implemented through 84 local governments in the coastal plain region of the state coastal management zone. Designation of Chesapeake Bay Preservation Areas (CBPAs) does not cover the entire region as some local governments did not designate their entire jurisdiction. However, CBLAD estimates that approximately 80% of all lands within Tidewater Virginia is designated as CBPA. The Chesapeake Bay Preservation Area Designation and Management Regulations (VR 173-02-01) specify eleven performance criteria that apply to proposed development activities within CBPAs.

Local governments must designate two components of the CBPAs: Resource Protection Areas (RPAs) and Resource Management Areas (RMAs). RPAs are sensitive lands at or near the shoreline that have an intrinsic water quality value

due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant degradation to the quality of state waters. The RPAs include tidal shores, tidal wetlands, nontidal wetlands contiguous to tidal wetlands, other lands deemed to be significant in the protection of state waters, and a 100-foot buffer landward of these features, as well as along tributary streams. Development in the RPA is limited to water dependent facilities or the redevelopment of existing facilities, provided these activities adhere to the performance criteria specified in the regulations.

RMAs are land types that, if improperly used or developed, have a potential for causing significant water quality degradation or diminishing the functional value of the RPA. The RMA must encompass a land area large enough to provide significant water quality protection. The following categories must be considered by the locality for inclusion in the RMA: floodplains; highly erodible soils, including steep slopes; highly permeable soils; nontidal wetlands not included in the RPA; and other lands necessary to protect the quality of state waters.

The program is enforced at the state level by the Chesapeake Bay Local Assistance Board (CBLAB), a nine-member citizen board (§§ 10.1-2102, 10.1-2103, Code of Virginia). CBLAD monitors implementation efforts; CBLAB is responsible for the review of overall program implementation. CBLAB's consistency review process provides procedures for the detection of non-compliance in local programs. If CBLAB finds a local program not complying with the law or regulations, it will take action pursuant to the Administrative Process Act (§ 9-6.14:11-19, Code of Virginia) and the Chesapeake Bay Preservation Act (§§ 10.1-2103:8, 10.1-2103:10, 10.1-2104, Code of Virginia) to ensure compliance. Such actions may involve administrative hearings and/or judicial proceedings.

At the local level, localities implement and enforce the program through their land use management tools such as the comprehensive plan, zoning ordinance, and subdivision ordinance.

PROGRAM ASSESSMENT BY MANAGEMENT MEASURE

Each of the specified management measures for urban areas is identified and discussed in the section which follows. The management measures are presented as they appear in the program guidance issued by EPA and NOAA. Within the urban areas source category, there are subcategories for Urban Runoff; Construction Activities; Existing Development; Pollution Prevention; and Roads, Highways, and Bridges. For each

management measure the applicable program descriptions are listed alphabetically and grouped together by the agency which administers them. In the compliance section which follows these descriptions, more consideration has been given to the relative importance of each of the individual programs.

This chapter identifies the requirements of each management measure, provides a brief program description of applicable state programs, and a discussion of how well these programs comply with the requirements of each management measure. Program descriptions are not comprehensive; rather, they focus on aspects of state programs applicable to the specified management measures. The management measure compliance discussion describes coordination between state programs and summarizes how well state programs meet management measure requirements.

URBAN RUNOFF

A. New Development Management Measure

(1) By design or performance:

(a) After construction has been completed and the site is permanently stabilized, reduce the average annual total suspended solid (TSS) loadings by 80 percent. For the purposes of this measure, an 80 percent TSS reduction is to be determined on an average annual basis, or*

(b) Reduce the post development loadings of TSS so that the average annual TSS loadings are no greater than predevelopment loadings; and

(2) To the extent practicable, maintain post development peak runoff rate and average volume at levels that are similar to predevelopment levels.

* *Based on the average annual TSS loadings from all storms less than or equal to the 2-year 24-hour storm. TSS loadings from storms greater than the 2-year 24-hour storm are not expected to be included in the calculation of the average annual TSS loadings.*

Applicability: "This management measure is intended to be applied by States to control urban runoff and treat associated pollutants generated from new development, redevelopment, and new and relocated roads, highways, and bridges."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-200 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations (VR 173-02-01)

Section 4.2.8 of the Chesapeake Bay Preservation Area Designation and Management Regulations provides nonpoint source pollutant removal/reduction requirements applicable to nutrients generated by the development. These water quality criteria apply a "no net increase" standard to new development and a "10% reduction" standard to redevelopment and are applicable to development projects that disturb 2500 square feet or more. For new development, the post development nonpoint source pollution runoff load cannot exceed the pre-development load based on average land cover conditions. Redevelopment activities must achieve a 10% reduction of nonpoint source pollution in runoff compared to the existing load from the site. The keystone pollutant is phosphorus. Quantity controls are not included.

The requirements are mandatory in Chesapeake Bay Preservation Areas in Tidewater Virginia. Localities outside of Tidewater may also adopt the criteria.

Department of Conservation and Recreation

Erosion and Sediment Control Law (Sec. 10.1-560, *et seq.* of the *Code of Virginia*) *Virginia Erosion and Sediment Control Regulations* (VR 625-02-00)

Section 1.5.19 of the Virginia Erosion and Sediment Control Regulations (VR 625-02-00) addresses stormwater runoff. This section states that properties and waterways downstream from development sites shall be protected from sediment deposition, erosion, and damage due to increases in volume, velocity and peak flow rate of stormwater runoff for the designated frequency storm. Concentrated runoff leaving a development site must be discharged to an adequate receiving channel. If the receiving channel is inadequate, the developer may (1) improve the channel, (2) provide onsite detention, or (3) provide a combination of channel improvements, detention, and other measures.

This requirement is mandatory statewide. In Tidewater Virginia, the land

disturbing threshold is 2500 square feet. The minimum threshold outside of Tidewater is 10,000 square feet, though localities may choose to reduce the threshold.

Virginia Stormwater Management Regulations (VR 215-02-00)

The Virginia Stormwater Management Regulations (VR 215-02-00) specify the water quality and water quantity criteria that apply to land development projects that disturb one acre or more. The water quality criterion requires treatment of the first 0.5 inch of runoff through extended detention, retention, or infiltration measures. The water quantity requirements state that the post-development peak flows from the two-year and ten-year storms cannot exceed the pre-development peak rates.

The stormwater management regulations are optional for localities and mandatory for state agency projects.

MANAGEMENT MEASURE COMPLIANCE:

The Chesapeake Bay Preservation Act regulations are mandatory in Chesapeake Bay Preservation Areas in Tidewater Virginia. Water quality requirements are based on the pre-development pollutant loads. For land development projects where the pre-development load is small and the post development load is high, the resulting phosphorus removal requirement may be equivalent to the 80% TSS requirement. For other land development projects where the difference between the pre- and post-development pollutant loads is not as drastic, the removal requirement will not be equivalent to the 80% TSS requirement. These requirements provide partial compliance with the water quality measure.

The water quality measure (80% TSS) promulgated by EPA is based on Delaware's water quality requirement. Delaware established the following technology based requirements for water quality: Treat the first 1.0 inch of runoff using extended detention (24 hours); retention (treatment volume equals 1.0 inch of runoff multiplied by the site area); or infiltration (1.0 inch of runoff from all streets, roads and parking lots).

The Virginia Stormwater Management Regulations also use a technology based approach. These requirements are: Treat the first 0.5 inch of runoff through extended detention (30 hours); retention (treatment volume equals 1.5 inches of runoff multiplied by the site area); or infiltration (0.5 inch of runoff from the site).

Comparing the two technology based approaches, the Virginia retention requirement meets the measure; however, the extended detention and infiltration requirements do not fully comply with the 80% TSS requirement. The water quantity requirements contained in the state stormwater management program meet the second part of the management measure.

The Virginia Erosion and Sediment Control Regulations require the developer to analyze the post-development runoff condition. Detention of the 2-year storm is an option a developer may choose; however, it is not mandatory.

URBAN RUNOFF

B. Watershed Protection Management Measure

Develop a watershed protection program to:

(1) Avoid conversion, to the extent practicable, of areas that are particularly susceptible to erosion and sediment loss;

(2) Preserve areas that provide important water quality benefits and/or are necessary to maintain riparian and aquatic biota; and

(3) Site development, including roads, highways, and bridges, to protect to the extent practicable the natural integrity of waterbodies and natural drainage systems.

Applicability: "This management measure is intended to be applied by States to new development or redevelopment including construction of new and relocated roads, highways, and bridges that generate nonpoint source pollutants."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-200 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Act (§ 10.1-2100, et seq., Code of Virginia) requires localities within Tidewater Virginia to adopt local programs to protect the quality of state waters. In order to achieve this goal, localities must designate certain land types and features as Chesapeake Bay Preservation Areas. Localities must also adopt specific performance criteria to apply to the use, development, and redevelopment of land within these areas.

Resource Protection Areas (RPAs) are sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant degradation to the quality of state waters. The RPAs include tidal shores, tidal wetlands, nontidal wetlands contiguous to tidal wetlands, other lands deemed to be significant in the protection of state waters, and a 100-foot buffer landward of these features, as well as along tributary streams. Development in the RPA is limited to water dependent facilities or the redevelopment of existing facilities, provided these activities adhere to the performance criteria specified in the regulations. Section 4.3.A of the Chesapeake Bay Preservation Area Designation and Management Regulations requires that a water quality impact assessment (WQIA) be prepared for all proposed development within the RPA. The WQIA identifies the development's impacts on water quality and lands in RPAs.

Roads may be constructed within the RPA when they comply with the following conditions specified in § 4.3.3 of the regulations: (1) there is no reasonable alternative, (2) the layout is optimized to minimize impacts on water quality and encroachment into RPA land types, (3) all performance criteria established in § 4.2 of the regulations are met, and (4) project review is accomplished with local plan review and approval procedures.

Resource Management Areas (RMAs) are land types that, if improperly used or developed, have a potential for causing significant water quality degradation or diminishing the functional value of the RPA. Examples include floodplains; highly erodible soils, including steep slopes; highly permeable soils; nontidal wetlands

not included in the RPA; and other lands necessary to protect the quality of state waters. Development in these areas must adhere to the performance criteria in § 4.2 of the regulations.

Section 4.2.8.a.(2) of the Chesapeake Bay Preservation Area Designation and Management Regulations encourages the development of regional or watershed plans as a means to comply with the water quality criteria.

Section 5.6.A of the regulations requires that local governments in Tidewater Virginia review and revise their comprehensive plans to address the quality of state waters. The comprehensive plan serves to guide future development. The topics for review and revision are (1) the physical constraints to developments such as soil limitations, (2) the protection of groundwater resources, (3) the relationship of land use to fisheries, (4) the appropriate density for docks and piers, (5) the effect of public and private access on water quality, (6) sources of existing pollution such as underground storage tanks, and (7) the potential for water quality improvement through redevelopment. Each of these topics should be discussed and appropriate policy statements developed.

Sections 5.6.B and D of the regulations require that local governments also review and revise their zoning and subdivision ordinances to provide for the protection of state waters and to provide land use regulation consistent with the goals established in the comprehensive plan. Section 5.6.C of the regulations also require local governments establish a plan of development review process to ensure future development is accomplished in a manner that protects the quality of state waters.

The requirements are mandatory in Chesapeake Bay Preservation Areas in Tidewater Virginia. Localities outside of Tidewater may adopt the criteria.

Department of Conservation and Recreation

Erosion and Sediment Control Law
(Sec. 10.1-560, *et seq.* of the *Code of Virginia*)
Virginia Erosion and Sediment Control Regulations (VR 625-02-00)

The Erosion and Sediment Control Law (§ 10.1-563.E, Code of Virginia) states that, in order to prevent further erosion, a locality may require approval of a conservation plan for any land identified in the local program as an erosion impact area. The law defines an erosion impact area as an area of land not associated

with current land-disturbing activity but subject to persistent soil erosion resulting in the delivery of sediment onto neighboring properties or into state waters. It does not include any lot or parcel of land of 10,000 square feet or less used for residential purposes or to shorelines where the erosion results from wave action or other coastal processes.

Section 10.1-570 of the law authorizes a locality or district to adopt more stringent soil erosion and sediment control regulations than those necessary to ensure compliance with the state regulations.

MANAGEMENT MEASURE COMPLIANCE:

The Chesapeake Bay Local Assistance Department (CBLAD) program provides state enforceable policies that meet the management measure. The requirements identified in this measure parallel requirements established by CBLAD for local programs. For the proposed management area outside of Tidewater, the CBLAD requirements are optional.

The Erosion and Sediment Control Law enables localities to identify areas subject to erosion. Although erosion impact area designation does not preclude development of the land, localities may require conservation plans and impose more stringent requirements.

URBAN RUNOFF

C. Site Development Management Measure

Plan, design, and develop sites to:

(1) Protect areas that provide important water quality benefits and/or are particularly susceptible to erosion and sediment loss;

(2) Limit increases of impervious areas, except where necessary;

(3) Limit land disturbance activities such as clearing and grading, and cut and fill to reduce erosion and sediment loss; and

(4) Limit disturbance of natural drainage features and vegetation.

Applicability: This management measure is intended to be applied by States to all site development activities including those associated with roads, highways, and bridges."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-200 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Act (§ 10.1-2100, et seq., Code of Virginia) requires localities within Tidewater Virginia to adopt local programs to protect the quality of state waters. In order to achieve this goal, localities must designate certain land types and features as Chesapeake Bay Preservation Areas. Localities must also adopt specific performance criteria to apply to the use, development, and redevelopment of land within these areas.

Resource Protection Areas (RPAs) are sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant degradation to the quality of state waters. The RPAs include tidal shores, tidal wetlands, nontidal wetlands contiguous to tidal wetlands, other lands deemed to be significant in the protection of state waters, and a 100-foot buffer landward of these features, as well as along tributary streams. Development in the RPA is limited to water dependent facilities or the redevelopment of existing facilities, provided these activities adhere to the performance criteria specified in the regulations. Section 4.3.A of the Chesapeake Bay Preservation Area Designation and Management Regulations requires that a water quality impact assessment (WQIA) be prepared for all proposed development within the RPA. The WQIA identifies the development's impacts on water quality and lands in RPAs.

Sections 1.4 and 4.5.B.1 of the regulations provides the distinction between public roads and other roads. The exemption of public roads is conditioned on the requirements that the alignment and design must be optimized to minimize encroachment in the RPA and adverse effects on water quality. In addition, state erosion and sediment control and stormwater management criteria must be applied.

Other roads may be constructed within the RPA when they comply with the following conditions specified in § 4.3.3 of the regulations: (1) there is no reasonable alternative, (2) the layout is optimized to minimize impacts on water

quality and encroachment into RPA land types, (3) all performance criteria established in § 4.2 of the regulations are met, and (4) project review is accomplished with local plan review and approval procedures.

Resource Management Areas (RMAs) are land types that, if improperly used or developed, have a potential for causing significant water quality degradation or diminishing the functional value of the RPA. Examples include floodplains; highly erodible soils, including steep slopes; highly permeable soils; nontidal wetlands not included in the RPA; and other lands necessary to protect the quality of state waters. Development in these areas must adhere to the performance criteria in § 4.2 of the regulations.

Section 4.2.5 of the Chesapeake Bay Preservation Area Designation and Management Regulations requires that land development minimize impervious cover consistent with the use or development allowed. Minimization of impervious cover is further encouraged through compliance with the water quality performance criteria (§ 4.2.8 of the regulations). The nonpoint source pollution loading and subsequent removal requirement is driven by the percentage of impervious cover on the site and is extremely difficult to meet for excessive amounts of impervious cover. For redevelopment sites that are completely impervious, compliance with the water quality criteria can be met by restoring a minimum of 20% of the site to a vegetated open space.

Section 4.2.1 of the regulations requires that no more land be disturbed than is necessary to provide for the desired use or development. Some localities have opted to provide a specific standard for the maximum amount of disturbance allowed (e.g., 60% of the site).

Section 4.2.2 of the regulations requires that indigenous vegetation be preserved to the maximum extent possible consistent with the use and development allowed. The amount of vegetation preserved is related to the amount of land disturbed, therefore, the general and specific standards for land disturbance also encourage the preservation of vegetation. Preservation of natural drainage features is accomplished somewhat through the RPA designation.

Section 4.2.6 of the regulations requires that land disturbing activities exceeding 2500 square feet comply with the requirements of the local erosion and sediment control ordinance. Section 4.2.4 further requires that development involving land disturbances exceeding 2500 square feet go through a site plan review process consistent with § 15.1-491(h) of the Code of Virginia.

Section 4.2.11 of the regulations requires that evidence of all applicable wetlands permits be provided prior to the authorization of grading or other onsite activities.

These requirements are mandatory in Chesapeake Bay Preservation Areas in Tidewater Virginia. Localities outside of Tidewater may adopt the criteria.

Department of Conservation and Recreation

Erosion and Sediment Control Law (Sec. 10.1-560, *et seq.* of the *Code of Virginia*)
Virginia Erosion and Sediment Control Regulations (VR 625-02-00)

Section 1.5.7 of the Virginia Erosion and Sediment Control Regulations (VR 625-02-00) requires that cut and fill slopes be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilization measures until the problem is corrected.

Section 1.5.12 of the regulations requires that, when working in a live watercourse, precautions be taken to minimize encroachment, control sediment transport, and stabilize the work area to the greatest extent possible during construction. Section 1.5.15 of the regulations requires that the bed and banks of a watercourse be stabilized immediately after work in the watercourse is completed.

These requirements are mandatory statewide. In Tidewater Virginia, the land disturbing threshold is 2500 square feet. The minimum threshold outside of Tidewater is 10,000 square feet, though localities may choose to reduce the threshold.

Virginia Stormwater Management Regulations (VR 215-02-00)

Section 2.4 of the Virginia Stormwater Management Regulations (VR 215-02-00) encourages the use of nonstructural measures. These measures, include cluster development, minimization of impervious surface and curbing requirements, open space acquisition, floodplain management, and protection of wetlands, steep slopes and vegetation should be coordinated with structural requirements. The inclusion of nonstructural measures can reduce the scope and costs of structural practices.

The stormwater management regulations are optional for localities and mandatory for state agency projects.

MANAGEMENT MEASURE COMPLIANCE:

The Chesapeake Bay Local Assistance Department (CBLAD) program provides state enforceable policies that meet the management measure. The requirements identified in this measure parallel the performance criteria established by CBLAD for local programs. For the proposed management area outside of Tidewater, the CBLAD requirements are optional.

The Erosion and Sediment Control Regulations address portions of criteria 3 and 4 of the management measure. These requirements provide partial compliance with the measure.

The Stormwater Management Regulations encourage minimization of impervious surfaces and the protection of wetlands, steep slopes and vegetation. The state stormwater management program is not mandatory but it provides partial compliance with the management measure.

CONSTRUCTION ACTIVITIES

A. Construction Site Erosion and Sediment Control Management Measure

(1) Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction, and

(2) Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

Applicability: "This management measure is intended to be applied by States to all construction activities on sites less than 5 acres in areas that do not have an NPDES permit in order to control erosion and sediment loss from those sites. This management measure does not apply to: (1) construction of a detached single family home on a site of 1/2 acre or more or (2) construction that does not disturb over 5,000 square feet of land on a site."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-200 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations (VR 173-02-01)

The Chesapeake Bay Preservation Area Designation and Management Regulations reduce the disturbance threshold for regulated land-disturbing activities from 10,000 square feet to 2500 square feet in CBPAs (§ 4.2.6). This performance criterion further extends the erosion and sediment control requirements to the construction of septic tanks and drainfields.

Section 4.2.4 of the regulations requires that development involving land disturbances exceeding 2500 square feet go through a site plan review process consistent with § 15.1-491(h) of the Code of Virginia.

Section 4.2.11 of the regulations requires that evidence of all applicable wetlands permits be provided prior to the authorization of grading or other onsite activities.

These requirements are mandatory in Chesapeake Bay Preservation Areas in Tidewater Virginia. Localities outside of Tidewater may adopt the criteria.

Department of Conservation and Recreation

Erosion and Sediment Control Law (Sec. 10.1-560, *et seq.* of the *Code of Virginia*)
Virginia Erosion and Sediment Control Regulations (VR 625-02-00)

Section 10.1-561 of the Erosion and Sediment Control Law directed the Soil and Water Conservation Board to develop a program and promulgate regulations for the effective control of soil erosion, sediment deposition and nonagricultural runoff which must be met in any control program to prevent the unreasonable degradation of properties, stream channels, waters and other natural resources.

Section 10.1-563 of the law states that no person may engage in a land-disturbing activity until an erosion and sediment control plan is submitted to the plan-approving authority for review and approval. The plan-approving authority shall

review the plan and grant written approval if it determines that the plan meets the state requirements and the person certifies that the conservation measures will be properly performed and conform to the provisions of the law.

Section 10.1-565 of the law states that agencies authorized to issue grading, building, or other permits for activities involving land-disturbing activities may not issue any such permit unless the applicant submits with the application an approved erosion and sediment control plan and a certification that the plan will be followed.

The Virginia Erosion and Sediment Control Regulations (VR 625-02-00) establish 19 minimum standards that must be included in local erosion and sediment control programs. These minimum standards specify requirements for temporary and final stabilization, sediment trapping devices, surface runoff, outlet protection, work in watercourses, construction accesses, and increases in post-development runoff velocities, volumes and peak flow rates. Maintenance and inspection requirements are identified in § 1.7 of the regulations.

This requirement is mandatory statewide. In Tidewater Virginia, the land disturbing threshold is 2500 square feet. The minimum threshold outside of Tidewater is 10,000 square feet, though localities may choose to reduce the threshold.

MANAGEMENT MEASURE COMPLIANCE:

The requirements established in the above programs meet the management measure.

The Erosion and Sediment Control Law and Regulations require the preparation, submission and implementation of an erosion and sediment control plan and establish minimum technical requirements for the control of erosion and sediment transport. These requirements are applicable statewide and meet the management measure.

The Chesapeake Bay Preservation Area Designation and Management Regulations reduce the threshold for compliance with the state erosion and sediment control regulations from 10,000 square feet to 2500 square feet. This criterion exceeds the requirement of the management measure. For the proposed management area outside of Tidewater, the threshold is 10,000 square feet.

The intent of this measure is satisfied because a more strict requirement is imposed for construction sites in close proximity to coastal waters (i.e., Tidewater).

CONSTRUCTION ACTIVITIES

B. Construction Site Chemical Control Management Measure

(1) Limit the application, generation, and migration of toxic substances;

(2) Ensure the proper storage and disposal of toxic materials; and

(3) Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface water.

Applicability: This management measure is intended to be applied by States to all construction sites less than 5 acres in area and new, resurfaced, restored, and reconstructed road, highway, and bridge construction projects. This management measure does not apply to: (1) construction of a detached single family home on a site of 1/2 acre or more or (2) construction that does not disturb over 5,000 square feet of land on a site."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-200 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Act (§ 10.1-2100, et seq., Code of Virginia) requires localities within Tidewater Virginia to adopt local programs to protect the quality of state waters. In order to achieve this goal, localities must designate certain land types and features as Chesapeake Bay Preservation Areas. The designation of Resource Protection Areas (RPAs) increases the distance between pollutant generating activities and coastal surface waters.

RPAs are sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant degradation to the quality of state waters. The RPAs include tidal shores tidal wetlands, nontidal wetlands contiguous to tidal wetlands, other lands deemed to be significant in the protection of state waters, and a 100-foot buffer landward of these features, as well as along

tributary streams. Development in the RPA is limited to water dependent facilities or the redevelopment of existing facilities, provided these activities adhere to the performance criteria specified in §§ 4.3.1 and 2 of the Chesapeake Bay Preservation Area Designation and Management Regulations. All non-water-dependent components of the development must be located outside the RPA.

Section 4.2.6 of the regulations requires that land disturbing activities exceeding 2500 square feet comply with the requirements of the local erosion and sediment control ordinance.

Department of Conservation and Recreation

Erosion and Sediment Control Law (Sec. 10.1-560, *et seq.* of the *Code of Virginia*)
Virginia Erosion and Sediment Control Regulations (VR 625-02-00)

Chapter 3 of the *Virginia Erosion and Sediment Control Handbook, Third Edition, 1992* establishes standards and specifications for erosion and sediment control practices. Nutrient management planning considerations and specifications for grasses and other vegetative practices are included. Although the handbook is not a regulatory document, localities have referenced the handbook in their erosion and sediment control ordinances.

Department of Environmental Quality

Oil Discharge Contingency Plan
(Section 62.1-44.34:15, *et seq.* of the *Code of Virginia*)

Section 62.1-44.34:15 of the Code of Virginia requires that all operators of oil storage facilities must have an oil discharge contingency plan approved by the State Water Control Board. These requirements are applicable to facilities that have an aggregate above ground storage or handling capacity greater than or equal to 25,000 gallons. This includes fuel oil, gasoline, diesel, kerosene, gasohol, lube oil, waste oil, asphalt, cutbacks, emulsions, oil mixed with other wastes, crude oil, petroleum by-products, and liquid hydrocarbons regardless of specific gravity.

The plan requirements are specified in the Oil Discharge Contingency Plans and Administrative Fees for Approval regulations (VR 680-14-07) adopted by the State

Water Control Board. The contingency plan must plan for the worst case oil spill; identify natural resources and municipal services at risk, priorities for protection and means of protection; notification procedures; and evidence that private cleanup or contractor resources are available (§ 5.A).

Oil discharge contingency plans must be reviewed, updated if necessary and resubmitted to the State Water Control Board every five years unless significant changes occur sooner.

The State Water Control Board is authorized to issue special orders to require any person to cease and desist from causing or permitting a violation or to comply with the provisions of the law, regulations and conditions of approval. Enforcement options specified in the law include criminal penalties and civil penalties (§ 62.1-44.34:20, Code of Virginia).

These requirements are mandatory statewide.

Department of Environmental Quality

Solid Waste Management Regulations
(Sec. 62.1-194, *et seq.* of the *Code of Virginia*) (VR 762-20-10)

The Solid Waste Management Regulations Program is administered by the Department of Environmental Quality.

Section 10.1-1408.1.A of the Virginia Waste Management Act (§ 10.1-1400, et seq., Code of Virginia) states that no person shall operate any sanitary landfill or other facility for the disposal, treatment or storage of nonhazardous solid waste without a permit from the Director of the Waste Division, Department of Environmental Quality.

The law further states that: (1) no person shall dispose of solid waste in open dumps (§ 10.1-1408.1.G, Code of Virginia); (2) no person shall own, operate, or allow to be operated on his property an open dump (§ 10.1-1408.1.H, Code of Virginia); and (3) no person shall allow waste to be disposed of on his property without a permit (§ 10.1-1408.1.I, Code of Virginia).

Construction and demolition waste (lumber, wire, sheetrock, broken brick, shingles, glass, pipes, concrete, paving materials and metal and plastics if the metal and plastics are part of the materials of construction or empty containers

for such materials); debris waste (stumps, wood, brush, leaves, soil, and road spoils from land clearing operations); and inert waste (rubble, concrete, broken bricks, bricks, and blocks) may be disposed of in a construction/demolition debris landfill, a sanitary landfill, or an industrial waste landfill.

Refuse and scrap metal may be disposed of in a sanitary landfill. Solid wastes which are defined as hazardous wastes by the Virginia Hazardous Waste Management Regulations (VR 672-10-1) must be managed in accordance with those regulations. Persons who generate less than 100 kilograms of hazardous waste per month are conditionally exempt pursuant to § 3.2 of the Virginia Hazardous Waste Management Regulations. These hazardous wastes may be managed in solid waste management facilities in accordance with § 2.10.2 of the Solid Waste Management Regulations.

Part V of the regulations specifies siting, design, construction, operation, and closure requirements for sanitary landfills (§ 5.1), CDD landfills (§ 5.2) and industrial waste landfills (§ 5.3).

The Virginia Waste Management Board is authorized to issue orders to require any person to comply with the provisions of the law, regulations and conditions of a permit or certification. Enforcement options specified in the law include criminal penalties, civil penalties, and civil charges (§ 10.1-1455, Code of Virginia).

These requirements are mandatory statewide.

State Water Control Law (Sec. 62.1-44.2, *et seq.* of the *Code of Virginia*)

The State Water Control Law (§ 62.1-44.2, et seq., Code of Virginia) is administered by the Department of Environmental Quality. Section 62.1-44.34:18 of the law prohibits the discharge of oil into or upon state waters, lands, or storm drainage systems within the Commonwealth. Any person responsible for a discharge of oil to state waters, lands, or storm drain systems must implement any applicable oil spill contingency plan or take the necessary action to contain and clean up the discharge. The person discharging, causing, or permitting a discharge of oil shall be liable for the costs to the Commonwealth or any political subdivision for investigation, containment, and cleanup; property damage; the loss of tax or other revenues; and the loss of natural resources that cannot be restocked, replenished, or restored.

The State Water Control Board is authorized to issue special orders to require any person to cease and desist from causing or permitting a violation or to comply with the provisions of the law, regulations and conditions of approval. Enforcement options specified in the law include criminal penalties and civil penalties (§ 62.1-44.34:20, Code of Virginia).

Department of Labor and Industry

Virginia Occupational Safety and Health Program
(Section 40.1-1 of the *Code of Virginia*)

Section 40.1-1 of the Code of Virginia states that the Virginia Department of Labor and Industry shall be responsible for administering and enforcing occupational safety and health activities as required by the Federal Occupational Safety and Health Act of 1970 (P.L. 91-596) in accordance with the State Plan for enforcement of that Act. In accordance with § 40.1-22 of the Code of Virginia, the Virginia Safety and Health Codes Board adopted the federal Construction Industry Standards as the state standards.

The General Safety and Health Provisions, Construction Industry, 1926.20 through 1926.32, (VR 425-02-103) include the following housekeeping requirements:

(1) Combustible scrap and debris shall be removed at regular intervals during the course of construction.

(2) Containers shall be provided for the collection and separation of waste, trash, oily and used rags, and other refuse. Containers used for garbage and other oily, flammable, or hazardous wastes, such as caustics, acids, harmful dusts, etc. shall be equipped with covers. Garbage and other waste shall be disposed of at frequent and regular intervals.

The Construction Industry Standard for Sanitation, 1926.51, (VR 425-02-72) requires that toilet facilities be provided.

Fire Protection and Prevention, Construction Industry, 1926.150 through 1926.159, (VR 425-02-114) include the following requirements:

(1) Flammable liquids shall be kept in closed containers when not actually in use. Leakage or spillage of flammable or combustible liquids shall be disposed of promptly and safely.

(2) In service and refueling areas, flammable or combustible liquids shall be stored in approved closed containers, in tanks located underground, or in aboveground portable tanks. Underground tanks shall not be abandoned.

The Construction Standards are mandatory statewide and are enforced by the Virginia Occupational Safety and Health Program within the Virginia Department of Labor and Industry. The Commissioner of the Department of Labor and Industry may issue citations and propose fines.

Virginia Department of Agriculture and Consumer Services

Virginia Pesticide Control Act (Sec. 3.1-249.27, *et seq.* of the *Code of Virginia*)

The Virginia Pesticide Control Act (§ 3.1-249.27, et seq., Code of Virginia) and the regulations promulgated under its authority have the effect of implementing in Virginia the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) as well as providing to the Virginia Pesticide Control Board (Board) additional powers relating to regulating pesticide use. Under the authority of the Act and FIFRA, the Board has promulgated regulations establishing certain mandatory programs, including Pesticide Applicator Certification and Pesticide Business Licensing, as well as establishing voluntary programs, such as the Pesticide Disposal Program and the Pesticide Container Recycling Program. Under the authority of FIFRA and in agreement with EPA, the Board's staff will develop pesticide management plans for groundwater. Collectively, these programs regulate who and how pesticides will be used in the state by enforcing the federal label requirements and requiring training and licensing of individuals and businesses that apply pesticides.

In addition to implementing FIFRA, the Board has the power to ban or restrict the use of a pesticide based on its potential to harm the environment (§ 3.1-249.31, Code of Virginia). A comparison of the general powers of the federal and Virginia law to restrict or ban the use of a pesticide based on its potential to cause environmental harm suggests that the Act gives the Board broader powers than those granted to EPA under FIFRA.

Section 3.1-249.52 of the Virginia Pesticide Control Act requires that commercial applicators be certified in accordance with the Regulations Governing Pesticide Applicator Certification Under Authority of Virginia Pesticide Control Act, VR 115-04-23 adopted by the Board. Certifications must be renewed biennially.

Pesticide labels provide the legal framework for the use of the product. Under federal and Virginia law no product may be used in a manner inconsistent with its label's requirements. It is unlawful to dispose of containers or unused portions of pesticide in a manner inconsistent with label directions or Board regulations (§ 3.1-249.64, Code of Virginia). Labels contain information on application rates, timing of application, and other environmental concerns and can sometimes address calibration requirements.

Certain Virginia regulations require that application equipment be in good working order and properly calibrated. Furthermore, these regulations require the use of backflow preventers to protect water supply systems, lakes, other sources of water or other materials. Violation of these regulations triggers enforcement under the authority of the Act.

Violations of the Virginia Pesticide Control Act can result in revocation or suspension of licenses and or assessment of penalties. Enforcement is administered through 10 regional offices with investigation staffs. Unannounced, random field inspections of applications are utilized.

MANAGEMENT MEASURE COMPLIANCE:

The requirements established in the above programs meet the management measure.

The Pesticide Control Act and attendant regulations establish requirements for the application and disposal of pesticides. Commercial applicators must be certified by the Virginia Pesticide Control Board and the Board has the authority to ban or restrict the use of certain pesticides. For pesticides, these requirements meet the management measure.

The requirements for the disposal, storage and treatment of construction debris, refuse and scrap metal are established in the Waste Management Act and the Solid Waste Management Regulations. Landfills must comply with the siting, design, construction, operation, and closure requirements established in the regulations. For construction debris and refuse, these requirements meet the management measure.

The Virginia Occupational Safety and Health Program requirements were primarily established for worker safety. However, the provisions cited above also result in protection to natural resources. Combined with the Solid Waste Management Regulations, they provide state enforceable policies for the proper storage and disposal

of construction materials and waste.

Oil discharges are addressed under the State Water Control Law and the Oil Discharge Contingency Plan requirements. These requirements meet the management measure.

Resource Protection Area designation increases the distance between pollutant generating activities and coastal surface waters. This Chesapeake Bay Local Assistance Department requirement is mandatory within Tidewater and provides partial compliance with the management measure. For the proposed management area outside of Tidewater, the CBLAD requirement is optional.

The Erosion and Sediment Control Program handbook addresses the application of nutrients. These specifications are applicable statewide and provide partial compliance with the management measure.

EXISTING DEVELOPMENT

A. Existing Development Management Measure

Develop and implement watershed management programs to reduce runoff pollutant concentrations and volumes from existing development:

(1) Identify priority local and/or regional watershed pollutant reduction opportunities, e.g., improvements to existing urban runoff control structures;

(2) Contain a schedule for implementing appropriate controls;

(3) Limit destruction of natural conveyance systems; and

(4) Where appropriate, preserve, enhance, or establish buffers along surface waterbodies and their tributaries.

Applicability: "This management measure is intended to be applied by States to all urban areas and existing development in order to reduce surface water runoff pollutant loadings from such areas."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-200 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Act (§ 10.1-2100, et seq., Code of Virginia) requires localities within Tidewater Virginia to adopt local programs to protect the quality of state waters. In order to achieve this goal, localities must designate certain land types and features as Chesapeake Bay Preservation Areas.

Section 4.2.8 of the Chesapeake Bay Preservation Area Designation and Management Regulations specifies nonpoint source pollutant removal/reduction requirements for redevelopment activities going through a plan of development process. This water quality criterion applies a standard of 10% reduction of nonpoint source pollutant loading for development activities on sites currently developed. Redevelopment activities must achieve this reduction compared to the existing runoff load from the site.

Localities may designate appropriate areas as Intensely Developed Areas (IDAs) in accordance with § 3.4 of the regulations. The 10% reduction standard also applies to activities within these areas.

Designation of Resource Protection Areas (RPAs) includes a buffer area of not less than 100 feet in width. Localities must consider implementing measures to reestablish this buffer in IDAs where little of the natural environment remains and the buffer does not exist.

For redevelopment sites that are completely impervious, the water quality criteria encourage site restoration. Converting a minimum of 20% of the site area to vegetated open space is considered a means of complying with this criteria (§ 4.2.8.a.(2), Chesapeake Bay Preservation Area Designation and Management Regulations).

Section 5.6.A of the regulations requires local governments to review and revise their comprehensive plans to address water quality. The topics for review and revision include existing pollution sources and the potential for water quality improvement through redevelopment activities. Each topic should be discussed

and an appropriate policy statement developed.

These requirements are mandatory in Chesapeake Bay Preservation Areas in Tidewater Virginia. Localities outside of Tidewater may adopt the criteria.

Department of Conservation and Recreation

Virginia Stormwater Management Regulations (VR 215-02-00)

Section 3.3 of the Virginia Stormwater Management Regulations (VR 215-02-00) encourage localities to develop watershed management plans. In addition to mitigating the impacts of new development, watershed planning provides an opportunity to remediate flooding or water quality problems caused by uncontrolled existing development.

The stormwater management regulations are optional for localities.

MANAGEMENT MEASURE COMPLIANCE:

The Chesapeake Bay Local Assistance Department requirements address development activities on sites currently developed. Redevelopment activities must achieve the 10% nonpoint source pollutant loading reduction. These requirements provide compliance with the management measure.

The Stormwater Management Regulations encourage the development of watershed plans, to include the control of existing development as an objective. The state stormwater management program is not mandatory and provides partial compliance with the management measure.

EXISTING DEVELOPMENT

ONSITE DISPOSAL SYSTEMS

A. New Onsite Disposal Systems Management Measures

(1) Ensure that new Onsite Disposal Systems (OSDS) are located, designed, installed, operated, inspected, and maintained to prevent

the discharge of pollutants to the surface of the ground and to the extent practicable reduce the discharge of pollutants into ground waters that are closely hydrologically connected to surface waters. Where necessary to meet these objectives: (a) discourage the installation of garbage disposals to reduce hydraulic and nutrient loadings; and (b) where low-volume plumbing fixtures have not been installed in new developments or redevelopments, reduce total hydraulic loadings to the OSDS by 25 percent. Implement OSDS inspection schedules for preconstruction, construction, and postconstruction.

(2) Direct placement of OSDS away from unsuitable areas. Where OSDS placement in unsuitable areas is not practicable, ensure that the OSDS is designed or sited at a density so as not to adversely affect surface waters or ground water that is closely hydrologically connected to surface water. Unsuitable areas include, but are not limited to, areas with poorly or excessively drained soils; areas with shallow water tables or areas with high seasonal water tables; areas overlaying fractured bedrock that drain directly to ground water; areas within floodplains; or areas where nutrient and/or pathogen concentrations in the effluent cannot be sufficiently treated or reduced before the effluent reaches sensitive waterbodies;

(3) Establish protective setbacks from surface waters, wetlands, and floodplains for conventional as well as alternative OSDS. The lateral setbacks should be based on soil type, slope, hydrologic factors, and type of OSDS. Where uniform protective setbacks cannot be achieved, site development with OSDS so as not to adversely affect waterbodies and/or contribute to a public health nuisance;

(4) Establish protective separation distances between OSDS system components and groundwater which is closely hydrologically connected to surface waters. The separation distances should be based on soil type, distance to ground water, hydrologic factors, and type of OSDS;

(5) Where conditions indicate that nitrogen-limited surface waters may be adversely affected by excess nitrogen loadings from ground water, require the installation of OSDS that reduce total nitrogen

loadings by 50 percent to ground water that is closely hydrologically connected to surface water.

Applicability: This management measure is intended to be applied by States to all new OSDS including package plants and small scale or regional treatment facilities not covered by NPDES regulations in order to manage the siting, design, installation, and operation and maintenance of all such OSDS."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-200 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Act (§ 10.1-2100, et seq., Code of Virginia) requires localities within Tidewater Virginia to adopt local programs to protect the quality of state waters. In order to achieve this goal, localities must designate certain land types and features as Chesapeake Bay Preservation Areas. Localities must also adopt specific performance criteria to apply to the use, development, and redevelopment of land within these areas.

Resource Protection Areas (RPAs) are sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant degradation to the quality of state waters. The RPAs include tidal shores, tidal wetlands, nontidal wetlands contiguous to tidal wetlands, other lands deemed to be significant in the protection of state waters, and a 100-foot buffer landward of these features, as well as along tributary streams. Development in the RPA is limited to water dependent facilities or the redevelopment of existing facilities, provided these activities adhere to the performance criteria specified in the regulations. Septic drainfields are not uses permitted by right in the RPA.

Section 4.2.7 of the Chesapeake Bay Preservation Area Designation and Management Regulations requires that all new onsite sewage treatment systems not requiring a Virginia Pollutant Discharge Elimination System Permit shall:

a. Have pump-out accomplished at least once very five years; and

b. Provide a reserve sewage disposal site with a capacity at least equal to the primary disposal site. For parcels recorded prior to October 1, 1989, the reserve site shall be provided if there is sufficient room for such a site. Construction shall be prohibited on these areas until the site is served by public sewer or other facility.

Section 5.6.A of the regulations requires that local governments review and revise their comprehensive plans to address the quality of state waters. The comprehensive plan serves to guide future development. Two policy issues that must be addressed in the comprehensive plan are the physical constraints to development such as drainfield suitability due to soil limitations and existing pollution sources such as failing drainfields.

These requirements are mandatory in Chesapeake Bay Preservation Areas in Tidewater Virginia. Localities outside of Tidewater may adopt the criteria.

Department of Housing and Community Development

Uniform Statewide Building Code, Volume I New Construction Code (VR 394-01-21)

The Uniform Statewide Building Code was adopted by the Board of Housing and Community Development under the authority of the Uniform Statewide Building Code Law (§ 36-97, et seq., Code of Virginia). The Uniform Statewide Building Code has adopted and incorporated the model building codes, and all portions of other model codes and standards, by reference. The referenced model codes include (1) The BOCA National Plumbing Code and (2) The CABO One and Two Family Dwelling Code.

Section P-2317.2 of the CABO One and Two Family Dwelling Code requires that water closets shall be of the water-conserving type. Section P-1222.3 of the BOCA National Plumbing Code requires that flushometer valves be of the water conservation type.

Provisions are made for modifications to model codes or standards when alternate means will provide an equivalent level of compliance. The Uniform Statewide Building Code is updated every three years when new editions of the model codes become available.

Enforcement of the Uniform Statewide Building Code is the responsibility of the

local building department (§ 36-105, Code of Virginia). Violators may be subject to criminal penalties (§ 36-106, Code of Virginia). These requirements are mandatory statewide.

Virginia Department of Health

Environmental Health Services Law (Sec. 32.1-164 of the *Code of Virginia*)
Alternative Discharging Sewage Treatment Regulations for Single Family Dwellings

The Alternative Discharging Sewage Treatment Regulations for Single Family Dwellings were adopted by the State Board of Health under the authority of the Environmental Health Services Law (§ 32.1-164, Code of Virginia). These regulations establish criteria for the construction, location and operation of alternative discharging sewage treatment systems with flows less than or equal to 1000 gallons per day on a yearly average for an individual single family dwelling.

Alternative discharging sewage treatment system is defined as any device or system which results in a point source discharge of treated sewage (§ 32.1-163, Code of Virginia).

Section 2.12 of the regulations states that no person shall construct, alter, rehabilitate, modify or extend a discharging system without a written construction permit from the Department of Health. Facilities are inspected by the district or local health department during construction.

No person shall cause or permit any discharging system to be operated without a written operation permit issued by the Department of Health (§ 2.12.B, Alternative Discharging Sewage Treatment Regulations for Single Family Dwellings). An operation permit is issued upon satisfactory completion of the construction and a certification stating the system was installed and constructed in accordance with the permit, and that the system complies with all applicable state and local regulations, ordinances and laws.

The owner is responsible for the operation and maintenance of the system. If discharges exceed the limits established in the permit, the Department of Health may mandate the repair, expansion or replacement of the discharging system (§ 2.22, Alternative Discharging Sewage Treatment Regulations for Single Family Dwellings).

Part III of the regulations establishes the location, design, construction, operation and maintenance criteria. All discharging systems must be located in a manner that protects public health and minimizes environmental impacts. These criteria include:

- Setback distances for water supply intakes and recreational uses, private and public water supplies, springs, sink holes, limestone outcrops, and shellfish waters.

- Monitoring requirements. Formal testing is conducted on an annual basis for systems with a general approval. Systems with experimental or preliminary approval are tested quarterly and semi-annually, respectively. To assure that monitoring is performed in a timely and competent fashion, the owner must have a monitoring contract (§ 3.11.F, Alternative Discharging Sewage Treatment Regulations for Single Family Dwellings).

- Maintenance. A maintenance contract must be kept in force at all times. Failure to obtain or renew a maintenance contract shall result in the suspension or revocation of the operation permit (§ 3.12.B, Alternative Discharging Sewage Treatment Regulations for Single Family Dwellings).

The Department of Health may revoke or suspend a construction permit or an operation permit (§ 2.18, Alternative Discharging Sewage Treatment Regulations for Single Family Dwellings). The State Board of Health is authorized to issue orders to require any person to comply with the provisions of the law, regulations, or a case decision. Enforcement options specified in the law include criminal penalties, civil penalties, and civil charges (§ 32.1-27, Code of Virginia).

These regulations are applicable statewide.

Environmental Health Services Law (Sec. 32.1-164 of the *Code of Virginia*)
Sewage Handling and Disposal Regulations

The Sewage Handling and Disposal Regulations were adopted by the State Board of Health under the authority of the Environmental Health Services Law (§ 32.1-164, Code of Virginia). The Sewage Handling and Disposal Regulations establish criteria for the construction and operation of onsite disposal systems.

Section 2.12 of the regulations states that the construction, expansion or modification of a sewage disposal system requires a written construction permit

from the Department of Health. Facilities are inspected by the district or local health department during construction. An operation permit is issued upon satisfactory completion of the construction and a certification stating the work was done in accordance with the approved plans and specifications. The owner is responsible for maintaining, repairing, or replacing any sewage disposal system that ceases to operate as defined in the operation permit (§ 2.22, Sewage Handling and Disposal Regulations).

Part III of the regulations establishes the general criteria and methods for sewage handling and disposal. Soil evaluations shall indicate whether or not the soil is suitable for the installation of a subsurface soil absorption system. The topography, available area, seasonal water table, drinking water supplies, bodies of water, shellfish growing areas, soil horizon, depth, rate of absorption, or a combination of any of these factors shall be considered in such evaluation (§ 3.1, Sewage Handling and Disposal Regulations). Other siting factors to consider include:

- Marshes and swamps. Placement of subsurface soil absorption systems on or in swamps and marshes is prohibited.

- Slopes. Subsurface soil absorption systems shall not be placed on slopes greater than 50 percent unless terraced.

- Drainage ways. Subsurface soil absorption systems shall not be placed at a position in a drainage way subject to intermittent flooding.

- Fill material. Placement of subsurface soil absorption systems in fill materials is normally prohibited.

- Rock and impervious strata. A minimum separation distance of one foot must be maintained between rock and impervious strata and the bottom of the system.

- Sinkholes. Placement of a subsurface soil absorption system at the low point of a sinkhole is prohibited.

- Floodplains. Subsurface soil absorption systems shall not be placed in floodplains subject to annual or more frequent sustained flooding.

Design and construction criteria are specified for site preparation, sewers, pretreatment systems, conveyance systems, and subsurface soil absorption

systems in Part IV of the regulations. Minimum separation distances between subsurface soil absorption systems and various structures and topographic features are established in this part (Table 4.4, Sewage Handling and Disposal Regulations). The separation distance between the seasonal water table and the soil absorption trench bottom is based on soil percolation rates (§ 4.30.A.3 and Table 4.6, Sewage Handling and Disposal Regulations). Special caution must be taken to avoid soil compaction of the subsurface system area and smearing of the trench sidewalls or bottom during construction. The area surrounding the absorption area must be graded to divert surface runoff away from the absorption site. No structures may be placed over the subsurface soil absorption system. For mass drainfields, the department requires pre-treatment if nitrogen exceeds 10 mg/lt.

The State Board of Health is authorized to issue orders to require any person to comply with the provisions of the law, regulations, or a case decision. Enforcement options specified in the law include criminal penalties, civil penalties, and civil charges (§ 32.1-27, Code of Virginia).

These regulations are applicable statewide.

MANAGEMENT MEASURE COMPLIANCE:

The requirements established in the above programs partially meet the management measure.

The regulations administered by the Department of Health establish criteria for the construction and operation of onsite disposal systems. Siting requirements, setbacks, and minimum separation distances are specified. Because the separation distance between the seasonal water table and the soil absorption trench bottom may be as small as two inches (based on soil percolation rates), water quality protection may not be achieved. These regulations provide only partial compliance with the management measure.

The Chesapeake Bay Local Assistance Department (CBLAD) program requires localities to designate Resource Protection Areas (RPAs). Septic drainfields are not uses permitted by right in the RPA. Localities must address physical constraints to development, such as soil limitations, in their comprehensive plans. Within Tidewater Virginia, the Chesapeake Bay Local Assistance Department (CBLAD) program provides state enforceable policies that provide partial compliance with the management measure. For the proposed management area outside of Tidewater, the CBLAD requirements are

optional.

The Uniform Statewide Building Code requires the installation of water closets and flushometer valves that conserve water. These requirements provide partial compliance with the management measure.

EXISTING DEVELOPMENT

B. Operating Onsite Disposal Systems Management Measure

(1) Establish and implement policies and systems to ensure that existing OSDS are operated and maintained to prevent the discharge of pollutants to the surface of the ground and to the extent practicable reduce the discharge of pollutants into ground waters that are closely hydrologically connected to surface waters. Where necessary to meet these objectives, encourage the reduced use of garbage disposals, encourage the use of low-volume plumbing fixtures, and reduce total phosphorus loadings to the OSDS by 15 percent (if the use of low-level phosphate detergents has not been required or widely adopted by OSDS users). Establish and implement policies that require an OSDS to be repaired, replaced, or modified where the OSDS fails, or threatens or impairs surface waters;

(2) Inspect OSDS at a frequency adequate to ascertain whether OSDS are failing;

(3) Consider replacing or upgrading OSDS to treat influent so that the total nitrogen loadings in the effluent are reduced by 50 percent. This provision applies only:

(a) where conditions indicate that nitrogen-limited surface waters may be adversely affected by significant ground water nitrogen loadings from OSDS, and

(b) where nitrogen loadings from OSDS are delivered to ground water that is closely hydrologically connected to surface water.

Applicability: "This management measure is intended to be applied by States to all operating OSDS.... This management measure does not apply to existing conventional OSDS that meet all of the following criteria: (1) treat waste water from a single family home; (2) are sited where OSDS density is less than or equal to one OSDS per 20 acres; and (3) the OSDS is sited at least 12,50 feet away from surface waters."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-200 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Act (§ 10.1-2100, et seq., Code of Virginia) requires localities within Tidewater Virginia to adopt local programs to protect the quality of state waters. In order to achieve this goal, localities must designate certain land types and features as Chesapeake Bay Preservation Areas. Localities must also adopt specific performance criteria to apply to the use, development, and redevelopment of land within these areas.

Section 4.2.7 of the Chesapeake Bay Preservation Area Designation and Management Regulations requires that all existing onsite sewage treatment systems not requiring a Virginia Pollutant Discharge Elimination System Permit shall have pump-out accomplished at least once very five years.

Section 5.6.A of the regulations requires that local governments review and revise their comprehensive plans to address the quality of state waters. The comprehensive plan serves to guide future development. Two policy issues that must be addressed in the comprehensive plan are the physical constraints to development such as drainfield suitability due to soil limitations and existing pollution sources such as failing drainfields.

These requirements are mandatory in Chesapeake Bay Preservation Areas in Tidewater Virginia. Localities outside of Tidewater may adopt the criteria.

Virginia Department of Agriculture and Consumer Services

Section 62.1-193.1 of the Code of Virginia prohibits the use, sale, manufacture or

distribution of any cleaning agent that contains more than zero percent phosphorus by weight expressed as elemental phosphorus except for an amount not exceeding 0.5 percent that is incidental to manufacturing. Cleaning agents include laundry detergent, dishwashing compound, household cleaner, metal cleaner, industrial cleaner, phosphate compound or other compound that is intended to be used for cleaning.

Violators may be subject to criminal penalties (§ 62.1-193.3, Code of Virginia).

Virginia Department of Health

Environmental Health Services Law (Sec. 32.1-164 of the *Code of Virginia*)
Alternative Discharging Sewage Treatment Regulations for Single Family Dwellings

The Alternative Discharging Sewage Treatment Regulations for Single Family Dwellings were adopted by the State Board of Health under the authority of the Environmental Health Services Law (§ 32.1-164, Code of Virginia). These regulations establish criteria for the construction, location and operation of alternative discharging sewage treatment systems with flows less than or equal to 1000 gallons per day on a yearly average for an individual single family dwelling.

Alternative discharging sewage treatment system is defined as any device or system which results in a point source discharge of treated sewage (§ 32.1-163, Code of Virginia).

No person shall cause or permit any discharging system to be operated without a written operation permit issued by the Department of Health (§ 2.12.B, Alternative Discharging Sewage Treatment Regulations for Single Family Dwellings). An operation permit is issued upon satisfactory completion of the construction and a certification stating the system was installed and constructed in accordance with the permit, and that the system complies with all applicable state and local regulations, ordinances and laws.

The owner is responsible for the operation and maintenance of the system. If discharges exceed the limits established in the permit, the Department of Health may mandate the repair, expansion or replacement of the discharging system (§ 2.22, Alternative Discharging Sewage Treatment Regulations for Single Family Dwellings).

Part III of the regulations establishes the location, design, construction, operation and maintenance criteria. All discharging systems must be located in a manner that protects public health and minimizes environmental impacts. These criteria include:

- Monitoring requirements. Formal testing is conducted on an annual basis for systems with a general approval. Systems with experimental or preliminary approval are tested quarterly and semi-annually, respectively. To assure that monitoring is performed in a timely and competent fashion, the owner must have a monitoring contract (§ 3.11.F, Alternative Discharging Sewage Treatment Regulations for Single Family Dwellings).

- Maintenance. A maintenance contract must be kept in force at all times. Failure to obtain or renew a maintenance contract shall result in the suspension or revocation of the operation permit (§ 3.12.B, Alternative Discharging Sewage Treatment Regulations for Single Family Dwellings).

The Department of Health may revoke or suspend a construction permit or an operation permit (§ 2.18, Alternative Discharging Sewage Treatment Regulations for Single Family Dwellings). The State Board of Health is authorized to issue orders to require any person to comply with the provisions of the law, regulations, or a case decision. Enforcement options specified in the law include criminal penalties, civil penalties, and civil charges (§ 32.1-27, Code of Virginia).

These regulations are applicable statewide.

Environmental Health Services Law (Sec. 32.1-164 of the *Code of Virginia*)
Sewage Handling and Disposal Regulations

The Sewage Handling and Disposal Regulations were adopted by the State Board of Health under the authority of the Environmental Health Services Law (§ 32.1-164, Code of Virginia). The Sewage Handling and Disposal Regulations establish criteria for the construction and operation of onsite disposal systems.

An operation permit is issued upon satisfactory completion of the construction and a certification stating the work was done in accordance with the approved plans and specifications. The owner is responsible for maintaining, repairing, or replacing any sewage disposal system that ceases to operate as defined in the operation permit (§ 2.22, Sewage Handling and Disposal Regulations).

These regulations encourage water saving plumbing devices to lengthen the life of the system.

The Department of Health has developed a manual addressing the identification and repair of failing drainfields (*The Systematic Evaluation and Repair of Failing Drainfields in the Coastal Zone Area of Virginia*).

The State Board of Health is authorized to issue orders to require any person to comply with the provisions of the law, regulations, or a case decision. Enforcement options specified in the law include criminal penalties, civil penalties, and civil charges (§ 32.1-27, Code of Virginia).

These regulations are applicable statewide.

MANAGEMENT MEASURE COMPLIANCE:

The regulations administered by the Department of Health establish criteria for the construction and operation of onsite disposal systems. Adequate operation, maintenance, and monitoring requirements have been established for discharging systems. There are no requirements for the routine inspection of conventional septic systems. These regulations provide partial compliance with the management measure.

Virginia has adopted legislation prohibiting the use of cleaning agents containing more than zero percent phosphorus by weight expressed as elemental phosphorus. This requirement provides partial compliance with the management measure.

The Chesapeake Bay Local Assistance Department (CBLAD) program requires systems to be pumped out every five years and requires localities to address existing sources of pollution, such as failing drainfields, in their comprehensive plans. Within Tidewater Virginia, the CBLAD program provides state enforceable policies that provide partial compliance with the management measure.

POLLUTION PREVENTION

A. Pollution Prevention Management Measure

Implement pollution prevention and education programs to reduce nonpoint source pollutants generated from the following activities, where applicable:

- *The improper storage, use, and disposal of household hazardous chemicals, including automobile fluids, pesticides, paints, solvents, etc.;*
- *Lawn and garden activities, including the application and disposal of lawn and garden care products, and the improper disposal of leaves and yard trimmings;*
- *Turf management on golf courses, parks, and recreational areas;*
- *Improper operation and maintenance of onsite disposal systems;*
- *Discharge of pollutants into storm drains including floatables, waste oil, and litter;*
- *Commercial activities including parking lots, gas stations, and other entities not under NPDES purview; and*
- *Improper disposal of pet excrement.*

Applicability: "This management measure is intended to be applied by States to reduce the generation of nonpoint source pollution in all areas within the section 6217 management area."

Applicable State Programs

State agencies sponsor or support the following pollution prevention and education activities and materials:

Chesapeake Bay Local Assistance Department

Local Assistance Manual

The Chesapeake Bay Preservation Act (§ 10.1-2100, et seq., Code of Virginia) requires localities within Tidewater Virginia to adopt local programs to protect the quality of state waters. In order to achieve this goal, localities must designate certain land types and features as Chesapeake Bay Preservation Areas. Localities must also adopt specific performance criteria to apply to the use, development, and redevelopment of land within these areas.

Section 5.6.A of the regulations requires that local governments in Tidewater

Virginia review and revise their comprehensive plans to address the quality of state waters. The comprehensive plan serves to guide future development. The topics for review and revision are (1) the physical constraints to developments such as soil limitations, (2) the protection of groundwater resources, (3) the relationship of land use to fisheries, (4) the appropriate density for docks and piers, (5) the effect of public and private access on water quality, (6) sources of existing pollution such as underground storage tanks, and (7) the potential for water quality improvement through redevelopment. Each of these topics should be discussed and appropriate policy statements developed.

Department of Conservation and Recreation

The Department of Conservation and Recreation has produced several innovative publications which encourage pollution prevention:

* Tips on Keeping Your Lawn Green... And the Chesapeake Bay Clean.
* We Would Like to Clear Up a Few Things Related to Lawn Care... Like Virginia's Rivers, Lakes and Streams.
* Treasure of Abundance or Pandora's Box?
* The Virginia Gardener Year Round Guide to Nutrient Management.
* Ecological Turf Tips... To Protect the Chesapeake Bay.
* Classic Agronomic Principles Can Reduce Pesticide Need.
* Nutrient Management for Golf Course Managers.
* Nutrient Management for Lawn Care Services.
* Lawn Fertilization in Virginia.
* Turfgrass Nutrient and Pesticide Management for Public Lands.
* Save Our Streams Program, Izaak Walton League of America

Department of Environmental Quality

The Department of Environmental Quality has produced several innovative publications which encourage pollution prevention. These publications include the following:

* BayScapes.
* 25 Ways to Help Virginia's Environment.
* Nonpoint Source Pollution...Be Part of the Solution.

Pollution Prevention and Waste Reduction Assistance Programs

The Waste Reduction Assistance Program is a voluntary pollution prevention technical assistance program administered by the Department of Environmental Quality. The heart of the Waste Reduction Assistance Program is a pollution prevention information clearinghouse, containing fact sheets, case studies, publications, journals, and other materials related to waste reduction. The following objectives have been established for the Waste Reduction Assistance Program:

(1) Ensure that Virginia industry, public institutions and the general public are educated about and provided with technical assistance for waste reduction and pollution prevention.
(2) Promote pollution prevention with environmental regulatory programs.
(3) Provide staff support to pollution prevention advisory panels.
(4) Administer pollution prevention pilot project program.
(5) Administer waste exchange program.
(6) Administer pollution prevention grants program.
(7) Evaluate program.

Virginia Cooperative Extension Service

The Virginia Cooperative Extension Service has produced several innovative publications which encourage pollution prevention:

* It's Your Bay Protect It!
* Landscape Tips to Improve Water Quality.
* Water Quality in Virginia.
* Compost 'Em Leaf It Alone!
* BayScaping: A Way to Benefit Lawns, Gardens... and the Bay!
* EASY Program.
* Lawn Care Calendar.
* Turf Tips Calibrating Your Lawn Spreader.
* Master Gardener Program.
* Field days and workshops.
* Chesapeake Bay Residential Watershed Water Quality Program.

Virginia Department of Agriculture and Consumer Services

The Virginia Department of Agriculture and Consumer Services has produced the following innovative pollution prevention publications:

* Pesticide Disposal Program ("Clean Days") - cooperative effort with the Virginia Cooperative Extension Service and the Department of General Services.
* Pesticide Container Recycling Program.

Virginia Department of Health

The Virginia Department of Health has produced the following pollution prevention publications:

* Alternative Septic Systems for Virginia.
* Groundwater Contamination and Your Septic System.
* The Facts and Folklore of Septic System Maintenance.
* Taking the Mystery Out of Your Site Evaluation.

Virginia Department of Transportation

The Virginia Department of Transportation has produced the following pollution prevention publications:

* Adopt-a-Highway Program.
* Storm drain stenciling.
* Internal recycling program.

MANAGEMENT MEASURE COMPLIANCE:

Educational materials and pollution prevention activities address the requirements of this management measure.

ROADS, HIGHWAYS, AND BRIDGES

[NOTE: Management Measures II.A and II.B of this chapter also apply to planning, siting, and developing roads and highways.]

A. Management Measure for Planning, Siting, and Developing Roads and Highways

Plan, site, and develop roads and highways to:

(1) Protect areas that provide important water quality benefits or are particularly susceptible to erosion or sediment loss;

(2) Limit land disturbance such as clearing and grading and cut and fill to reduce erosion and sediment loss; and

(3) Limit disturbance of natural drainage features and vegetation.

Applicability: "This management measure is intended to be applied by States to site development and land disturbing activities for new, relocated, and reconstructed (widened) roads (including residential streets) and highways in order to reduce the generation of nonpoint source pollutants and to mitigate the impacts of urban runoff and associated pollutants from such activities."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-200 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Act (§ 10.1-2100, et seq., Code of Virginia) requires localities within Tidewater Virginia to adopt local programs to protect the quality of state waters. In order to achieve this goal, localities must designate certain land types and features as Chesapeake Bay Preservation Areas. Localities must also adopt specific performance criteria to apply to the use, development, and redevelopment of land within these areas.

Resource Protection Areas (RPAs) are sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant

degradation to the quality of state waters. The RPAs include tidal shores, tidal wetlands, nontidal wetlands contiguous to tidal wetlands, other lands deemed to be significant in the protection of state waters, and a 100-foot buffer landward of these features, as well as along tributary streams. Development in the RPA is limited to water dependent facilities or the redevelopment of existing facilities, provided these activities adhere to the performance criteria specified in the regulations.

Sections 1.4 and 4.5.B.1 of the regulations provides the distinction between public roads and other roads. The exemption of public roads is conditioned on the requirements that the alignment and design must be optimized to minimize encroachment in the RPA and adverse effects on water quality. In addition, state erosion and sediment control and stormwater management criteria must be applied.

Other roads may be constructed within the RPA when they comply with the following conditions specified in § 4.3.3 of the regulations: (1) there is no reasonable alternative, (2) the layout is optimized to minimize impacts on water quality and encroachment into RPA land types, (3) all performance criteria established in § 4.2 of the regulations are met, and (4) project review is accomplished with local plan review and approval procedures.

Resource Management Areas (RMAs) are land types that, if improperly used or developed, have a potential for causing significant water quality degradation or diminishing the functional value of the RPA. Examples include floodplains; highly erodible soils, including steep slopes; highly permeable soils; nontidal wetlands not included in the RPA; and other lands necessary to protect the quality of state waters. Development in these areas must adhere to the performance criteria in § 4.2 of the regulations.

Section 4.2.5 of the Chesapeake Bay Preservation Area Designation and Management Regulations requires that land development minimize impervious cover consistent with the use or development allowed. Minimization of impervious cover is further encouraged through compliance with the water quality performance criteria (§ 4.2.8 of the regulations).

Section 4.2.1 of the regulations requires that no more land be disturbed than is necessary to provide for the desired use or development. Some localities have opted to provide a specific standard for the maximum amount of disturbance allowed (e.g., 60% of the site).

Section 4.2.2 of the regulations requires that indigenous vegetation be preserved to the maximum extent possible consistent with the use and development allowed. The amount of vegetation preserved is related to the amount of land disturbed, therefore, the general and specific standards for land disturbance also encourage the preservation of vegetation. Preservation of natural drainage features is accomplished somewhat through the RPA designation.

Section 4.2.6 of the regulations requires that land disturbing activities exceeding 2500 square feet comply with the requirements of the local erosion and sediment control ordinance. Section 4.2.4 further requires that development involving land disturbances exceeding 2500 square feet go through a site plan review process consistent with § 15.1-491(h) of the Code of Virginia.

Section 4.2.11 of the regulations requires that evidence of all applicable wetlands permits be provided prior to the authorization of grading or other onsite activities.

Section 5.6.A of the regulations requires local governments to review and revise their comprehensive plans to address the quality of state waters. The comprehensive plan serves to guide future development. A topic for review and revision related to transportation facility development is the identification of physical constraints to development, such as soil limitations.

These requirements are mandatory in Chesapeake Bay Preservation Areas in Tidewater Virginia. Localities outside of Tidewater may adopt the criteria.

Department of Conservation and Recreation

Erosion and Sediment Control Law (Sec. 10.1-560, *et seq.* of the *Code of Virginia*)
Virginia Erosion and Sediment Control Regulations (VR 625-02-00)

Section 1.5.7 of the Virginia Erosion and Sediment Control Regulations (VR 625-02-00) requires that cut and fill slopes be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilization measures until the problem is corrected.

Section 1.5.12 of the regulations requires that, when working in a live watercourse, precautions be taken to minimize encroachment, control sediment transport, and stabilize the work area to the greatest extent possible during

construction. Section 1.5.15 of the regulations requires that the bed and banks of a watercourse be stabilized immediately after work in the watercourse is completed.

These requirements are mandatory statewide. In Tidewater Virginia, the land disturbing threshold is 2500 square feet. The minimum threshold outside of Tidewater is 10,000 square feet, though localities may choose to reduce the threshold.

Virginia Stormwater Management Regulations (VR 215-02-00)

Section 2.4 of the Virginia Stormwater Management Regulations (VR 215-02-00) encourages the use of nonstructural measures. These measures, including minimization of impervious surface and curbing requirements, open space acquisition, and protection of wetlands, steep slopes and vegetation should be coordinated with structural requirements. The inclusion of nonstructural measures can reduce the scope and costs of structural practices.

The stormwater management regulations are optional for localities and mandatory for state agency projects.

Department of Environmental Quality

Virginia Water Protection Permits (VR 680-15-02)

Under § 401 of the Clean Water Act, any applicant for a federal permit or license must obtain a water quality certificate from the state before undertaking any activity which could result in a discharge to waters of the United States, including wetlands.
The Virginia Water Protection Permit was created by amending the State Water Control Law (§ 62.1-44.15:5, Code of Virginia). Issuance of the permit constitutes the certification required under § 401. A permit is issued if it is determined that the activity is consistent with the provisions of the Clean Water Act and will protect instream beneficial uses.

The Virginia Water Protection Permit regulations (VR 680-15-02) describe those activities which require permits and establish the procedures for issuing, denying, and enforcing permits. These regulations are applicable statewide.

Enforcement options specified in the law include criminal penalties and civil penalties (§ 62.1-44.32, Code of Virginia).

Virginia Department of Transportation

The Virginia Department of Transportation (VDOT) has established procedures for the environmental review of state and federal transportation projects. Projects are presented to state and federal agencies at monthly inter-agency coordination meetings. Federal agencies participating include the U. S. Army Corps of Engineers, U. S. Environmental Protection Agency, U. S. Fish and Wildlife Service, and the National Marine Fisheries Service. Participating state agencies include the Chesapeake Bay Local Assistance Department, Department of Conservation and Recreation, Department of Environmental Quality, Department of Game and Inland Fisheries, Department of Health, Department of Historic Resources, Virginia Institute of Marine Science, and the Virginia Marine Resources Commission. This process begins at the project initiation stage. Proposed projects, including alternatives, are presented to the cooperating agencies and their comments are solicited and recorded. This information assists VDOT in avoiding environmental impacts and developing necessary mitigation measures for unavoidable impacts.

In accordance with § 10.1-603.5 and § 10.1-564.A of the Code of Virginia, VDOT submits annual standards and specifications for stormwater management and erosion and sediment control to the Department of Conservation and Recreation for review and approval. These documents establish the procedures VDOT will use on its transportation projects to comply with the state laws and regulations.

Virginia Marine Resources Commission

The Virginia Marine Resources Commission (VMRC) administers the Submerged Lands and Tidal Wetlands Permit Program and is charged with the review of all tidal wetland permit decisions of local wetlands boards. The Tidal Wetlands Permit Program applies throughout Tidewater Virginia. The Submerged Lands Permit Program applies statewide to all state-owned submerged lands. Generally this includes waterways with flows greater than five cubic feet per second or drainage areas greater than five square miles.

Permits are issues through a Joint Permit Review Process involving local, state and federal agencies. Permits are reviewed based on compliance with statutory

requirements and Commission guidelines, as well as advisory assistance provided by cooperating state and federal agencies. These include the Department of Environmental Quality, Department of Conservation and Recreation, Department of Health, and Department of Game and Inland Fisheries.

MANAGEMENT MEASURE COMPLIANCE:

Within Tidewater Virginia, the Chesapeake Bay Local Assistance Department (CBLAD) program provides state enforceable policies that meet the management measure. The requirements identified in this measure parallel the performance criteria established by CBLAD for local programs. For the proposed management area outside of Tidewater, the CBLAD requirements are optional.

The Erosion and Sediment Control Regulations address portions of criteria 2 and 3 of the management measure. These requirements provide partial compliance with the measure.

The Virginia Water Protection Permit Program regulates activities in state waters or wetlands only. Therefore, its reach will be limited to those transportation projects that have a proposed impact on state waters. During project review, efforts are made to minimize encroachment into state waters. Mitigation of wetlands impacts is required at a 2:1 ratio for all physical impacts. This program provides partial compliance with the management measure.

The scoping process developed by the Virginia Department of Transportation provides natural resource agencies an opportunity to identify potential environmental concerns early in project development. This procedure provides partial compliance with the management measure.

The Stormwater Management Regulations encourage minimization of impervious surfaces and the protection of wetlands, steep slopes and vegetation. The state stormwater management program is mandatory for state agencies and optional for localities. It provides partial compliance with the management measure.

ROADS, HIGHWAYS, AND BRIDGES

B. Management Measure for Bridges

Site, design, and maintain bridge structures so that sensitive and valuable

aquatic ecosystems and areas providing important water quality benefits are protected from adverse effects.

Applicability: "This management measure is intended to be applied by States to new, relocated, and rehabilitated bridge structures in order of control erosion, streamed scouring, and surface runoff from such activities."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-200 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Act (§ 10.1-2100, et seq., Code of Virginia) requires localities within Tidewater Virginia to adopt local programs to protect the quality of state waters. In order to achieve this goal, localities must designate certain land types and features as Chesapeake Bay Preservation Areas. Localities must also adopt specific performance criteria to apply to the use, development, and redevelopment of land within these areas.

Resource Protection Areas (RPAs) are sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant degradation to the quality of state waters. The RPAs include tidal shores, tidal wetlands, nontidal wetlands contiguous to tidal wetlands, other lands deemed to be significant in the protection of state waters, and a 100-foot buffer landward of these features, as well as along tributary streams. Development in the RPA is limited to water dependent facilities or the redevelopment of existing facilities, provided these activities adhere to the performance criteria specified in the regulations.

Sections 1.4 and 4.5.B.1 of the regulations provides the distinction between public roads and other roads. The exemption of public roads is conditioned on the requirements that the alignment and design must be optimized to minimize encroachment in the RPA and adverse effects on water quality. In addition, state erosion and sediment control and stormwater management criteria must be applied.

Other roads may be constructed within the RPA when they comply with the following conditions specified in § 4.3.3 of the regulations: (1) there is no reasonable alternative, (2) the layout is optimized to minimize impacts on water quality and encroachment into RPA land types, (3) all performance criteria established in § 4.2 of the regulations are met, and (4) project review is accomplished with local plan review and approval procedures.

Resource Management Areas (RMAs) are land types that, if improperly used or developed, have a potential for causing significant water quality degradation or diminishing the functional value of the RPA. Examples include floodplains; highly erodible soils, including steep slopes; highly permeable soils; nontidal wetlands not included in the RPA; and other lands necessary to protect the quality of state waters. Development in these areas must adhere to the performance criteria in § 4.2 of the regulations.

Section 4.2.5 of the Chesapeake Bay Preservation Area Designation and Management Regulations requires that land development minimize impervious cover consistent with the use or development allowed. Minimization of impervious cover is further encouraged through compliance with the water quality performance criteria (§ 4.2.8 of the regulations).

Section 4.2.1 of the regulations requires that no more land be disturbed than is necessary to provide for the desired use or development. Some localities have opted to provide a specific standard for the maximum amount of disturbance allowed (e.g., 60% of the site).

Section 4.2.2 of the regulations requires that indigenous vegetation be preserved to the maximum extent possible consistent with the use and development allowed. The amount of vegetation preserved is related to the amount of land disturbed, therefore, the general and specific standards for land disturbance also encourage the preservation of vegetation. Preservation of natural drainage features is accomplished somewhat through the RPA designation.

Section 4.2.6 of the regulations requires that land disturbing activities exceeding 2500 square feet comply with the requirements of the local erosion and sediment control ordinance. Section 4.2.4 further requires that development involving land disturbances exceeding 2500 square feet go through a site plan review process consistent with § 15.1-491(h) of the Code of Virginia.

Section 4.2.11 of the regulations requires that evidence of all applicable wetlands permits be provided prior to the authorization of grading or other onsite activities.

Section 5.6.A of the regulations requires local governments to review and revise their comprehensive plans to address the quality of state waters. The comprehensive plan serves to guide future development. A topic for review and revision related to transportation facility development is the identification of physical constraints to development, such as soil limitations.

These requirements are mandatory in Chesapeake Bay Preservation Areas in Tidewater Virginia. Localities outside of Tidewater may adopt the criteria.

Department of Conservation and Recreation

Erosion and Sediment Control Law (Sec. 10.1-560, *et seq.* of the *Code of Virginia*)
Virginia Erosion and Sediment Control Regulations (VR 625-02-00)

Section 1.5.7 of the Virginia Erosion and Sediment Control Regulations (VR 625-02-00) requires that cut and fill slopes be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilization measures until the problem is corrected.

Section 1.5.12 of the regulations requires that, when working in a live watercourse, precautions be taken to minimize encroachment, control sediment transport, and stabilize the work area to the greatest extent possible during construction. Section 1.5.15 of the regulations requires that the bed and banks of a watercourse be stabilized immediately after work in the watercourse is completed.

These requirements are mandatory statewide. In Tidewater Virginia, the land disturbing threshold is 2500 square feet. The minimum threshold outside of Tidewater is 10,000 square feet, though localities may choose to reduce the threshold.

Virginia Stormwater Management Regulations (VR 215-02-00)

Section 2.4 of the Virginia Stormwater Management Regulations (VR 215-02-00) encourages the use of nonstructural measures. These measures, including minimization of impervious surface and curbing requirements, open space acquisition, and protection of wetlands, steep slopes and vegetation should be

coordinated with structural requirements. The inclusion of nonstructural measures can reduce the scope and costs of structural practices.

The stormwater management regulations are optional for localities and mandatory for state agency projects.

Department of Environmental Quality

Virginia Water Protection Permits (VR 680-15-02)

Under § 401 of the Clean Water Act, any applicant for a federal permit or license must obtain a water quality certificate from the state before undertaking any activity which could result in a discharge to waters of the United States, including wetlands.
The Virginia Water Protection Permit was created by amending the State Water Control Law (§ 62.1-44.15:5, Code of Virginia). Issuance of the permit constitutes the certification required under § 401. A permit is issued if it is determined that the activity is consistent with the provisions of the Clean Water Act and will protect instream beneficial uses.

The Virginia Water Protection Permit regulations (VR 680-15-02) describe those activities which require permits and establish the procedures for issuing, denying, and enforcing permits. These regulations are applicable statewide.

Enforcement options specified in the law include criminal penalties and civil penalties (§ 62.1-44.32, Code of Virginia).

Virginia Department of Transportation

The Virginia Department of Transportation (VDOT) has established procedures for the environmental review of state and federal transportation projects. Projects are presented to state and federal agencies at monthly inter-agency coordination meetings. Federal agencies participating include the U. S. Army Corps of Engineers, U. S. Environmental Protection Agency, U. S. Fish and Wildlife Service, and the National Marine Fisheries Service. Participating state agencies include the Chesapeake Bay Local Assistance Department, Department of Conservation and Recreation, Department of Environmental Quality, Department of Game and Inland Fisheries, Department of Health, Department of Historic

Resources, Virginia Institute of Marine Science, and the Virginia Marine Resources Commission. This process begins at the project initiation stage. Proposed projects, including alternatives, are presented to the cooperating agencies and their comments are solicited and recorded. This information assists VDOT in avoiding environmental impacts and developing necessary mitigation measures for unavoidable impacts.

In accordance with § 10.1-603.5 and § 10.1-564.A of the Code of Virginia, VDOT submits annual standards and specifications for stormwater management and erosion and sediment control to the Department of Conservation and Recreation for review and approval. These documents establish the procedures VDOT will use on its transportation projects to comply with the state laws and regulations.

Virginia Marine Resources Commission

The Virginia Marine Resources Commission (VMRC) administers the Submerged Lands and Tidal Wetlands Permit Program and is charged with the review of all tidal wetland permit decisions of local wetlands boards. The Tidal Wetlands Permit Program applies throughout Tidewater Virginia. The Submerged Lands Permit Program applies statewide to all state-owned submerged lands. Generally this includes waterways with flows greater than five cubic feet per second or drainage areas greater than five square miles.

Permits are issues through a Joint Permit Review Process involving local, state and federal agencies. Permits are reviewed based on compliance with statutory requirements and Commission guidelines, as well as advisory assistance provided by cooperating state and federal agencies. These include the Department of Environmental Quality, Department of Conservation and Recreation, Department of Health, and Department of Game and Inland Fisheries.

MANAGEMENT MEASURE COMPLIANCE:

Within Tidewater Virginia, the Chesapeake Bay Local Assistance Department (CBLAD) program provides state enforceable policies that meet the management measure. The requirements identified in this measure parallel the performance criteria established by CBLAD for local programs. For the proposed management area outside of Tidewater, the CBLAD requirements are optional.

The Erosion and Sediment Control Regulations address portions of criteria 2 and 3 of

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-200 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations (VR 173-02-01)

The Chesapeake Bay Preservation Area Designation and Management Regulations reduce the disturbance threshold for regulated land-disturbing activities from 10,000 square feet to 2500 square feet in CBPAs (§ 4.2.6). This performance criterion further extends the erosion and sediment control requirements to the construction of septic tanks and drainfields.

Section 4.2.4 of the regulations requires that development involving land disturbances exceeding 2500 square feet go through a site plan review process consistent with § 15.1-491(h) of the Code of Virginia.

Section 4.2.11 of the regulations requires that evidence of all applicable wetlands permits be provided prior to the authorization of grading or other onsite activities.

These requirements are mandatory in Chesapeake Bay Preservation Areas in Tidewater Virginia. Localities outside of Tidewater may adopt the criteria.

Department of Conservation and Recreation

Erosion and Sediment Control Law (Sec. 10.1-560, *et seq.* of the *Code of Virginia*)
Virginia Erosion and Sediment Control Regulations (VR 625-02-00)

Section 10.1-561 of the Erosion and Sediment Control Law directed the Soil and Water Conservation Board to develop a program and promulgate regulations for the effective control of soil erosion, sediment deposition and nonagricultural runoff which must be met in any control program to prevent the unreasonable degradation of properties, stream channels, waters and other natural resources.

Section 10.1-563 of the law states that no person may engage in a land-disturbing activity until an erosion and sediment control plan is submitted to the plan-approving authority for review and approval. The plan-approving authority shall

review the plan and grant written approval if it determines that the plan meets the state requirements and the person certifies that the conservation measures will be properly performed and conform to the provisions of the law.

Section 10.1-565 of the law states that agencies authorized to issue grading, building, or other permits for activities involving land-disturbing activities may not issue any such permit unless the applicant submits with the application an approved erosion and sediment control plan and a certification that the plan will be followed.

The Virginia Erosion and Sediment Control Regulations (VR 625-02-00) establish 19 minimum standards that must be included in local erosion and sediment control programs. These minimum standards specify requirements for temporary and final stabilization, sediment trapping devices, surface runoff, outlet protection, work in watercourses, construction accesses, and increases in post-development runoff velocities, volumes and peak flow rates. Maintenance and inspection requirements are identified in § 1.7 of the regulations.

This requirement is mandatory statewide. In Tidewater Virginia, the land disturbing threshold is 2500 square feet. The minimum threshold outside of Tidewater is 10,000 square feet, though localities may choose to reduce the threshold.

Virginia Department of Transportation Policies

In accordance with § 10.1-564.A of the Code of Virginia, VDOT submits annual standards and specifications for erosion and sediment control to the Department of Conservation and Recreation for review and approval. These documents establish the procedures VDOT will use on its transportation projects to comply with the state laws and regulations.

Section 107.14.(b)1 of the *Virginia Department of Transportation Road and Bridge Specifications, January 1991* states that the contractor shall exercise every reasonable precaution, including temporary and permanent measures, throughout the duration of the project to control erosion and prevent or minimize siltation of rivers, streams, lakes and impoundments. Section 303.03 of the specifications establishes erosion and siltation control requirements. Erosion and siltation control devices and measures must be maintained in a functional condition at all times. Measures must be inspected after each rainfall and deficiencies corrected immediately.

MANAGEMENT MEASURE COMPLIANCE:

The Erosion and Sediment Control Law and Regulations require the preparation, submission and implementation of an erosion and sediment control plan and establish minimum technical requirements for the control of erosion and sediment transport. These requirements are applicable statewide and meet the management measure.

In Tidewater Virginia, the Chesapeake Bay Preservation Area Designation and Management Regulations reduce the threshold for compliance with the state erosion and sediment control regulations from 10,000 square feet to 2500 square feet. This criterion exceeds the requirement of the management measure. For the proposed management area outside of Tidewater, the threshold is 10,000 square feet.

The intent of this measure is satisfied because a more strict requirement is imposed for construction sites in close proximity to coastal waters (i.e., Tidewater).

ROADS, HIGHWAYS, AND BRIDGES

D. Management Measure for Construction Site Chemical Control

(1) Limit the application, generation, and migration of toxic substances;

(2) Ensure the proper storage and disposal of toxic materials; and

(3) Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface water.

Applicability: "This management measure is intended to be applied by States to new, resurfaced, restored, and rehabilitated road, highway, and bridge construction projects in order to reduce toxic and nutrient loadings from such project sites."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-200 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations

(VR 173-02-01)

The Chesapeake Bay Preservation Act (§ 10.1-2100, et seq., Code of Virginia) requires localities within Tidewater Virginia to adopt local programs to protect the quality of state waters. In order to achieve this goal, localities must designate certain land types and features as Chesapeake Bay Preservation Areas. The designation of Resource Protection Areas (RPAs) increases the distance between pollutant generating activities and coastal surface waters.

RPAs are sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant degradation to the quality of state waters. The RPAs include tidal shores, tidal wetlands, nontidal wetlands contiguous to tidal wetlands, other lands deemed to be significant in the protection of state waters, and a 100-foot buffer landward of these features, as well as along tributary streams. Development in the RPA is limited to water dependent facilities or the redevelopment of existing facilities, provided these activities adhere to the performance criteria specified in §§ 4.3.1 and 2 of the Chesapeake Bay Preservation Area Designation and Management Regulations. All non-water-dependent components of the development must be located outside the RPA.

Section 4.2.6 of the regulations requires that land disturbing activities exceeding 2500 square feet comply with the requirements of the local erosion and sediment control ordinance.

Department of Conservation and Recreation

Erosion and Sediment Control Law (Sec. 10.1-560, *et seq.* of the *Code of Virginia*)
Virginia Erosion and Sediment Control Regulations (VR 625-02-00)

Chapter 3 of the *Virginia Erosion and Sediment Control Handbook, Third Edition, 1992* establishes standards and specifications for erosion and sediment control practices. Nutrient management planning considerations and specifications for grasses and other vegetative practices are included. Although the handbook is not a regulatory document, localities have referenced the handbook in their erosion and sediment control ordinances.

Department of Environmental Quality

Oil Discharge Contingency Plan
(Section 62.1-44.34:15, *et seq.* of the *Code of Virginia*)

Section 62.1-44.34:15 of the Code of Virginia requires that all operators of oil storage facilities must have an oil discharge contingency plan approved by the State Water Control Board. These requirements are applicable to facilities that have an aggregate above ground storage or handling capacity greater than or equal to 25,000 gallons. This includes fuel oil, gasoline, diesel, kerosene, gasohol, lube oil, waste oil, asphalt, cutbacks, emulsions, oil mixed with other wastes, crude oil, petroleum by-products, and liquid hydrocarbons regardless of specific gravity.

The plan requirements are specified in the Oil Discharge Contingency Plans and Administrative Fees for Approval regulations (VR 680-14-07) adopted by the State Water Control Board. The contingency plan must plan for the worst case oil spill; identify natural resources and municipal services at risk, priorities for protection and means of protection; notification procedures; and evidence that private cleanup or contractor resources are available (§ 5.A).

Oil discharge contingency plans must be reviewed, updated if necessary and resubmitted to the State Water Control Board every five years unless significant changes occur sooner.

The State Water Control Board is authorized to issue special orders to require any person to cease and desist from causing or permitting a violation or to comply with the provisions of the law, regulations and conditions of approval. Enforcement options specified in the law include criminal penalties and civil penalties (§ 62.1-44.34:20, Code of Virginia).

Solid Waste Management Regulations
(Sec. 62.1-194, *et seq.* of the *Code of Virginia*) (VR 762-20-10)

The Solid Waste Management Regulations Program is administered by the Department of Environmental Quality.

Section 10.1-1408.1.A of the Virginia Waste Management Act (§ 10.1-1400, *et seq.* of the *Code of Virginia*) states that no person shall operate any sanitary landfill or other facility for the disposal, treatment or storage of nonhazardous solid

waste without a permit from the Director of the Waste Division, Department of Environmental Quality.

The law further states that: (1) no person shall dispose of solid waste in open dumps (§ 10.1-1408.1.G, *Code of Virginia*); (2) no person shall own, operate, or allow to be operated on his property an open dump (§ 10.1-1408.1.H, *Code of Virginia*); and (3) no person shall allow waste to be disposed of on his property without a permit (§ 10.1-1408.1.I, *Code of Virginia*).

Construction and demolition waste (lumber, wire, sheetrock, broken brick, shingles, glass, pipes, concrete, paving materials and metal and plastics if the metal and plastics are part of the materials of construction or empty containers for such materials); debris waste (stumps, wood, brush, leaves, soil, and road spoils from land clearing operations); and inert waste (rubble, concrete, broken bricks, bricks, and blocks) may be disposed of in a construction/demolition debris landfill, a sanitary landfill, or an industrial waste landfill.

Refuse and scrap metal may be disposed of in a sanitary landfill. Solid wastes which are defined as hazardous wastes by the Virginia Hazardous Waste Management Regulations (VR 672-10-1) must be managed in accordance with those regulations. Persons who generate less than 100 kilograms of hazardous waste per month are conditionally exempt pursuant to § 3.2 of the Virginia Hazardous Waste Management Regulations. These hazardous wastes may be managed in solid waste management facilities in accordance with § 2.10.2 of the Solid Waste Management Regulations.

Part V of the regulations specifies siting, design, construction, operation, and closure requirements for sanitary landfills (§ 5.1), CDD landfills (§ 5.2) and industrial waste landfills (§ 5.3).

The Virginia Waste Management Board is authorized to issue orders to require any person to comply with the provisions of the law, regulations and conditions of a permit or certification. Enforcement options specified in the law include criminal penalties, civil penalties, and civil charges (§ 10.1-1455 of the *Code of Virginia*).

These requirements are mandatory statewide.

State Water Control Law (Sec. 62.1-44.2, *et seq.* of the *Code of Virginia*)

harmful dusts, etc. shall be equipped with covers. Garbage and other waste shall be disposed of at frequent and regular intervals.

The Construction Industry Standard for Sanitation, 1926.51, (VR 425-02-72) requires that toilet facilities be provided.

Fire Protection and Prevention, Construction Industry, 1926.150 through 1926.159, (VR 425-02-114) include the following requirements:

(1) Flammable liquids shall be kept in closed containers when not actually in use. Leakage or spillage of flammable or combustible liquids shall be disposed of promptly and safely.

(2) In service and refueling areas, flammable or combustible liquids shall be stored in approved closed containers, in tanks located underground, or in aboveground portable tanks. Underground tanks shall not be abandoned.

The Construction Standards are mandatory statewide and are enforced by the Virginia Occupational Safety and Health Program within the Virginia Department of Labor and Industry. The Commissioner of the Department of Labor and Industry may issue citations and propose fines.

Virginia Department of Agriculture and Consumer Services

Virginia Pesticide Control Act (Sec. 3.1-249.27, *et seq.* of the *Code of Virginia*) (VR 115-04-23)

The Virginia Pesticide Control Act (§ 3.1-249.27, et seq., Code of Virginia) and the regulations promulgated under its authority have the effect of implementing in Virginia the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) as well as providing to the Virginia Pesticide Control Board (Board) additional powers relating to regulating pesticide use. Under the authority of the Act and FIFRA, the Board has promulgated regulations establishing certain mandatory programs, including Pesticide Applicator Certification and Pesticide Business Licensing, as well as establishing voluntary programs, such as the Pesticide Disposal Program and the Pesticide Container Recycling Program. Under the authority of FIFRA and in agreement with EPA, the Board's staff will develop pesticide management plans for groundwater. Collectively, these programs regulate who and how pesticides will be used in the state by enforcing the federal label requirements and

requiring training and licensing of individuals and businesses that apply pesticides.

In addition to implementing FIFRA, the Board has the power to ban or restrict the use of a pesticide based on its potential to harm the environment (§ 3.1-249.31, Code of Virginia). A comparison of the general powers of the federal and Virginia law to restrict or ban the use of a pesticide based on its potential to cause environmental harm suggests that the Act gives the Board broader powers than those granted to EPA under FIFRA.

Section 3.1-249.52 of the Virginia Pesticide Control Act requires that commercial applicators be certified in accordance with the Regulations Governing Pesticide Applicator Certification Under Authority of Virginia Pesticide Control Act, VR 115-04-23 adopted by the Board. Certifications must be renewed biennially.

Pesticide labels provide the legal framework for the use of the product. Under federal and Virginia law no product may be used in a manner inconsistent with its label's requirements. It is unlawful to dispose of containers or unused portions of pesticide in a manner inconsistent with label directions or Board regulations (§ 3.1-249.64, Code of Virginia). Labels contain information on application rates, timing of application, and other environmental concerns and can sometimes address calibration requirements.

Certain Virginia regulations require that application equipment be in good working order and properly calibrated. Furthermore, these regulations require the use of backflow preventers to protect water supply systems, lakes, other sources of water or other materials. Violation of these regulations triggers enforcement under the authority of the Act.

Violations of the Virginia Pesticide Control Act can result in revocation or suspension of licenses and or assessment of penalties. Enforcement is administered through 10 regional offices with investigation staffs. Unannounced, random field inspections of applications are utilized.

Virginia Department of Transportation

The Road and Bridge Specifications developed by the Virginia Department of Transportation are standard for all contracts awarded by the Commonwealth Transportation Board.

Section 244.02(a) of the *Virginia Department of Transportation Road and Bridge Specifications, January 1991* requires herbicides to be registered with the Virginia Department of Agriculture and Consumer Services in accordance with the Virginia Pesticide Law. Section 607.03 of the specifications requires that herbicides be applied in accordance with the manufacturer's recommendations. The Virginia Department of Transportation (VDOT) has established a pesticide certification and training program that requires all employees and/or representatives to be certified commercial applicators to apply pesticides.

Section 244.02(d) of the specifications requires that fertilizers conform to applicable state and federal regulations.

Section 107.14.(b)1 of the specifications states that the contractor shall exercise every precaution throughout the duration of the project to prevent the pollution of rivers, streams, and impoundments. Pollutants such as chemicals, fuels, lubricants, bitumens, raw sewage, paints, sedimentation and other harmful material shall not be discharged into or alongside rivers, streams, or impoundments or into channels leading to them.

VDOT has developed a program with the Department of Environmental Quality - Water Division to train VDOT employees on remediation of leaking underground storage tanks.

Section 104.06 of the specifications requires the contractor to remove rubbish, scrap metal, and debris continually throughout the course of the work. VDOT has developed an agreement with the Department of Environmental Quality, Waste Division which identifies the appropriate disposal of construction debris.

MANAGEMENT MEASURE: COMPLIANCE:

The Pesticide Control Act and attendant regulations establish requirements for the application and disposal of pesticides. Commercial applicators must be certified by the Virginia Pesticide Control Board and the Board has the authority to ban or restrict the use of certain pesticides. For pesticides, these requirements meet the management measure.

The requirements for the disposal, storage and treatment of construction debris, refuse and scrap metal are established in the Waste Management Act and the Solid Waste Management Regulations. Landfills must comply with the siting, design, construction, operation, and closure requirements established in the regulations. For construction

debris and refuse, these requirements meet the management measure.

The Virginia Occupational Safety and Health Program requirements were primarily established for worker safety. However, the provisions cited above also result in protection to natural resources. Combined with the Solid Waste Management Regulations, they provide state enforceable policies for the proper storage and disposal of construction materials and waste.

Oil discharges are addressed under the State Water Control Law and the Oil Discharge Contingency Plan requirements. These requirements meet the management measure.

Resource Protection Area designation increases the distance between pollutant generating activities and coastal surface waters. This Chesapeake Bay Local Assistance Department requirement is mandatory within Tidewater and provides partial compliance with the management measure. For the proposed management area outside of Tidewater, the CBLAD requirement is optional.

The Erosion and Sediment Control Program handbook addresses the application of nutrients. These specifications are applicable statewide and provide partial compliance with the management measure.

The requirements established by the Virginia Department of Transportation for state transportation projects provides partial compliance with the management measure.

ROADS, HIGHWAYS, AND BRIDGES

E. Management Measure for Operation and Maintenance

> *Incorporate pollution prevention procedures into the operation and maintenance of roads, highways, and bridges to reduce pollutant loadings to surface waters.*

Applicability: "This management measure is intended to be applied by States to existing, restored, and rehabilitated roads, highways, and bridges."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-200 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations (VR 173-02-01)

Section 4.2.3 of the Chesapeake Bay Preservation Area Designation and Management Regulations requires that where best management practices are constructed, regular or periodic maintenance be performed to ensure proper function. Such maintenance shall be ensured by the local government through a maintenance agreement with the owner or developer.

Department of Conservation and Recreation

Erosion and Sediment Control Law (Sec. 10.1-560, *et seq.* of the *Code of Virginia*)
Virginia Erosion and Sediment Control Regulations (VR 625-02-00)

Section 1.5.19. of the Erosion and Sediment Control Regulations require approval from the locality of a maintenance plan for a stormwater detention facility.

Section 1.7 of the regulations require erosion and sediment control facilities to be maintained, inspected and repaired as needed to ensure continued performance of their function. A maintenance plan must be included in the erosion and sediment control plan. Periodic inspections are required on all projects.

The Erosion and Sediment Control Handbook provides nutrient management planning considerations and specifications for vegetative practices. Localities have referenced the handbook in their ordinances.

Virginia Stormwater Management Regulations (VR 215-02-00)

Section 3.9 of the Stormwater Management Regulations specifies minimum maintenance and inspection requirements for localities choosing to adopt a stormwater management program. State agency maintenance requirements are included in Section 4.2 of the regulations.

MANAGEMENT MEASURE COMPLIANCE:

The maintenance requirements established by the Chesapeake Bay Local Assistance Department program and the Department of Conservation and Recreation stormwater management and erosion and sediment control programs provide partial compliance with the management measure.

The Erosion and Sediment Control Program handbook addresses the application of nutrients. These specifications are applicable statewide and provide partial compliance with the management measure.

The requirements established by the Virginia Department of Transportation for state transportation projects provides partial compliance with the management measure.

ROADS, HIGHWAYS, AND BRIDGES

F. Management Measure for Road, Highway, and Bridge Runoff Systems

Develop and implement runoff management systems for existing roads, highways, and bridges to reduce runoff pollutant concentrations and volumes entering surface waters.

(1) Identify priority and watershed pollutant reduction opportunities (e.g., improvements to existing urban runoff control structures); and

(2) Establish schedules for implementing appropriate controls.

Applicability: "This management measure is intended to be applied by States to existing, resurfaced, restored, and rehabilitated roads, highways, and bridges that contribute to adverse effects in surface waters."

Applicable State Programs

Department of Conservation and Recreation

Virginia Stormwater Management Regulations (VR 215-02-00)

Section 3.3 of the Virginia Stormwater Management Regulations (VR 215-02-00) encourage localities to develop watershed management plans. In addition to

Virginia Department of Transportation

The Road and Bridge Specifications developed by the Virginia Department of Transportation are standard for all contracts awarded by the Commonwealth Transportation Board.

Section 244.02(a) of the *Virginia Department of Transportation Road and Bridge Specifications, January 1991* requires herbicides to be registered with the Virginia Department of Agriculture and Consumer Services in accordance with the Virginia Pesticide Law. Section 607.03 of the specifications requires that herbicides be applied in accordance with the manufacturer's recommendations. The Virginia Department of Transportation (VDOT) has established a pesticide certification and training program that requires all employees and/or representatives to be certified commercial applicators to apply pesticides.

Section 244.02(d) of the specifications requires that fertilizers conform to applicable state and federal regulations.

When applying protective coatings to metal in structures, § 411.07 of the specifications requires the contractor to protect the environment, workers and public from spent material resulting from removal operations, the removed coating, blast abrasive, rust, and overspray. Prior to removal operations, the contractor must submit to the Engineer a detailed environmental control system plan for capture, containment, and collection of disposable material generated by the work. This plan must comply with the requirements of the specifications and the regulations established by the EPA, Virginia Department of Environmental Quality, Virginia Department of Labor and Industry, and the U. S. Coast Guard.

VDOT's Adopt-a-Highway program has been developed with in cooperation with the Department of Environmental Quality and Keep Virginia Beautiful, Inc. to encourage Virginia's citizens to take an active role in keeping their state's roads free of trash.

VDOT has developed operation and maintenance policies in its Roadside *Development Manual* and the *Maintenance Division Manual.* VDOT has specially equipped salt application trucks and covers salt storage areas. CMA is used on the I-295 James River Crossing.

mitigating the impacts of new development, watershed planning provides an opportunity to remediate flooding or water quality problems caused by uncontrolled existing development.

The stormwater management regulations are optional for localities.

MANAGEMENT MEASURE COMPLIANCE:

The Virginia Stormwater Management Regulations provide partial compliance with this management measure and the majority of the sustems covered by this measure are subject VPDES requirements. The remaining areas are not generally considered signinficant.

URBAN AREAS

Urban Runoff

A. New Development	Meets
B. Watershed Protection	Meets
C. Site Development	Meets

Construction Activities

A. Construction Site E & S Control	Meets
B. Construction Site Chemical Control	Meets

Existing Development

A. Existing Development	Meets

Onsite Disposal Systems

A. New Onsite Disposal Systems	Partially Meets
B. Operating Onsite Disposal Systems	Meets

Pollution Prevention

A. Pollution Prevention	Meets

Roads, Highways, Bridges

A. Planning, Siting, and Developing Roads and Highways	Meets
B. Bridges	Meets
C. Construction Projects	Meets

URBAN AREAS

Roads, Highways, Bridges

D. Construction Site Chemical Control	Meets
E. Operation and Maintenance	Meets
F. Runoff Systems	Meets

Management measures for marina and boat operations

CHAPTER 6

Management Measures for Marina and Boat Operations

The great majority of Virginia's recreational and commercial boating occurs within the Chesapeake Bay and its tributaries. Marina and boat operations are also located along the Atlantic coast and on Virginia's inland lakes. Because nearly all of the existing marina and boat operations in Virginia occur within the Coastal Zone, this assessment only considers how well existing state programs meet the requirements of Section 6217 guidance within the Coastal Zone. Any marinas and boat operations which may exist outside of the Coastal Zone are in frequent and limited in extent, and unlikely to produce significant impacts on coastal waters, individually or collectively. Further, these activities are not expected to become a significant source of pollution outside of the Coastal Zone in the future.

A 1990 Virginia Department of Health (VDH) survey has identified 773 facilities which can be classified as either marinas or boat moorings. Marina and boat operations are responsible for a relatively small percentage of the total pollutant load affecting Virginia's coastal waters; however, marina and boat activities can contribute significantly to local pollution problems.

Marinas and boat operations are sources of a variety of pollutants that can degrade water quality including, sewage, petroleum products, boat paint, and litter and other debris. The most serious pollution problem is created by the improper handling of human waste at marinas and the discharge of such waste from vessels. Water quality problems associated with human waste include excessive nitrification which can lead to the depletion of dissolved oxygen, and health hazards posed by the presence of pathogenic microorganisms. Some types of marine sanitary systems utilize toxic chemical additives which also degrade water quality.

Several existing state agencies address pollution problems associated with marina and

boat operations. The Virginia Department of Health (VDH) regulates sanitation at marinas and boat moorings and provides fish consumption advisories and bans. The Virginia Marine Resources Commission (VMRC) administers criteria for the siting and design of marinas and boat moorings, guidelines to protect subaqueous lands, and has developed BMPs for shoreline development. In addition, the Department of Environmental Quality (DEQ) administers the Virginia Water Protection Permit Regulations which require a permit for marina facilities.

Although permits are processed and issued separately, state and federal agencies, and local wetlands boards use a joint permitting application to help coordinate permit review. In addition, permit applications are reviewed by various state and federal agencies. In particular, the Virginia Institute of Marine Science (VIMS) provides additional advisory assistance and environmental impact review for VMRC and local wetland board permits.

Work Group Assessment Process

Since May, 1993, the Marina and Boat Operation Work Group has been comparing existing state nonpoint source pollution control of the Commonwealth of Virginia with the Management Measures and program requirements included in Coastal Zone Act Reauthorization Amendments guidance documents issued by Environmental Protection Agency and National Oceanic and Atmospheric Administration. The Marina and Boat Operation Work Group includes representatives from the Department of Conservation and Recreation (DCR), Chesapeake Bay Local Assistance Department (CBLAD), Department of Environmental Quality (DEQ), Department of Game and Inland Fisheries (DGIF), Department of Health (VDH), Virginia Institute of Marine Science (VIMS), Virginia Marine Resources Commission (VMRC), and the Virginia Association of Marine Industries.

This assessment of state nonpoint source pollution control and marina siting programs, was produced using information collected through work group meetings, interviews with state agency staff, and work sheets completed for applicable programs. The matrix on the following page summarizes marina and boat operation management measures and applicable state programs. As well, it summarizes how well state programs, taken as a package, address each management measure. This chapter details the specific requirements of each management measure and describes applicable state programs. The descriptions focus on aspects of these programs that apply to the specified Matrix management measures. For each management measure the Marina and Boat Operation Work Group has evaluated how well state programs comply with the federal guidance based on: (1) specific management measure requirements or performance standards, and (2) enforceable policies or mechanisms.

Marina and Boat Operation Management Measures

State Programs

	Marina Flushing	Water Quality Assessment	Habitat Assessment	Shoreline Stabilization	Storm Water Runoff	Fueling Station Design	Sewage Facility	Solid Waste	Fish Waste	Liquid Material	Petroleum Control	Boat Cleaning	Public Education	Maintenance of Sewage Facilities	Boat Operation
Virginia Marine Resources Commission	X	X	X	X	X	X	X	X							
Water Protection Permit Regulation	X	X	X	X	X	X	X	X		X	X	X			
Chesapeake Bay Protection Act			X	X	X										
No Wake Zone Designation and Enforcement															X
Marina and Boat Moorings Sanitary Regulations							X							X	
Solid Waste Mangagement Regulations								X	X	X					
Boater Safety Program													X		
Marina Education Program													X		
Shoreline Erosion Advisory Service				X											
Erosion and Sediment Control Program				X	X										
Shellfish Sanitation Program		X	X												
Oil Spills Statute						X				X	X				
Oil Discharge Contingency Plans										X	X				
Office of Litter Prevention and Recycling										X					

September 1995

PROGRAM ASSESSMENT BY MANAGEMENT MEASURE

Each of the specified management measures for hydromodification is identified and discussed in the section which follows. The management measures are presented as they appear in the program guidance issued by EPA and NOAA. Within the Marina and Boat Operations source category, there are subcategories for Siting and Design, and Marina and Boat Operation and Maintenance. For each management measure the applicable program descriptions are listed alphabetically and grouped together by the agency which administers them. In the compliance section which follows these descriptions, more consideration has been given to the relative importance of each of the individual programs.

This chapter identifies the requirements of each management measure, provides a brief program description of applicable state programs, and a discussion of how well these programs comply with the requirements of each management measure. Program descriptions are not comprehensive; rather, they focus on aspects of state programs applicable to the specified management measures. The management measure compliance discussion describes coordination between state programs and summarizes how well state programs meet management measure requirements.

SITING AND DESIGN

A. MARINA FLUSHING MANAGEMENT MEASURE

Site and design marinas such that tides and/or currents will aid in flushing of the site or renew its water regularly.

Applicability: This measure applies only to new and expanding marina facilities.

Applicable State Programs

Department of Environmental Quality

Virginia Water Protection Permit Regulation (VR 680-15-02)

The Department of Environmental Quality's Virginia Water Protection Program is responsible for the administration of water quality programs delegated to Virginia under the Clean Water Act and as required by the State Water Control Law. The Virginia Water Protection Permit program seeks to ensure the protection of beneficial use of state waters including nontidal wetlands, prevent the degradation

of valuable water resources, and to help restore degraded waters. The Department issues permits for all activities which may result in the physical, biological, or chemical alteration of state waters.

The Virginia Water Protection Permit Regulation requires that a permit be issued for marina facilities. This Permit requires appropriate water quality monitoring for dissolved oxygen, temperature, and pH for both surface and bottom waters. Marinas are reviewed on a case by case basis with appropriate restrictions and monitoring included in the permit.

Virginia Marine Resources Commission

Submerged Lands and Tidal Wetlands Permit Program and the Local Wetlands Board Permit Program
(Sections 28.2-1200 through 28.2-1300 of the *Code of Virginia*)

The Virginia Marine Resources Commission (VMRC) administers the Submerged Lands and Tidal Wetlands Permit Programs and is charged with the review of all tidal wetland permit decisions of local wetlands boards. The Tidal Wetlands Permit Program applies throughout Tidewater, Virginia. The Submerged Lands Permit Program applies State-wide to all State-owned submerged lands. New marinas and commercial mooring facilities constructed over State-owned submerged lands or which require a connection to State-owned submerged land require a permit from VMRC.

Permits are issued through Joint Permit Review process involving local, state, and federal agencies. Permits are reviewed based on compliance with statutory requirements, Commission guidelines and Marina Siting Criteria, as well as advisory assistance provided by cooperating state and federal agencies. This review may include comments from the Department of Environmental Quality, Department of Conservation and Recreation, Department of Health, Department of Game and Inland Fisheries and environmental impact information included in the VIMS Shoreline Permit Application report prepared for each project.

VMRC's *Criteria for the Siting of Marinas or Community Facilities for Boat Moorings* (VR 450-01-0047) require that flushing be considered at all sites proposed for marina development. The Marina Siting Criteria may require an analysis or model of flushing rates.

MANAGEMENT MEASURE COMPLIANCE

All proposed marinas and/or boat moorings must submit a joint permit application for review by the appropriate federal, state, and local authorities. Marina and boat moorings typically require a Virginia Water Protection Permit from the Department of Environmental Quality and a Submerged Lands and Tidal Wetlands Permits from the Virginia Marine Resources Commission. To protect state waters the Virginia Water Protection Permit requires appropriate water quality monitoring for dissolved oxygen, temperature, and pH for both surface and bottom waters. Virginia Marine Resource Commission marina siting criteria specifically address the need for adequate flushing to maintain water quality. These permits fully address the water quality objectives of this management measure throughout the coastal zone

SITING AND DESIGN

B. WATER QUALITY ASSESSMENT MANAGEMENT MEASURE

Assess water quality as part of marina siting and design.

Applicability: This measure applies only to new and expanding marina facilities.

Applicable State Programs

Department of Environmental Quality

Virginia Water Protection Permit Regulation (VR 680-15-02)

The Department of Environmental Quality's Virginia Water Protection Program is responsible for the administration of water quality programs delegated to Virginia under the Clean Water Act and as required by the State Water Control Law (*Code of Virginia*, 62,1-44.2 *et seq.*). The Virginia Water Protection Permit program seeks to ensure the protection of beneficial use of state waters including nontidal wetlands, prevent the degradation of valuable water resources, and to help restore degraded waters. The Department issues permits for all activities which may result in the physical, biological, or chemical alteration of state waters.

The Virginia Water Protection Permit Regulation requires a permit for marina facilities. This permit requires water quality monitoring for dissolved oxygen,

temperature, and pH for both surface and bottom waters. Marinas undergo individual review, and appropriate restrictions and monitoring are included as part of the permit process. Permit regulations require monitoring for pathogen indicators and post-construction water quality modeling.

Virginia Marine Resources Commission

Submerged Lands and Tidal Wetlands Permit Program and the Local Wetlands Board Permit Program
(Sec. 28.2-1200 through 28.2-1300 of the *Code of Virginia*)

The Virginia Marine Resources Commission (VMRC) administers the Submerged Lands and Tidal Wetlands Permit Programs and is charged with the review of all tidal wetland permit decisions of local wetlands boards. The Tidal Wetlands Permit Program applies throughout Tidewater, Virginia. The Submerged Lands Permit Program applies State-wide to all State-owned submerged lands. New marinas and commercial mooring facilities constructed over State-owned submerged lands or which require a connection to State-owned submerged land require a permit from VMRC.

Permits are issued through Joint Permit Review process involving local, state, and federal agencies. Permits are reviewed based on compliance with statutory requirements, Commission guidelines and Marina Siting Criteria as well as advisory assistance provided by cooperating state and federal agencies. This includes comments from the Department of Environmental Quality, Department of Conservation and Recreation, Department of Health, Department of Game and Inland Fisheries and environmental impact information included in the VIMS Shoreline Permit Application report prepared for each project.

Water quality impacts are assessed at all sites. In some cases water quality analysis or models may be required.

MANAGEMENT MEASURE COMPLIANCE

The Virginia Water Protection Permit Regulation and the Submerged Lands and Tidal Wetlands Permit Programs fully implement this management measure throughout the coastal zone In fact, some aspects of the water quality assessment requirements of these regulations exceed the requirement of this management measure. Water quality review comments (which often include ambient water quality monitoring data and modeling

information) from the Department of Environmental Quality, Water Division, the Health Department, and the Virginia Institute of Marine Science (VIMS) are considered by VMRC during permit review. The Virginia Water Protection Permit Regulation specifically requires that water quality be assessed as part of marina siting and design.

SITING AND DESIGN

C. HABITAT ASSESSMENT MANAGEMENT MEASURE

Site and design marinas to protect against adverse effects on shellfish resources, wetlands, submerged aquatic vegetation, or other important riparian and aquatic habitat areas as designated by local, State, or Federal governments.

Applicability: This measure applies only to new and expanding marina facilities where site changes may impact important habitat, such as, wetlands, shellfish beds, and submerged aquatic vegetation (SAV).

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-2100 through 10.1-2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations (VR 173-02-01)

The CBPA applies to local governments in the Chesapeake Bay drainage of the Coastal Zone Management Area. The CBPA requires that local governments designate sensitive bay resources and certain land features as Chesapeake Bay Preservation Areas. These preservation areas are comprised of Resource Management Areas (RMAs) and Resource Protection Areas (RPAs).

Section 3.2.A of the Chesapeake Bay Preservation Area Designation and Management Regulations (VR 173-02-01) states that RPAs shall consist of "sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts that may cause significant degradation to the quality of state waters." RPAs include tidal wetlands, nontidal wetlands contiguous to tidal wetlands, tidal shores, other lands deemed to be significant in the protection of state waters, and

buffer areas not less than 100 feet in width adjacent to all tributary streams and the previously mentioned land types and features. Development in RPAs is limited to water dependent facilities or redevelopment of existing facilities provided that these activities adhere to the performance standards described in program guidance.

Designation of Resource Management Areas are also required by the CBPA. Section 3.3.A of the Regulations states that RMAs "shall include land types that, if improperly used or developed, have the potential for causing significant water quality degradation for diminishing the functional value of the Resource Protection Area."

RMAs typically include such land categories as floodplains, highly erodible soils including steep slopes, highly permeable soils, nontidal wetlands not included in the RPA, and other lands considered important to protect the quality of state waters. Development in these areas must adhere to the performance criteria described in § 4.2.

The Regulations specify performance criteria (§ 4.3) which apply in the RPAs. A water quality impact assessment which identifies the impacts of development on water quality and lands in RPAs and determines the specific measures for mitigation of those impacts is required for any proposed development within the RPA. Marinas and boat docking facilities are permitted within RPAs as water-dependent facilities. To locate within the RPA:

1) new or expanded water-dependent facilities must demonstrate that they do not conflict with the local government's comprehensive plan;

2) all non-water-dependent facilities must be located outside of the RPA;

3) access will be provided with the minimum disturbance necessary; and,

4) the development must comply with eleven general performance criteria (§ 4.2) that apply to the use, development, or redevelopment of land within these areas.

Two of these performance criteria are intended to protect indigenous vegetation in riparian areas. The first criterion (§ 4.2.1) relates to minimizing land disturbance which would indirectly preserve indigenous vegetation on the site. The second criterion (§ 4.2.2) relates specifically to preserving indigenous vegetation on the site.

To minimize the adverse effects of human activities on the components of the RPA, state waters, and aquatic life, Section 4.3.B of the Regulations requires a 100-foot buffer area of vegetation be retained if present and established where it does not exist. This buffer area requirement is intended to retard runoff, prevent erosion, and filter nonpoint source pollution. The functional integrity of these buffer areas is enhanced by regulations protecting the indigenous vegetation. Indigenous vegetation may be removed only to provide for reasonable sight lines, access paths, general woodlot management, and best management practices.

The Chesapeake Bay Preservation Act also requires localities within Tidewater Virginia to adopt and/or revise different elements of the local programs to protect the quality of state waters. Section 5.6.A of the Regulations requires that local governments within Tidewater Virginia review and revise their comprehensive plans to address the quality of state waters. These comprehensive plan revisions are intended to guide future development. Among the topics for review and revision are: (1) the physical constraints to development such as soil limitations, (2) the protection of groundwater resources, (3) the relationship of land use to fisheries, (4) the appropriate density for docks and piers, (5) the effect of public and private access on water quality, (6) sources of existing pollution such as underground storage tanks, and (7) the potential for water quality improvement through redevelopment.

Department of Environmental Quality

Virginia Water Protection Permit Regulation (VR 680-15-02)

The Department of Environmental Quality's Virginia Water Protection Program is responsible for the administration of water quality programs delegated to Virginia under the Clean Water Act and as required by the State Water Control Law. The Virginia Water Protection Permit program seeks to ensure the protection of beneficial use of state waters including nontidal wetlands, prevent the degradation of valuable water resources, and to help restore degraded waters. The Department issues permits for all activities which may result in the physical, biological, or chemical alteration of state waters.

The Virginia Water Protection Permit Regulation requires a permit for marina facilities. The Virginia Water Protection Permit application also requires a survey for endangered species, anadromous fish, submerged aquatic vegetation, wetlands, shellfish, or other state water beneficial uses.

Virginia Marine Resources Commission

Submerged Lands and Tidal Wetlands Permit Program and the Local Wetlands Board Permit Program
(Sec. 28.2-1200 through 28.2-1300 of the *Code of Virginia*)

The Virginia Marine Resources Commission (VMRC) administers the Submerged Lands and Tidal Wetlands Permit Programs and is charged with the review of all tidal wetland permit decisions of local wetlands boards. The Tidal Wetlands Permit Program applies throughout Tidewater, Virginia. The Submerged Lands Permit Program applies State-wide to all State-owned submerged lands. New marinas and commercial mooring facilities constructed over State-owned submerged lands or which require a connection to State-owned submerged land require a permit from VMRC.

Permits are issued through Joint Permit Review process involving local, state, and federal agencies. Permits are reviewed based on compliance with statutory requirements, Commission guidelines and Marina Siting Criteria as well as advisory assistance provided by cooperating state and federal agencies. This includes comments from the Department of Environmental Quality, Department of Conservation and Recreation, Department of Health, Department of Game and Inland Fisheries and environmental impact information included in the VIMS Shoreline Permit Application report prepared for each project.

With the exception of the rapid bioassessment technique, all practices listed in the guidance are applied through the Marina Siting Criteria and field assessments conducted by Commission staff and technical review conducted by VIMS.

Virginia Department of Health

Rules and Regulations Governing the Sanitary Control of Oysters, Clams and Other Shellfish (Sec. 28.2-803 through 28.2-808 of the *Code of Virginia*)

To protect public health the Virginia Department of Health, Bureau of Shellfish Sanitation in cooperation with the Virginia Marine Resources Commission has establishes buffer zones around marina and boat mooring facilities. Proposed facilities which would result in the closure of shellfish beds would violate state water quality standards. The Virginia Marine Resources Commission is required by law

to consider water quality standards and enforce shellfish closures.

MANAGEMENT MEASURE COMPLIANCE

The Chesapeake Bay Preservation Area Designation and Management Regulations, the Virginia Water Protection Permit Regulation and the Submerged Lands Tidal Wetlands Permit Programs fully implement this management measure throughout the coastal zone. In fact, some aspects of the habitat assessment requirements of these regulations may exceed the requirements of this management measure. The CBPA implements riparian buffer areas and protects their functional value; the Submerged Lands and Tidal Wetlands Permit Programs specifically protects tidal wetlands and shellfish resources; and the Virginia Water Protection Permit Regulation requires surveys for any endangered species, anadromous fish, submerged aquatic vegetation, wetlands, shellfish, or other state water beneficial uses.

SITING AND DESIGN

D. SHORELINE STABILIZATION MANAGEMENT MEASURE

Where shoreline erosion is a nonpoint source pollution problem, shorelines should be stabilized. Vegetative methods are strongly preferred unless structural methods are more cost effective, considering the severity of wave and wind erosion, offshore bathymetry, and the potential adverse impact on other shorelines and offshore areas.

Applicability: This measure applies only to new and expanding marina facilities where site changes may result in erosion of shorelines.

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-2100 through 10.1-2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Area Designation and Management Regulations (VR 173-02-01) requires localities within Tidewater Virginia to adopt local programs

to protect the quality of state waters. In order to achieve this goal, localities must designate certain land types and features as Chesapeake Bay Preservation Areas. Localities must also develop specific performance criteria to apply to the use, development and redevelopment of land within these areas.

One designation is that of the Resource Protection Area (RPA). Section 3.2.A of the Regulations states that RPAs shall consist of sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant degradation to the quality of state waters.

The RPA includes tidal wetlands, nontidal wetlands contiguous to tidal wetlands, tidal shores, other lands deemed to be significant in the protection of state waters, and a buffer area not less than 100 feet in width adjacent to the previously mentioned land types and all tributary streams. Development in the RPA is limited to water dependent facilities or the redevelopment of existing facilities provided these activities adhere to the performance standards described in § 4.3.A.1 and 2.

The Regulations specify (§ 4.3.B) that a 100-foot buffer area of vegetation that is effective in retarding runoff, preventing erosion, and filtering nonpoint source pollution from runoff shall be present and established where it does not exist. Furthermore, the Regulations permit encroachment into the 100-foot buffer area for shoreline erosion control projects in accordance with the best available technical advice and applicable permit conditions and requirements.

Section 4.2.11 of the Regulations requires evidence of all wetlands permits required by law prior to the authorization of grading or other on-site activities to begin.

The program also requires localities within Tidewater Virginia to adopt and, or revise different elements of the local programs to protect the quality of state waters.

Section 5.6.A of the Regulations requires that local governments within Tidewater Virginia review and revise their comprehensive plans to address the quality of state waters. The comprehensive plan serves to guide future development and among the topics for review and revision are an analysis of critically eroding areas, shoreline erosion problems and the location of erosion control structures.

Department of Conservation and Recreation

Erosion and Sediment Control Law (Sec. 10.1-602 *et seq.* of the *Code of Virginia)*

This law requires an approved plan for any land disturbing activity involving 10,000 square feet or more. A compliance inspection is performed during construction to ensure that the plan is followed. Shoreline erosion control projects on tidal waters are exempt under the Erosion and Sediment Control Law when the projects are approved by local wetlands boards, the Virginia Marine Resources Commission, or the United States Army Corps of Engineers. All shoreline erosion control projects in nontidal areas involving a land disturbance of 10,000 square feet or more, or a more restrictive criterion as adopted by local government, require an approved Erosion and Sediment Control Plan.

Shoreline Erosion Advisory Service (SEAS) (Sec. 10.1-702 of the *Code of Virginia*)

The Shoreline Erosion Advisory Service (SEAS) conducts on site inspections and provides technical advice regarding the most effective and ecologically sound methods of shoreline stabilization. Where feasible, nonstructural controls are recommended to control shoreline erosion. Emphasis is placed on minimizing wetland impacts during erosion control implementation. SEAS recommendations are given considerable weight by permitting agencies and often become permit conditions.

Department of Environmental Quality

Virginia Water Protection Permit Regulation (VR 680-15-02)

The Department of Environmental Quality's Virginia Water Protection Program is responsible for the administration of water quality programs delegated to Virginia under the Clean Water Act and as required by the State Water Control Law. The Virginia Water Protection Permit program seeks protect the beneficial use of state waters including nontidal wetlands, prevent the degradation of valuable water resources, and to help restore degraded waters. The Department issues permits for all activities which may result in the physical, biological, or chemical alteration of state waters.

The Virginia Water Protection Permit Regulation requires a permit for marina facilities. These regulations also require that the permit application identify specific methods to be used for shoreline stabilization.

Virginia Marine Resources Commission

Submerged Lands and Tidal Wetlands Permit Program and the Local Wetlands Board Permit Program
(Sec. 28.2-1200 through 28.2-1300 of the *Code of Virginia*)

The Virginia Marine Resources Commission (VMRC) administers the Submerged Lands and Tidal Wetlands Permit Programs and is charged with the review of all tidal wetland permit decisions of local wetlands boards. The Tidal Wetlands Permit Program applies throughout Tidewater, Virginia. The Submerged Lands Permit Program applies State-wide to all State-owned submerged lands. New marinas and commercial mooring facilities constructed over State-owned submerged lands or which require a connection to State-owned submerged land require a permit from VMRC.

Permits are issued through Joint Permit Review process involving local, state, and federal agencies. Permits are reviewed based on compliance with statutory requirements, Commission guidelines and Marina Siting Criteria as well as advisory assistance provided by cooperating state and federal agencies. This includes comments from the Department of Environmental Quality, Department of Conservation and Recreation, Department of Health, Department of Game and Inland Fisheries and environmental impact information included in the VIMS Shoreline Permit Application report prepared for each project.

Shoreline stabilization is addressed through comments received from the Shoreline Erosion Advisory Service and VIMS during the Submerged Lands and Tidal Wetlands Permit review process.

MANAGEMENT MEASURE COMPLIANCE

The Chesapeake Bay Preservation Area Designation and Management Regulations, the Virginia Water Protection Permit Regulation, the Shoreline Erosion Advisory Service, and the Submerged Lands Tidal Wetlands Permit Program fully implement this management measure within the coastal zone. Collectively, these state programs provide the necessary technical assistance and regulatory authority to ensure that effective and environmentally appropriate erosion control measures are implemented during marina siting and development.

SITING AND DESIGN

E. STORM WATER RUNOFF MANAGEMENT MEASURE

Implement effective runoff control strategies which include the use of pollution prevention activities and the proper design of hull maintenance areas.

Reduce the average annual loadings of total suspended solids (TSS) in runoff from hull maintenance areas by 80 percent. For the purposes of this measure, an 80 percent reduction of TSS is to be determined on an average annual basis.

Applicability: Each of the requirements of the storm water runoff management measure is intended to be applied to "new and expanding" marina facilities. Existing marinas would be required ("at least") to implement management practices only in those areas where scraping, sanding, painting and other hull maintenance takes place.

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec. 10.1-2100 through 10.1-2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations
(VR 173-02-01)

The Chesapeake Bay Preservation Area Designation and Management Regulations (VR 173-02-01) specify eleven performance criteria [§ 4.2) that apply to the use, development, or redevelopment of land within Chesapeake Bay Preservation Areas. Two of the criteria address erosion and sediment control requirements and nonpoint source pollution generated by development.

Section 4.2.6 of the Regulations expands the application of the Erosion and Sediment Control Law [§10.1-560, et.seq.] by reducing the disturbance threshold for regulated land disturbing activities from 10,000 square feet to 2,500 square feet.

Section 4.2.8 of the Regulations provides nonpoint source pollution removal/reduction requirements of nutrients applicable to new development or redevelopment. These stormwater management criteria apply a "no net increase"

standard to new development and a "10% reduction" standard to redevelopment. For new development, the post-development nonpoint source pollution load shall not exceed the pre-development load based on average land cover conditions. Redevelopment activities must achieve a ten percent reduction of nonpoint source pollution in runoff compared to the existing runoff load from the site. Typical structural controls used to meet these requirements are detention and infiltration facilities. Non-structural controls such as impervious area reduction (§ 4.2.5) and filter strips are encouraged.

Although the program does not directly address quantity of stormwater, it does, as mentioned previously, expand the application of the Erosion and Sediment Control Law.

Department of Conservation and Recreation

Erosion and Sediment Control Law (Sec. 10.1-602 *et seq.* of the *Code of Virginia)*

This law requires an approved plan for any land disturbing activity involving 10,000 square feet or more. A compliance inspection is performed during construction to ensure that the plan is followed. Pursuant to standard 19 of the Virginia Erosion and Sediment Control Regulations, an adequate receiving channel is required. This requirement often results in channel modifications and, or construction of a detention structure.

Department of Environmental Quality

Virginia Water Protection Permit Regulation (VR 680-15-02)

The Department of Environmental Quality's Virginia Water Protection Program is responsible for the administration of water quality programs delegated to Virginia under the Clean Water Act and as required by the State Water Control Law. The Virginia Water Protection Permit program seeks to protect the beneficial use of state waters including nontidal wetlands, prevent the degradation of valuable water resources, and to help restore degraded waters. The Department issues permits for all activities which may result in the physical, biological, or chemical alteration of state waters.

The Virginia Water Protection Permit Regulation requires a permit for marina facilities. This permit requires water quality monitoring for dissolved oxygen,

temperature, and pH for both surface and bottom waters. Marinas are reviewed on a case by case process with appropriate restrictions and monitoring included in the permit.

Virginia Marine Resources Commission

Submerged Lands and Tidal Wetlands Permit Program and the Local Wetlands Board Permit Program
(Sec. 28.2-1200 through 28.2-1300 of the *Code of Virginia*)

The Virginia Marine Resources Commission (VMRC) administers the Submerged Lands and Tidal Wetlands Permit Programs and is charged with the review of all tidal wetland permit decisions of local wetlands boards. The Tidal Wetlands Permit Program applies throughout Tidewater, Virginia. The Submerged Lands Permit Program applies State-wide to all State-owned submerged lands. New marinas and commercial mooring facilities constructed over State-owned submerged lands or which require a connection to State-owned submerged land require a permit from VMRC.

Permits are issued through Joint Permit Review process involving local, state, and federal agencies. Permits are reviewed based on compliance with statutory requirements, Commission guidelines and Marina Siting Criteria as well as advisory assistance provided by cooperating state and federal agencies. This includes comments from the Department of Environmental Quality, Department of Conservation and Recreation, Department of Health, Department of Game and Inland Fisheries and environmental impact information included in the VIMS Shoreline Permit Application report prepared for each project.

VMRC marina siting criteria stipulate that boat maintenance facilities shall include plans to collect and remove maintenance by-products before they reach adjoining waterways.

Although certain practices listed in the guidance are included in the Marina Siting Criteria, VMRC has limited authority over upland activities.

MANAGEMENT MEASURE COMPLIANCE

Collectively, the Chesapeake Bay Preservation Area Designation and Management Regulations, the Erosion and Sediment Control Program, the Virginia Water Protection

Permit Regulation, the VPDES Permit Program, and the Submerged Lands Tidal Wetlands Permit Program ensure the implementation of effective erosion and sediment control during marina construction and effective control of runoff quantity and quality after construction. In addition, pollution prevention is encouraged through performance requirements of the CBPA.

Although state regulations do not specify a requirement for an 80 percent reduction in total suspended solids in runoff from hull maintenance areas, implementation of one or more of the management practices discussed in the guidance would likely be required to comply with state regulations. As such, these state programs are deemed to meet the intent of the management measure but not the specific requirement for an 80 percent reduction. Moreover, state program do not require an 80 percent reduction in total suspended solids from existing hull maintenance areas.

SITING AND DESIGN

F. FUELING STATION DESIGN MANAGEMENT MEASURE

Design fueling stations to allow for ease in cleanup of spills.

Applicability: This measure applies only to new and expanding marina facilities where fueling stations are to be added or moved.

Applicable State Programs

Department of Environmental Quality

Virginia Water Protection Permit Regulation (VR 680-15-02)

The Department of Environmental Quality's Virginia Water Protection Program is responsible for the administration of water quality programs delegated to Virginia under the Clean Water Act and as required by the State Water Control Law. The Virginia Water Protection Permit program seeks to ensure the protection of beneficial use of state waters including nontidal wetlands, prevent the degradation of valuable water resources, and to help restore degraded waters. The Department issues permits for all activities which may result in the physical, biological, or chemical alteration of state waters.

The Virginia Water Protection Permit Regulation requires a permit for Marina

facilities. This permit requires water quality monitoring for dissolved oxygen, temperature, and pH for both surface and bottom waters. Permit also requires an Oil Spill Containment Plan. Marinas are reviewed on a case by case basis with appropriate restrictions included in the marina permit and appropriate monitoring included in the permit.

Oil Spills (Sec. 62.1 - 44.34 of the Code of Virginia)

Article 11 Section 62.1 - 44.34 of the *Code of Virginia* prohibits the discharge of any volume of oil. Specifically, it state that the discharge of oil into or upon state waters, lands, or storm drain systems is prohibited within the Commonwealth of Virginia.

Virginia Marine Resources Commission

Submerged Lands and Tidal Wetlands Permit Program and the Local Wetlands Board Permit Program
(Sec. 28.2-1200 through 28.2-1300 of the *Code of Virginia*)

The Virginia Marine Resources Commission (VMRC) administers the Submerged Lands and Tidal Wetlands Permit Programs and is charged with the review of all tidal wetland permit decisions of local wetlands boards. The Tidal Wetlands Permit Program applies throughout Tidewater, Virginia. The Submerged Lands Permit Program applies State-wide to all State-owned submerged lands. New marinas and commercial mooring facilities constructed over State-owned submerged lands or which require a connection to State-owned submerged land require a permit from VMRC.

Permits are issued through Joint Permit Review process involving local, state, and federal agencies. Permits are reviewed based on compliance with statutory requirements, Commission guidelines and Marina Siting Criteria as well as advisory assistance provided by cooperating state and federal agencies. This includes comments from the Department of Environmental Quality, Department of Conservation and Recreation, Department of Health, Department of Game and Inland Fisheries and environmental impact information included in the VIMS Shoreline Permit Application report prepared for each project.

Fuel spill contingency plans are required for new marinas with fuel facilities. As

well, VMRC may require that booms be available to respond to fuel spills.

MANAGEMENT MEASURE COMPLIANCE

The Virginia Water Protection Permit Regulation and the Submerged Lands and Tidal Wetlands Permit Programs meet the requirements of this management measure within the coastal zone. In addition, Article 11 Section 62.1 - 44.34 of the *Code of Virginia* prohibits the discharge of any volume of oil. These regulations specifically address the need for oil spill response and containment.

SITING AND DESIGN

G. SEWAGE FACILITY MANAGEMENT MEASURE

Install pumpout, dump station, and restroom facilities where needed at new and expanding marinas to reduce the release of sewage to surface waters. Design these facilities to allow ease of access and post signage to promote use by the boating public.

Applicability: This measure applies to new and expanding marina facilities in areas where adequate marine sewage collection facilities do not exist. Dump stations for portable toilets and restrooms should be available.

Applicable State Programs

Department of Environmental Quality

Virginia Water Protection Permit Regulation (VR 680-15-02)

The Department of Environmental Quality's Virginia Water Protection Program is responsible for the administration of water quality programs delegated to Virginia under the Clean Water Act and as required by the State Water Control Law. The Virginia Water Protection Permit program seeks to ensure the protection of beneficial use of state waters including nontidal wetlands, prevent the degradation of valuable water resources, and to help restore degraded waters. The Department

issues permits for all activities which may result in the physical, biological, or chemical alteration of state waters.

The Virginia Water Protection Permit Regulation requires a permit for marina facilities. This permit requires water quality monitoring for dissolved oxygen, temperature, and pH for both surface and bottom waters. All new or expanding marinas are required to have either pumpout or dump out facilities (depending on the marina size) as part of the permit application.

Virginia Department of Health Department

Virginia Sanitary Regulations for Marinas and Boat Moorings
(Sec. 32.1 - 246 of the Code of Virginia)

The *Virginia Sanitary Regulations for Marinas and Boat Moorings* requires all marinas and boat moorings to obtain a permit to construct and operate on-site sanitary facilities, pump-out facilities, and sewage dump stations. There are special provisions for establishments which do not allow boats with installed toilets to use their mooring facilities. VMRC requires each establishment using subaqueous land to provide a Virginia Department of Health (VDH) approved plan for all sanitary and sewage facilities, before a VMRC permit may be issued. The Virginia Department of Health (VDH) approved plan may not be issued until the requirements of the on-site sewage regulations and, or the Sewage Collection and Treatment Regulations have been met.

Virginia Marine Resources Commission

Submerged Lands and Tidal Wetlands Permit Program and the Local Wetlands Board Permit Program
(Sec. 28.2-1200 through 28.2-1300 of the *Code of Virginia*)

The Virginia Marine Resources Commission (VMRC) administers the Submerged Lands and Tidal Wetlands Permit Programs and is charged with the review of all tidal wetland permit decisions of local wetlands boards. The Tidal Wetlands Permit Program applies throughout Tidewater, Virginia. The Submerged Lands Permit Program applies State-wide to all State-owned submerged lands. New marinas and commercial mooring facilities constructed over State-owned submerged lands or which require a connection to State-owned submerged land require a permit from VMRC.

Permits are issued through Joint Permit Review process involving local, state, and federal agencies. Permits are reviewed based on compliance with statutory requirements, Commission guidelines and Marina Siting Criteria as well as advisory assistance provided by cooperating state and federal agencies. This includes comments from the Department of Environmental Quality, Department of Conservation and Recreation, Department of Health, Department of Game and Inland Fisheries and environmental impact information included in the VIMS Shoreline Permit Application report prepared for each project.

As noted above, a Submerged Lands Permit can not be issued until the Health Department has approved any sanitary facilities.

MANAGEMENT MEASURE COMPLIANCE

The Virginia Water Protection Permit Regulation, the Virginia Sanitary Regulations for Marinas and Boat Moorings, and the Submerged Lands and Tidal Wetlands Permit Programs ensure that necessary pumpout facilities are installed at new and expanding marinas. These regulations meet fully meet this management measure. In addition, Section 32.1-246.1 of the *Code of Virginia* states that signs and notices indicating fees, restrictions, and operating instructions be placed on all required dump stations.

MARINA AND BOAT OPERATION AND MAINTENANCE

A. SOLID WASTE MANAGEMENT MEASURE

Properly dispose of solid wastes produced by the operation, cleaning, maintenance, and repair of boats to limit entry of solid wastes to surface waters.

Applicability: This measure applies to new and expanding marina facilities.

Applicable State Programs

Department of Environmental Quality

Virginia Water Protection Permit Regulation (VR 680-15-02)

The Department of Environmental Quality's Virginia Water Protection Program is responsible for the administration of water quality programs delegated to Virginia under the Clean Water Act and as required by the State Water Control Law. The Virginia Water Protection Permit program seeks to ensure the protection of beneficial use of state waters including nontidal wetlands, prevent the degradation of valuable water resources, and to help restore degraded waters. The Department issues permits for all activities which may result in the physical, biological, or chemical alteration of state waters.

The Virginia Water Protection Permit Regulation requires a permit for marina facilities. This permit requires water quality monitoring for dissolved oxygen, temperature, and pH for both surface and bottom waters. This permit addresses the need for trash containers and proper waste management.

Solid Waste Management Regulations (Section 62.1-194 et seq. of the Code of Virginia)

The Division of Waste Management administers the Solid Waste Management Regulations. These regulations require disposal of solid waste in an approved solid waste disposal facility. In addition, these regulations prohibit the disposal of solid waste in waters of the Commonwealth.

Section 62.1-194 *et seq.* of the *Code of Virginia* states that it is unlawful to contaminate state waters, or to cast garbage or other solid waste of any form into state waters, except fish or crab bait.

Virginia Marine Resources Commission

Submerged Lands and Tidal Wetlands Permit Program and the Local Wetlands Board Permit Program
(Sec. 28.2-1200 through 28.2-1300 of the *Code of Virginia*)

The Virginia Marine Resources Commission (VMRC) administers the Submerged Lands and Tidal Wetlands Permit Programs and is charged with the review of all tidal wetland permit decisions of local wetlands boards. The Tidal Wetlands Permit Program applies throughout Tidewater, Virginia. The Submerged Lands Permit Program applies State-wide to all State-owned submerged lands. New marinas and commercial mooring facilities constructed over State-owned submerged lands or

which require a connection to State-owned submerged land require a permit from VMRC.

Permits are issued through Joint Permit Review process involving local, state, and federal agencies. Permits are reviewed based on compliance with statutory requirements, Commission guidelines and Marina Siting Criteria as well as advisory assistance provided by cooperating state and federal agencies. This includes comments from the Department of Environmental Quality, Department of Conservation and Recreation, Department of Health, Department of Game and Inland Fisheries and environmental impact information included in the VIMS Shoreline Permit Application report prepared for each project.

The Marina Siting Criteria specifically address solid waste disposal and require the development of a solid waste recovery plan. In addition, facilities incorporating boat maintenance operations must include plans for the efficient collection and removal of by-products associated with maintenance operations.

MANAGEMENT MEASURE COMPLIANCE

The Virginia Water Protection Permit Regulation, and the Solid Waste Management Regulations help ensure that solid waste produced by the operation, cleaning, maintenance, and repair of boats is properly managed. The Marina Siting Criteria specifically addresses solid waste management and requires solid waste management plans for maintenance operations. Furthermore, section 62.1-194 *et seq.* of the *Code of Virginia* prohibits the disposal of garbage or other solid waste of any form into state waters. These regulations meet the intent of the management measure.

MARINA AND BOAT OPERATION AND MAINTENANCE

B. FISH WASTE MANAGEMENT MEASURE

Promote sound fish waste management through a combination of fish-cleaning restrictions, public education, and proper disposal of fish waste.

Applicability: "This management measure is intended to be applied by States to marinas where fish waste is determined to be a source of water pollution."

Applicable State Programs

Department of Environmental Quality

Solid Waste Management Regulations
(Sec. 62.1-194, *et seq.* of the *Code of Virginia*)

The Division of Waste Management administers the Solid Waste Management Regulations. These regulations require disposal of solid waste in an approved solid waste disposal facility. Section 62.1-194 *et seq.* of the *Code of Virginia* states that it is unlawful to contaminate state waters, or to cast garbage or other solid waste of any form into state waters, except fish or crab bait.

MANAGEMENT MEASURE COMPLIANCE

The solid waste management regulations prohibit the improper disposal of solid waste, including fish waste. Section 62.1-194 *et seq.* of the *Code of Virginia* states that it is unlawful to cast garbage or other solid waste of any form into state waters, except fish or crab bait. Virginia partially meets the Fish Waste management measure.

MARINA AND BOAT OPERATION AND MAINTENANCE

C. LIQUID MATERIAL MANAGEMENT MEASURE

Provide and maintain appropriate storage, transfer, containment, and disposal facilities for liquid material, such as oil, harmful solvents, antifreeze, and paints, and encourage recycling of these materials.

Applicability: "This management measure is intended to be applied by States to marinas where liquid materials used in maintenance, repair, or operation of boats are stored."

Applicable State Programs

Department of Environmental Quality

Virginia Water Protection Permit Regulation (VR 680-15-02)

The Virginia Water Protection Permit Regulation requires a permit for marina facilities. This permit requires water quality monitoring for dissolved oxygen, temperature, and pH for both surface and bottom waters. Although liquid material

management is not typically a permit requirement, there are permit conditions that prohibit dumping of these material in water.

Solid Waste Management Regulations
(Section 62.1-194, *et seq.* of the *Code of Virginia*)

The Division of Waste Management administers the Solid Waste Management Regulations. These regulations require disposal of solid waste in an approved solid waste disposal facility. In addition, these regulations prohibit the disposal of solid waste in waters of the Commonwealth.

Section 62.1-194 *et seq.* of the *Code of Virginia* states that it is unlawful to contaminate state waters, or to cast garbage or other solid waste of any form into state waters, except fish or crab bait.

Oil Spills (Sec. 62.1 - 44.34 of the *Code of Virginia*)

Article 11 Section 62.1 - 44.34 of the *Code of Virginia* prohibits the discharge of any volume of oil. Specifically, it states that the discharge of oil into or upon state waters, land, or storm drain systems is prohibited within the Commonwealth of Virginia.

Oil Discharge Contingency Plan (Sec. 62.1-44.34:15, of the *Code of Virginia*)

Article 11 of the State Water Law states that all operators of oil storage facilities having greater than 25,000 gallon storage or handling capacity prepare an Oil Discharge Contingency Plan. This law is enforced by the Department of Environmental Quality under regulations adopted in December of 1991.

Waste Reduction Assistance Programs

The Office of Litter Prevention and Recycling (OLP&R) assists Virginia localities and state agencies with recycling and litter prevention activities. These activities include: developing markets for recycled material, planning assistance to state and local governments, scrap tire management, and litter prevention. OLP&R maintains a free data base service consisting of a list of over 400 users of recycled material, develops regulations for solid waste management, and prepares planning guidelines and technical studies to assist localities.

MANAGEMENT MEASURE COMPLIANCE

The Solid Waste Management Regulations and the Virginia Water Protection Permit Regulation prohibit the dumping or improper disposal of harmful liquid material. Proper storage, transfer, and disposal facilities for these materials are required in order to comply with these regulations. The Office of Litter Prevention and Recycling promotes recycling of solid and liquid material. In addition, section 62.1-194 *et seq.* of the *Code of Virginia* states that it is unlawful to contaminate state waters, or to cast garbage or other solid waste of any form into state waters, except fish or crab bait.

MARINA AND BOAT OPERATION AND MAINTENANCE

D. PETROLEUM CONTROL MANAGEMENT MEASURE

Reduce the amount of fuel and oil from boat bilges and fuel tank air vents entering marina and surface waters.

Applicability: "This management measure is intended to be applied by States to boats that have inboard fuel tanks"

Applicable State Programs

Department of Environmental Quality

Virginia Water Protection Permit Regulation (VR 680-15-02)

The Virginia Water Protection Permit Regulation requires a permit for marina facilities. This permit requires water quality monitoring for dissolved oxygen, temperature, and pH for both surface and bottom waters. Petroleum Control is typically included in the permit and there are conditions that prohibit direct dumping of bilges in water. Bilge pumping is to be done in proper facilities.

Oil Discharge Contingency Plan (Sec. 62.1-44.34:15, of the *Code of Virginia*)

Article 11 of the State Water Law states that all operators of oil storage facilities having greater than 25,000 gallon storage or handling capacity prepare an Oil Discharge Contingency Plan. This law is enforced by the Department of Environmental Quality under regulations adopted in December of 1991.

Oil Spills (Sec. 62.1 - 44.34 of the *Code of Virginia*)

Article 11 Section 62.1 - 44.34 of the *Code of Virginia* prohibits the discharge of any volume of oil. Specifically, it states that the discharge of oil into or upon state waters, land, or storm drain systems is prohibited within the Commonwealth of Virginia.

Virginia Marine Resources Commission

Submerged Lands and Tidal Wetlands Permit Program and the Local Wetlands Board Permit Program
(Sec. 28.2-1200 through 28.2-1300 of the *Code of Virginia*)

The Virginia Marine Resources Commission (VMRC) administers the Submerged Lands and Tidal Wetlands Permit Programs and is charged with the review of all tidal wetland permit decisions of local wetlands boards. New marinas and commercial mooring facilities constructed over State-owned submerged lands or which require a connection to State-owned submerged land require a permit from VMRC.

Permits are issued through Joint Permit Review process involving local, state, and federal agencies. Permits are reviewed based on compliance with statutory requirements, Commission guidelines and Marina Siting Criteria as well as advisory assistance provided by cooperating state and federal agencies. This includes comments from the Department of Environmental Quality, Department of Conservation and Recreation, Department of Health, Department of Game and Inland Fisheries and environmental impact information included in the VIMS Shoreline Permit Application report prepared for each project.

The Marina Siting Criteria require all fuel facilities to incorporate automatic shutoff valves, oil spill contingency plans, and methods of preventing the discharge of wastes, gray water, and fuels bilge wastes.

MANAGEMENT MEASURE COMPLIANCE

Collectively, the programs described above meet the requirements of the Petroleum Control Management Measure. The Virginia Water Protection Permit Regulation prohibits bilge dumping, and other state regulations require oil spill contingency plans and prohibit

the discharge of oil into state waters. Marina siting guidelines require all marina fuel facilities to incorporate automatic shutoff valves, and prevent the discharge of fuels bilge wastes.

MARINA AND BOAT OPERATION AND MAINTENANCE

E. BOAT CLEANING MANAGEMENT MEASURE

For boats that are in the water, perform cleaning operations to minimize, to the extent practicable, the release to surface waters of (a) harmful cleaners and solvents and (b) paint from in-water hull cleaning.

Applicability: "This management measure is intended to be applied by States to marinas where boat topsides are cleaned and marinas where hull scrubbing in the water has been shown to result in water or sediment quality problems."

Applicable State Programs

Department of Environmental Quality

Virginia Water Protection Permit Regulation

The Virginia Water Protection Permit Regulation requires a permit for marina development and operation. Boat cleaning management is typically a permit requirement and there are conditions in the permit that prohibit in-water maintenance or direct dumping into waters of the Commonwealth.

Section 62.1-194 *et seq.* of the *Code of Virginia* states that it is unlawful to contaminate state waters, or to cast garbage or other solid waste of any form, except fish or crab bait, into state waters.

MANAGEMENT MEASURE COMPLIANCE

The Virginia Water Protection Permit Regulation meets this management measure through

a prohibition of in-water boat cleaning and direct dumping into waters of the Commonwealth.

MARINA AND BOAT OPERATION AND MAINTENANCE

F. PUBLIC EDUCATION MANAGEMENT MEASURE

Public education/outreach/training programs should be instituted for boaters, as well as marina owners and operators, to prevent improper disposal of polluting material.

Applicability: "This management measure is intended to be applied by States to all environmental control authorities in areas where marinas are located."

Applicable State Programs

Department of Game and Inland Fisheries

Boater Safety Program

Boater education regarding proper disposal of polluting material is an important part of the Boater Safety Program.

Virginia Department of Health

Marina Education Program

The Marina Education Program includes distribution of brochures and decals which encourage proper disposal of polluting material. Approximately 75,000 educational brochures and 100,000 decals have been passed out with 44,000 of them being sent directly to all Virginians with a registered boat of 20 feet or more, as well as all people with a Virginia address which have a documented boat in their name. As noted above, participants in boating safety courses are also given a brochure and decal as well as information about the importance of not to polluting waterways. Approximately 500 posters have been used in key locations to help promote clean waterways.

In addition, a uniform sign has been developed and placed at dump stations and pump-outs. A list of pump-out stations is available upon request. About 1,000

requests are received each year.

MANAGEMENT MEASURE COMPLIANCE

Both the Boater Safety and the Marina Education Programs address the proper disposal of polluting material. These programs fully implement this management measure.

MARINA AND BOAT OPERATION AND MAINTENANCE

G. MAINTENANCE OF SEWAGE FACILITIES MANAGEMENT MEASURE

Ensure that sewage pumpout facilities are maintained in operational condition and encourage their use.

Applicability: "This management measure is intended to be applied by States to all marinas where marines sewage disposal facilities exist."

Applicable State Programs

Virginia Department of Health

Sanitary Regulations for Marinas and Boat Moorings
(Sec. 32.1-246, of the *Code of Virginia*)

Marinas, boat moorings, and other places where boats are moored are inspected each year to determine if onshore sanitary facilities are in proper working order and to determine if the pump-out and sewage dump stations are available and in proper working order.

MANAGEMENT MEASURE COMPLIANCE

The Sanitary Regulations for Marinas and Boat Moorings enforced by the Virginia Department of Health fully implement this management measure throughout the state.

MARINA AND BOAT OPERATION AND MAINTENANCE

H. BOAT OPERATION MANAGEMENT MEASURE

Restrict boating activities where necessary to decrease turbidity and physical destruction of shallow-water habitat.

Applicability: "This management measure is intended to be applied by States in non-marina surface waters where evidence indicates that boating activities are impacting shallow-water habitat."

Applicable State Programs

Department of Game and Inland Fisheries

No Wake Zone Designation and Enforcement

The Department of Game and Inland Fisheries approves No Wake Zone designations and enforces boater compliance. VMRC marine patrol officers also help enforce No Wake Designation Zones.

MANAGEMENT MEASURE COMPLIANCE

Although No Wake Zones can provide some protection for shallow-water habitat, these zones are designated based on safety considerations. Environmental factors can not serve as a basis for No Wake Zone designation at this time. Similar boating restrictions have been discussed by localities as a possible means of preventing shoreline erosion. Presently, the No Wake Zone Program does not meet the intent of the management measure.

Marina and Boat Operation

Siting and Design

A. Marina Flushing	Meets
B. Water Quality Assessment	Meets
C. Habitat Assessment	Meets
D. Shoreline Stabilization	Meets
E. Storm Water Runoff	Meets
F. Fueling Station Design	Meets
G. Sewage Facility	Meets

Marina and Boat Operation and Maintenance

A. Solid Waste	Meets
B. Fish Waste	Partially Meets
C. Liquid Material	Meets
D. Petroleum Control	Meets
E. Boat Cleaning	Meets
F. Public Education	Meets
G. Maintenance of Sewage Facilities	Meets
H. Boat Operation	Partially Meets

Management measures for hydromodification

CHAPTER 7

Management Measures for Hydromodification:

Channelization and Channel Modification, Dams, and Streambank and Shoreline Erosion

The population density of Tidewater Virginia and the distribution of people along Virginia's rivers and shores increases the need to protect shorelines from erosion hazards and to construct dams for flood protection, recreation, and water supplies. Virginia has over 3000 miles of nontidal rivers and streams, and more than 5000 miles of tidal shoreline along the Atlantic Ocean and the Chesapeake Bay and its tributaries. The estimated average annual erosion rate along Virginia's Atlantic coast is 10.2 feet per year and 0.7 feet per year along the Chesapeake Bay shoreline. An estimated 501 miles of shoreline in Virginia is eroding at a rate of 1 foot or greater per year. Approximately 243 miles of shoreline are eroding at a rate of 2 feet or greater per year; and, approximately 39 miles of shoreline are eroding at a rate of 5 feet of greater per year. Of the 1,500 dams and impoundments which exist along Virginia waters, 460 are regulated by the Commonwealth of Virginia. The state regulates dams based on height and impoundment area. Estimates conducted as part of the National Flood Insurance Program (NFIP) indicate that approximately 865 square miles of Tidewater Virginia are within the 100-year floodplain.

Channel modifications are needed to maintain navigable waterways and control flooding. Dam construction and operation is often necessary to store water for irrigation, recreation, and to provide a source of drinking water. Yet, these activities can be a source of nonpoint pollution and adversely affect water quality and habitat.

Disturbances to riparian and coastal waterways may result in increased streambank or shoreline erosion, water quality degradation, and the destruction of sensitive aquatic habitat. In particular, channel modifications undertaken in streams or rivers

to straighten, relocate, or change the depth or width of a channel can alter instream water temperature, the physical and chemical characteristics of bottom sediments, and the rate and characteristics of sediment transport and deposition. In addition, channel modifications often require maintenance dredging which can diminish the suitability of aquatic and riparian habitat for fish and wildlife. While some adverse impacts associated with channel modification activities may be temporary, the loss of habitat and the need for ongoing maintenance can have significant long term consequences.

Siting, construction, and operation of dams and impoundments can result in significant changes in the ecology of streams and rivers. The construction of dams may result in significant increases in nonpoint source pollution such as increased sediment loading and chemical contaminants. Dam operation can produce changes in water temperature and water chemistry (pH and dissolved oxygen). In addition, dams and impoundments can disrupt the natural transport of sediment and can result in significant changes to instream flow.

The adverse effects of both dam construction and channel modifications can be greatly reduced through effective planning and the installation and maintenance of best management practices (BMP). Virginia has a number of programs which seek to prevent degradation of water quality resulting from hydromodifications, construction of dams, and destruction of wetlands and riparian areas. At the core of these programs are the following regulatory programs which provide the bulk of the Commonwealth's regulatory authority for managing hydromodification and dam construction activities:

- the Virginia Water Protection Permit Program administered by the Department of Environmental Quality;
- the Subaqueous Lands Management, Tidal Wetlands Management and Coastal Primary Sand Dunes/Beaches Management Programs administered by the Virginia Marine Resources Commission; and,
- the Chesapeake Bay Preservation Act administered by the Chesapeake Bay Local Assistance Department.

Other state programs which include specific regulatory authority concerning hydromodification, and dams include:

- the Floodplain Management, Dams Safety, Erosion and Sediment Control and the Scenic Rivers Programs administered by the Department of Conservation and Recreation; and,

- the Threatened and Endangered Species Program administered by the Department of Game and Inland Fisheries.

These regulatory programs are augmented by programs which offer financial incentives and technical assistance to promote the goals of nonpoint source reductions as related to hydromodification activities. These incentive programs include:

- the Shoreline Erosion Advisory Service, the Stormwater Management Program and the Agricultural BMP Cost-Share Program, all administered by the Department of Conservation and Recreation.

Work Group Assessment Process

In May, 1993 the Hydromodification Work Group began the work of comparing existing state programs to the management measures contained in Chapters 6 and 7 of the *EPA Guidance Specifying Management Measures For Sources Of Nonpoint Pollution In Coastal Waters*. The following agencies or organizations are represented on the Hydromodification Work Group: Department of Conservation and Recreation, Department of Environmental Quality - Water Division, Virginia Marine Resources Commission, Chesapeake Bay Local Assistance Department, Virginia Institute of Marine Science, Department of Game and Inland Fisheries, Department of Transportation, Lower James Rivers Association, Virginia Lakes Association, Home Builders Association of Virginia, Hampton Roads Planning District Commission and Chesapeake Bay Foundation.

This assessment of state nonpoint source pollution control programs was produced using information collected through work group meetings, interviews with state agency staff, and work sheets completed for applicable programs. The matrix on page 6-5 identifies which state programs apply to the management measures for hydromodifications. This chapter details the specific requirements of each measure and describes applicable state programs. Program descriptions are not comprehensive; rather, they focus on aspects of state programs applicable to the specified management measures. A table at the end of the chapter summarizes how state programs address the hydromodification management measures within the coastal zone.

For each management measure the Hydromodification Work Group has evaluated how well state programs comply with the federal guidance based on: (1) specific management measure requirements or performance standards, and (2) enforceable policies or mechanisms.

Hydrologic Modifications

	Physical & Chemical Characteristics of Surface Waters	Instream & Riparian Habitat Restoration	Erosion & Sediment Control	Chemical & Pollution Control	Protection of Surface Water Quality	Eroding Streambanks & Shorelines
Virginia Water Protection Permit	X	X	X	X	X	X
Wetlands Boards Permit Program						X
Submerged Land Regulation	X	X	X	X	X	X
Sand Dune Law						X
Chesapeake Bay Preservation Act			X	X		X
Floodplain Management	X	X	X	X		
Shoreline Erosion Advisory Service						X
Dam Safety Program			X		X	
Erosion and Sediment Control	X		X	X		X
Stormwater Management Act	X					
Scenic River Program	X	X			X	
Threatened and Endangered Species	X	X			X	X
Agricultural BMP Cost Share Program					X	X

September 1995

PROGRAM ASSESSMENT BY MANAGEMENT MEASURE

Each of the specified management measures for hydromodification is identified and discussed in the section which follows. The management measures are presented as they appear in the program guidance issued by EPA and NOAA. Within the hydromodification source category, there are subcategories for Channelization and Channel Modifications, Dams, and Streambank and Shoreline Erosion. For each management measure the applicable program descriptions are listed alphabetically and grouped together by the agency which administers them. In the compliance section which follows these descriptions, more consideration has been given to the relative importance of each of the individual programs.

This chapter identifies the requirements of each management measure, provides a brief program description of applicable state programs, and a discussion of how well these programs comply with the requirements of each management measure. Program descriptions are not comprehensive; rather, they focus on aspects of state programs applicable to the specified management measures. The management measure compliance discussion describes coordination between state programs and summarizes how well state programs meet management measure requirements.

CHANNELIZATION AND CHANNEL MODIFICATION

A. Physical and Chemical Characteristics of Surface Waters

(1) Evaluate the potential effects of proposed channelization and channel modification on the physical and chemical characteristics of surface waters in coastal areas;

(2) Plan and design channelization and channel modification to reduce undesirable impacts; and

(3) Develop an operation and maintenance program for existing modified channels that include identification and implementation of opportunities to improve physical and chemical characteristics of surface waters in those channels.

Applicability: "This management measure is intended to be applied by States to public and private channelization and channel modification activities in order to prevent the degradation of physical and chemical characteristics of surface waters from such activities."

APPLICABLE STATE PROGRAMS

Department of Conservation and Recreation

Erosion and Sediment Control Law (Sec. 10.1-560, *et seq.* of the *Code of Virginia*)

Erosion and sediment control plans must utilize practices defined in the *1992 Virginia Erosion and Sediment Control Handbook*. State sponsored projects are reviewed and approved by the Department of Conservation and Recreation (DCR). Private projects are reviewed and approved by the local government with DCR oversight. The Erosion and Sediment Control Law is applicable statewide.

This law requires an approved erosion and sediment control plan for land disturbing activity involving 10,000 square feet or more. A compliance inspection is performed during construction to ensure that the plan is followed. Pursuant to Standard 19 of the Virginia Erosion and Sediment Control Regulations, an adequate receiving channel is required. This requirement helps ensure that any required channel modifications do not induce down stream erosion.

Floodplain Management Program (Sec. 10.1-602, *et seq.* of the *Code of Virginia*)

All channel modifications require a local government permit for hydraulic evaluation. Channel relocations require state National Flood Insurance Program (NFIP) coordination and review. Drainage system maintenance and debris removal to maintain flood capacity are credible activities under the NFIP Community Rating System for participating localities which choose to require them.

Scenic Rivers Act (Sec. 10.1-400 through 10.1-418 of the *Code of Virginia*)

The Department of Conservation and Recreation reviews and makes recommendations to regulatory agencies regarding all proposals for the use and development of water and land related resources or other uses which have the potential to change the character of a stream or waterway or destroy the scenic values of designated scenic rivers. Full consideration and evaluation of the river

as a scenic resource will be given before channel modification proposals are approved.

The Scenic Rivers Act is applicable statewide to those waterbodies designated as scenic rivers by an act of the Virginia General Assembly. Approximately 225 miles of Virginia waterways have been designated as scenic rivers.

Stormwater Management Act (Sec. 10.1-603.1, *et seq.* of the *Code of Virginia*)

A stormwater management plan is required for state sponsored projects. These plans are reviewed and approved by the Department of Conservation and Recreation. The Stormwater Management Program is optional for local governments. Where local programs exist, stormwater management plans for private projects are reviewed and approved by local government. Plans are required for projects which would disturb an acre or more and which would affect storm water quantity and quality. Technical assistance regarding the Stormwater Management Law is available to participating localities through the Department of Conservation and Recreation.

Department of Environmental Quality

Virginia Water Protection Permit Act (Sec. 62.1-44.15.5 of the *Code of Virginia*)

The Virginia Water Protection Permit (VWPP) requires that an application be prepared for all channelization and channel modification projects. Permit applications are evaluated on a case by case basis for potential impacts to water quality. Channel modification projects projected to have minor, or insignificant, impacts to state waters and wetlands, and qualifying for Nationwide or Regional Permits from the Corps of Engineers, may not require program review. Modeling of effects may be required as part of the project evaluation process if impacts are expected to be significant. Pre-construction sampling may be required to establish baseline water quality data. DEQ staff works with applicants to reduce or eliminate undesirable water quality and habitat effects during the preapplication and application review process. Best management practices (BMPs) may be required for project implementation. Seasonal restrictions may also be stated in the permit.

Department of Game and Inland Fisheries

Virginia Endangered Species Act
(Sec. 29-230 through 29-237 of the *Code of Virginia*)

The Virginia Endangered Species Act prohibits actions which would harass or harm a state or federally listed endangered or threatened species, including significant habitat modifications or degradation, or other intentional or negligent acts or omissions which kill or injure wildlife by significantly impairing essential behavior patterns including breeding, feeding or sheltering. The Department Game and Inland Fisheries administers the Virginia Endangered Species Program which provides consultatory comments to regulatory agencies issuing permits which may affect endangered or threatened species, and by the investigation and prosecution of violations. Permits required for channelization and channel modification projects require consultation with the Department Game and Inland Fisheries to help ensure the protection of these resources.

Virginia Marine Resources Commission (VMRC)

Submerged Lands Management Program
(Sec. 28.2-1200 through 28.2-1213 of the *Code of Virginia*)

The Virginia Marine Resources Commission (VMRC) administers the Submerged Lands Permitting Program throughout the state. In non-tidal areas this program includes waterways with flows greater than five cubic feet per second (CFS) or drainage areas greater than five square miles.

Permits are issued through a Joint Permit review process involving local, state and federal agencies. Permits are reviewed based on compliance with statutory requirements and Subaqueous Guidelines as well as advisory assistance provided by cooperating state and federal agencies. Advisory comments are received from the Department of Environmental Quality, the Department of Conservation and Recreation, the Department of Health and the Department of Game and Inland Fisheries. Impacts on water quality, water quantity, habitat and aquatic resources as well as affects on adjacent properties are considered during permit review. Best management practices are included in permits when applicable, as are requirements for minimum flows and fish passage. Permits can also require compliance with erosion and sediment control practices included in the *1992 Virginia Erosion and Sediment Control Handbook.*

MANAGEMENT MEASURE COMPLIANCE

Virginia has several programs that maintain and improve the physical and chemical characteristics of surface waters threatened by channelization and channel modifications. At the core of the programs are the Virginia Water Protection Permit Program and the Submerged Lands Management Program. Both of these programs are regulatory in nature, contain state enforceable policies, and are applicable statewide.

The Floodplain Management Program, Stormwater Management Program, and Scenic Rivers Program add to the protection offered by the above mentioned statewide programs in their limited or local coverage areas. The Scenic Rivers Program is especially powerful in protecting unspoiled waterbodies which have been designated as Scenic Rivers.

The Virginia Water Protection Permit and the Submerged Lands Management Programs meet or exceed the requirements of the management measure. Other programs provide further protection of physical and chemical characteristics of surface water within the Commonwealth.

CHANNELIZATION AND CHANNEL MODIFICATION

B. Instream and Riparian Habitat Restoration

(1) Evaluate the potential effects of proposed channelization and channel modification on instream and riparian habitat in coastal areas;

(2) Plan and design channelization and channel modification to reduce undesirable impacts; and

(3) Develop an operation and maintenance program with specific timetables for existing modified channels that includes identification of opportunities to restore instream and riparian habitat in those channels.

Applicability: "This management measure is intended to apply to any proposed channelization or channel modification project to determine changes in instream and riparian habitat and to existing modified channels to evaluate possible improvements to instream and riparian habitat."

APPLICABLE STATE PROGRAMS

Department of Conservation and Recreation

Floodplain Management Program (Sec. 10.1-602, *et seq.* of the *Code of Virginia*)

Channel modifications require a local government permit for hydraulic evaluation. Channel relocations, effects of debris removal, and flood capacity studies must be coordinated with the state National Flood Insurance Program (NFIP) coordinator. Under the NFIP Community Rating System, flood capacity as well as habitat impacts are encouraged as part of a multi-objective planning process.

Scenic Rivers Act (Sec. 10.1-400 through 10.1-418 of the *Code of Virginia*)

The Department of Conservation and Recreation reviews and makes recommendations to regulatory agencies proposals for land and water uses which have the potential to change the character of streams or waterways or destroy scenic values of rivers designated as scenic.

Department of Environmental Quality

Virginia Water Protection Permit Act (Sec. 62.1-44.15.5 of the *Code of Virginia*)

Department of Environmental Quality, Water Division staff review the design of all channelization/channel modification projects and recommend or require changes to projects to reduce potential water quality impacts. Projects with potential impacts to aquatic habitat may require further modelling and additional best management practices (BMPs) to ensure protection of aquatic habitat. Pre and post construction water quality and biological monitoring may be required.

Department of Game and Inland Fisheries

Virginia Endangered Species Act
(Sec. 29-230 through 29-237 of the *Code of Virginia*)

The Virginia Endangered Species Act, prohibits actions which would harass or harm a state or federally listed endangered or threatened species, including

significant habitat modifications or degradation, or other intentional or negligent acts or omissions which kill or injure wildlife by significantly impairing essential behavior patterns including breeding, feeding or sheltering. The Department Game and Inland Fisheries administers the Virginia Endangered Species Program which provides consultatory comments to regulatory agencies issuing permits which may affect endangered or threatened species, and by the investigation and prosecution of violations. Permits required for channelization and channel modification projects require consultation with the Department Game and Inland Fisheries to help ensure the protection of these resources.

Virginia Marine Resources Commission (VMRC)

Submerged Lands Management Program
(Sec. 28.2-1200 through 28.2-1213 of the *Code of Virginia*)

The Virginia Marine Resources Commission administers the Submerged Lands Permitting Program throughout the Commonwealth. In non-tidal areas, this program applies to waterways with flows greater than five cubic feet per second (CFS) or drainage areas greater than five square miles.

Permits are issued through a Joint Permit review process involving local, state and federal agencies. Permits are reviewed based on compliance with statutory requirements as well as advisory assistance provided by cooperating state and federal agencies. Advisory agencies include the Department of Environmental Quality, the Department of Conservation and Recreation, the Department of Health and the Department of Game and Inland Fisheries. Impacts on water quality, water quantity, habitat and aquatic resources as well as affects on adjacent properties are considered during the permit review. Best management practices are included in permits when applicable as are requirements for minimum flows and fish passage. Permits may also require compliance with erosion and sediment control practices included in the *1992 Virginia Erosion and Sediment Control Handbook.*

MANAGEMENT MEASURE COMPLIANCE

Virginia has several programs which help maintain, improve and evaluate instream and riparian habitat of surface waters threatened by channelization and channel modifications. The Virginia Water Protection Permit Program and the Submerged Lands Management Program are state enforceable programs that are applicable

statewide.

Where applicable, the Floodplain Management Program, the Endangered Species Act and the Scenic Rivers Program provide additional protection to habitat resources. The Scenic Rivers Program is especially powerful in protecting high quality, unspoiled waterbodies which have attained Scenic River designation.

The Virginia Water Protection Permit Program and the Submerged Lands Management Program provide state enforceable mechanisms required to comply with the requirements of the Instream and Riparian Habitat Restoration Management Measure.

DAMS

A. Erosion and Sediment Control

(1) Reduce erosion and, to the extent practicable, retain sediment on-site during and after construction, and

(2) Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

Applicability: "This management measure is intended to be applied by States to the construction of new dams, as well as to construction activities associated with the maintenance of dams....This measure also does not apply to projects that fall under NPDES jurisdiction."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act
(Sec. 10.1-2100, *et seq.* of the *Code of Virginia*)
Chesapeake Bay Preservation Designation and Management Regulations (VR 173-02-01)

Section 4.2.6 of the Regulations expands the application of, and requires compliance with, the Erosion and Sediment Control Law (Sec 10.1-560, *et seq.* of the *Code of Virginia*). The disturbance threshold for regulated land disturbing activities is reduced from 10,000 square feet to 2,500 square feet. This performance criteria further extends the erosion and sediment control

requirements to the construction of all single family houses, septic tanks and drainfields within Chesapeake Bay Preservation Areas (CBPAs). These activities were previously not considered land disturbing activities.

Section 4.2.4 further requires that development involving land disturbances exceeding 2,500 square feet go through a site plan review process in accordance with § 15.1-491(h) of the Code of Virginia.

Section 4.2.11 requires that evidence of all applicable permits regarding wetlands be provided prior to the authorization of grading or other on-site activities.

Although the program does not directly address the quality of stormwater, it does, as mentioned previously, expand the application of the Erosion and Sediment Control Law. Section 1-5.19 of the Erosion and Sediment Control Regulations (VR 625-02-00) provides criteria for the control of stormwater quality.

Section 10.1-5563.A of the Erosion and Sediment Control Law (Sec. 10.1-560, *et seq.* of the *Code of Virginia*) requires the submittal, review, and approval of an erosion and sediment control plan prior to beginning a land disturbing activity. Section 10.1-565 requires that no other permit be issued prior to approval of the erosion and sediment control plan.

Section 5.6.C requires localities to revise or develop the review process for development within CBPAs which would apply the Erosion and Sediment Control Law provisions.

Department of Conservation and Recreation

Dam Safety Act (Sec. 10.1-604, *et.seq.* of the *Code of Virginia*)

For dams with a height greater than 25 feet and a storage volume greater than 50 acre-feet, an Operation and Maintenance Plan is required. For dam construction projects which disturb greater than 10,000 sq. ft. of land, an Erosion and Sediment Control plan is also required.

Erosion and Sediment Control Law (Sec. 10.1-560, *et seq.* of the *Code of Virginia*)

Dam construction projects disturbing greater than 10,000 sq. ft. are required to develop an erosion and sediment control plan. The plan must utilize practices available in the *1992 Virginia Erosion and Sediment Control Handbook*. State sponsored projects are reviewed and approved by the Department and private projects are reviewed and approved by the local government with Department oversight. The Erosion and Sediment Control Law is applicable statewide.

Department of Environmental Quality

Virginia Water Protection Permit Act (Sec. 62.1-44.15.5 of the *Code of Virginia*)

All Virginia Water Protection Permit permits issued by the Department of Environmental Quality require compliance with the *1992 Virginia Erosion and Sediment Control Handbook*. Additional requirements may be added as a result of public review.

Virginia Marine Resources Commission (VMRC)

Submerged Lands Management Program
(Sec. 28.2-1200 through 28.2-1213 of the *Code of Virginia*)

The Virginia Marine Resources Commission administers the Submerged Lands Permitting Program throughout the Commonwealth. This program applies to waterways with flows greater than five cubic feet per second (CFS) or drainage areas greater than five square miles.

Permits are issued through a Joint Permit review process involving local, state and federal agencies. Permits are reviewed based on compliance with statutory requirements as well as advisory assistance provided by cooperating state and federal agencies. Advisory agencies include the Department of Environmental Quality, the Department of Conservation and Recreation, the Department of Health and the Department of Game and Inland Fisheries. Impacts on water quality, water quantity, habitat and aquatic resources as well as effects on adjacent properties are considered during the permit review. Best management practices are included in permits when applicable, as are requirements for minimum flows and fish passage. Permits may also require compliance with erosion and sediment control practices included in the *1992 Virginia Erosion*

and Sediment Control Handbook.

MANAGEMENT MEASURE COMPLIANCE

Virginia has several programs which address dam erosion and sediment control. The Dam Safety Act, the Erosion and Sediment Control Law, the Chesapeake Bay Preservation Act, and the Virginia Water Protection Permit, are state enforceable programs. Enforcement actions may involve administrative hearings and/or judicial civil proceedings.

Collectively these state enforceable programs meet or exceed the requirements of the specified management measure state wide.

DAMS

B. Chemical and Pollutant Control

(1) Limit application, generation, and migration of toxic substances;

(2) Ensure the proper storage and disposal of toxic materials; and

(3) Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.

Applicability: "This management measure is intended to be applied by States to the construction of new dams, as well as to construction activities associated with the maintenance of dams....This management measure addresses fuel and chemical associated with dam construction, as well as concrete washout and related construction activities."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act
(Sec. 10.1-2100, *et seq.* of the *Code of Virginia*)
Chesapeake Bay Preservation Designation and Management Regulations (VR 173-02-01)

An aspect of the program that increases the distance separating pollutant-generating activities from surface waters is the designation of the Resource Protection Area (RPA). Section 3.2.A of the Regulations states:

> "Resource Protection Areas (RPA's) shall consist of sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant degradation to the quality of state waters."

The RPA includes tidal wetlands, nontidal wetlands contiguous to tidal wetlands, tidal shores, other lands deemed to be significant in the protection of state waters, and a buffer area not less than 100 feet in width adjacent to the previously mentioned land types and all redevelopment of existing facilities provided these activities adhere to the special and additional performance standards described in § 4.3.A.1 and 2. All non-water-dependent components of the development however, must be located outside the RPA. Dams are not considered "water-dependent" and are not allowed "by right" in RPA's.

Section 4.2.6 of the Regulations expands the application of the Erosion and Sediment Control Law (Sec. 10.1-560, *et seq.* of the *Code of Virginia*) by reducing the disturbance threshold for regulated land disturbing activities from 10,000 square feet to 2,500 square feet. The Virginia Erosion and Sediment Control Handbook provides the standards and specifications regarding appropriate measures, including guidance concerning nutrient management and controlling runoff from stockpiled soil.

Department of Conservation and Recreation

Erosion and Sediment Control Law
(Sec. 10.1-560, *et seq.* of the *Code of Virginia*)

Dam construction projects disturbing greater than 10,000 square feet require an erosion and sediment control plan utilizing measures contained in the *1992 Virginia Erosion and Sediment Control Handbook.* Vegetative filter strips and other best management practices using vegetation to prevent erosion and control sedimentation are contained in the Handbook. These practices also control nutrient runoff and help limit application, generation, and migration of toxic substances during dam construction.

Department of Environmental Quality

Solid Waste Management Regulations
(Sec. 62.1-194, *et seq.* of the *Code of Virginia*) *(VR 762-20-10)*

The Solid Waste Management Regulations Program is administered by the Department of Environmental Quality.

Section 10.1-1408.1.A of the Virginia Waste Management Act (§ 10.1-1400, *et seq.* of the *Code of Virginia*) states that no person shall operate any sanitary landfill or other facility for the disposal, treatment or storage of nonhazardous solid waste without a permit from the Director of the Waste Division, Department of Environmental Quality.

The law further states that: (1) no person shall dispose of solid waste in open dumps (§ 10.1-1408.1.G, *Code of Virginia*); (2) no person shall own, operate, or allow to be operated on his property an open dump (§ 10.1-1408.1.H, *Code of Virginia*); and (3) no person shall allow waste to be disposed of on his property without a permit (§ 10.1-1408.1.I, *Code of Virginia*).

Construction and demolition waste (lumber, wire, sheetrock, broken brick, shingles, glass, pipes, concrete, paving materials and metal and plastics if the metal and plastics are part of the materials of construction or empty containers for such materials); debris waste (stumps, wood, brush, leaves, soil, and road spoils from land clearing operations); and inert waste (rubble, concrete, broken bricks, bricks, and blocks) may be disposed of in a construction/demolition debris landfill, a sanitary landfill, or an industrial waste landfill.

Refuse and scrap metal may be disposed of in a sanitary landfill. Solid wastes which are defined as hazardous wastes by the *Virginia Hazardous Waste Management Regulations (VR 672-10-1)* must be managed in accordance with those regulations. Persons who generate less than 100 kilograms of hazardous waste per month are conditionally exempt pursuant to § 3.2 of the *Virginia Hazardous Waste Management Regulations*. These hazardous wastes may be managed in solid waste management facilities in accordance with § 2.10.2 of the Solid Waste Management Regulations.

Part V of the regulations specifies siting, design, construction, operation, and closure requirements for sanitary landfills (§ 5.1), CDD landfills (§ 5.2) and

industrial waste landfills (§ 5.3).

The Virginia Waste Management Board is authorized to issue orders to require any person to comply with the provisions of the law, regulations and conditions of a permit or certification. Enforcement options specified in the law include criminal penalties, civil penalties, and civil charges (§ 10.1-1455, *Code of Virginia*).

These requirements are mandatory statewide.

State Water Control Law (Sec. 62.1-44.2, *et seq.* of the *Code of Virginia*)

The State Water Control Law (§ 62.1-44.2, *et seq.* of the *Code of Virginia*) is administered by the Department of Environmental Quality. Section 62.1-44.34:18 of the law prohibits the discharge of oil into or upon state waters, lands, or storm drainage systems within the Commonwealth. Any person responsible for a discharge of oil to state waters, lands, or storm drain systems must implement any applicable oil spill contingency plan or take the necessary action to contain and clean up the discharge. The person discharging, causing, or permitting a discharge of oil shall be liable for the costs to the Commonwealth or any political subdivision for investigation, containment, and cleanup; property damage; the loss of tax or other revenues; and the loss of natural resources that cannot be restocked, replenished, or restored.

The State Water Control Board is authorized to issue special orders to require any person to cease and desist from causing or permitting a violation or to comply with the provisions of the law, regulations and conditions of approval. Enforcement options specified in the law include criminal penalties and civil penalties (§ 62.1-44.34:20, *Code of Virginia*).

Virginia Water Protection Permit Act (Sec. 62.1-44.15.5 of the *Code of Virginia*)

The Virginia Water Protection Permit Act (VWPP) permitting program requires that permittees take all necessary steps to prevent contamination of state waters. This program prohibits the introduction of contaminants or other trash to state waters, and specific permit requirements can be added to maintain water quality. Conditions requiring safe handling and storage of all chemicals and proper debris disposal can be made part of this permit. Permit conditions

requiring the application of best management practices can also be added to the VWPP permit.

Virginia Department of Agriculture and Consumer Services

Virginia Pesticide Control Act (Sec. 3.1-249.27, *et seq.* of the *Code of Virginia*)

The Virginia Pesticide Control Act (§ 3.1-249.27, *et seq.* of the *Code of Virginia*) and the regulations promulgated under its authority have the effect of implementing in Virginia the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) as well as providing to the Virginia Pesticide Control Board (Board) additional powers relating to regulating pesticide use. Under the authority of the Act and FIFRA, the Board has promulgated regulations establishing certain mandatory programs, including Pesticide Applicator Certification and Pesticide Business Licensing, as well as establishing voluntary programs, such as the Pesticide Disposal Program and the Pesticide Container Recycling Program. Under the authority of FIFRA and in agreement with EPA, the Board's staff will develop pesticide management plans for groundwater. Collectively, these programs regulate who and how pesticides will be used in the state by enforcing the federal label requirements and requiring training and licensing of individuals and businesses that apply pesticides.

In addition to implementing FIFRA, the Board has the power to ban or restrict the use of a pesticide based on its potential to harm the environment (§ 3.1-249.31, *Code of Virginia*). A comparison of the general powers of the federal and Virginia law to restrict or ban the use of a pesticide based on its potential to cause environmental harm suggests that the Act gives the Board broader powers than those granted to EPA under FIFRA.

Section 3.1-249.52 of the Virginia Pesticide Control Act requires that commercial applicators be certified in accordance with the Regulations Governing Pesticide Applicator Certification Under Authority of Virginia Pesticide Control Act, VR 115-04-23 adopted by the Board. Certifications must be renewed biennially.

Pesticide labels provide the legal framework for the use of the product. Under federal and Virginia law no product may be used in a manner inconsistent with its label's requirements. It is unlawful to dispose of containers or unused portions of pesticide in a manner inconsistent with label directions or Board regulations (§ 3.1-249.64, *Code of Virginia*). Labels contain information on

application rates, timing of application, and other environmental concerns and can sometimes address calibration requirements.

Certain Virginia regulations require that application equipment be in good working order and properly calibrated. Furthermore, these regulations require the use of backflow preventers to protect water supply systems, lakes, other sources of water or other materials. Violation of these regulations triggers enforcement under the authority of the Act.

Violations of the Virginia Pesticide Control Act can result in revocation or suspension of licenses and or assessment of penalties. Enforcement is administered through 10 regional offices with investigation staffs. Unannounced, random field inspections of applications are utilized.

Virginia Marine Resources Commission (VMRC)

Submerged Lands Management Program
(Sec. 28.2-1200 through 28.2-1213 of the *Code of Virginia*)

The Virginia Marine Resources Commission administers the Submerged Lands Permitting Program throughout the Commonwealth. This program applies to waterways with flows greater than five cubic feet per second (CFS) or drainage areas greater than five square miles.

Permits are issued through a Joint Permit review process involving local, state and federal agencies. Permits are reviewed based on compliance with statutory requirements as well as advisory assistance provided by cooperating state and federal agencies. Advisory agencies include the Department of Environmental Quality, the Department of Conservation and Recreation, the Department of Health and the Department of Game and Inland Fisheries. Impacts on water quality, water quantity, habitat and aquatic resources as well as affects on adjacent properties are considered during the permit review. Best management practices are included in permits when applicable as are requirements for minimum flows and fish passage. Permits may also require compliance with erosion and sediment control practices included in the *1992 Virginia Erosion and Sediment Control Handbook*.

MANAGEMENT MEASURE COMPLIANCE

Virginia has several state enforceable programs which apply to the Chemical and Pollutant Control management measure. These programs include the Erosion and Sediment Control Law, Virginia Water Protection Permit and Submerged Land Management Program, Solid Waste Management Regulations, the State Water Control Law, and the Virginia Pesticide Control Law. In addition, the Chesapeake Bay Preservation Act addresses nutrient management within the Chesapeake Bay watershed of Tidewater Virginia. Other state programs add to the protection offered by these state enforceable programs.

The requirements for the disposal, storage and treatment of construction debris, refuse and scrap metal are established in the Waste Management Act and the Solid Waste Management Regulations. Landfills must comply with the siting, design, construction, operation, and closure requirements established in the regulations. For construction debris and refuse, these requirements meet the management measure.

The Pesticide Control Act and attendant regulations establish requirements for the application and disposal of pesticides. Commercial applicators must be certified by the Virginia Pesticide Control Board and the Board has the authority to ban or restrict the use of certain pesticides. For pesticides, these requirements meet the management measure.

When all of the above programs are considered as a package, the Commonwealth of Virginia meets the requirements of the management measure within the coastal management zone.

DAMS

*C. **Protection of Surface Water Quality and Instream and Riparian Habitat***

Develop and implement a program to manage the operation of dams in coastal areas that includes an assessment of:

(1) Surface water quality and instream and riparian habitat and potential for improvement and

(2) Significant nonpoint source pollution problems that result from excessive surface water withdrawals.

Applicability: "This management measure is intended to be applied by States to the construction of new dams, as well as to construction activities associated with the maintenance of dams....This measure also does not apply to projects that fall under NPDES jurisdiction."

Applicable State Programs

Department of Conservation and Recreation

Agricultural BMP Cost-Share Program
(Sec. 10.1-500 et seq. of the Code of Virginia)

The Agricultural Best Management Practices (BMPs) Cost-Share Program is a voluntary program which provides financial incentives to landowners for voluntary implementation of BMPs in order to improve water quality. Cost-share assistance is available for woodland buffers and vegetated filter strips, stream protection, and vegetative stabilization of marsh fringe areas. In order to minimize potential water quality impacts, recipients of Agricultural Best Management Practices Cost-Share assistance are required to maintain BMPs.

Dam Safety Act (Sec. 10.1-604, *et.seq.* of the *Code of Virginia*)

For dams with a height greater than 25 feet and a storage volume greater than 50 acre-feet, an Operation and Maintenance Plan is required. In addition, restrictions and requirements may be imposed at time of permit or recertification. These requirements and restrictions can address water quality and riparian habitat. An erosion and sediment control plan is also required, if greater than 10,000 sq. ft. of land disturbance, before a construction permit is issued for a new dam.

Scenic Rivers Act (Sec. 10.1-400 through 10.1-418 of the *Code of Virginia*)

The Department of Conservation and Recreation reviews and makes recommendations to regulatory agencies regarding all proposals for the use and development of water and land related resources or other uses which have the potential to change the character of a stream or waterway or destroy the scenic value of designated scenic rivers. Full consideration and evaluation of the river as a scenic resource will be given before channel modification proposals are approved.

The Scenic Rivers Act is applicable statewide to those waterbodies designated as scenic rivers by an Act of the Virginia General Assembly. Approximately 225 miles of Virginia waterways have been designated as scenic river

Department of Environmental Quality

Virginia Water Protection Permit Act (Sec. 62.1-44.15.5 of the *Code of Virginia*)

Permits issued for dam construction include provisions for lessening the impact of impoundments on water quality. Best management practices (BMPs) can be required in the watershed of a stream or river to help improve water quality entering an impoundment. Fish passage systems are required as a permit condition for streams with anadromous fish. Minimum instream flow requirements are also specified as permit conditions.

Department of Game and Inland Fisheries

Virginia Endangered Species Act
(Sec. 29-230 through 29-237 of the *Code of Virginia*)

The Virginia Endangered Species Act, prohibits actions which would harass or harm a state or federally listed endangered or threatened species, including significant habitat modifications or degradation, or other intentional or negligent acts or omissions which kill or injure wildlife by significantly impairing essential behavior patterns including breeding, feeding or sheltering. The Department Game and Inland Fisheries administers the Virginia Endangered Species Program which provides consultatory comments to regulatory agencies issuing permits which may affect endangered or threatened species, and by the investigation and prosecution of violations. Permits required for channelization and channel modification projects require consultation with the Department Game and Inland Fisheries to help ensure the protection of these resources.

Virginia Marine Resources Commission (VMRC)

Submerged Lands Management Program
(Sec. 28.2-1200 through 28.2-1213 of the *Code of Virginia*)

The Virginia Marine Resources Commission administers the Submerged Lands Permitting Program throughout the Commonwealth. This program applies to waterways with flows greater than five cubic feet per second (CFS) or drainage areas greater than five square miles.

Permits are issued through a Joint Permit review process involving local, state and federal agencies. Permits are reviewed based on compliance with statutory requirements as well as advisory assistance provided by cooperating state and federal agencies. Advisory agencies include the Department of Environmental Quality, the Department of Conservation and Recreation, the Department of Health and the Department of Game and Inland Fisheries. Impacts on water quality, water quantity, habitat and aquatic resources as well as affects on adjacent properties are considered during the permit review. Best management practices are included in permits when applicable as are requirements for minimum flows and fish passage. Permits may also require compliance with erosion and sediment control practices included in the *1992 Virginia Erosion and Sediment Control Handbook.*

MANAGEMENT MEASURE COMPLIANCE

Virginia has several state enforceable programs which help ensure that dam maintenance and operation does not adversely affect surface water quality and instream and riparian habitat. These programs are the Virginia Water Protection Permit Program and the Submerged Lands Management Program, Virginia Endangered Species and Dam Safety Act. These programs apply statewide and can be enforced through water quality and habitat protection permit conditions specified during dam construction or recertification.

The Scenic Rivers and the Agricultural BMP Cost-Share Programs add to the protection offered by the above mentioned state enforceable programs. The Scenic Rivers Program is especially powerful in protecting the particularly high quality, unspoiled waterbodies which have attained the Scenic River designation.

When all of the above programs are considered as a package, the Commonwealth of Virginia meets the requirements of the management measure throughout the coastal management zone.

STREAMBANK AND SHORELINE EROSION

A. Eroding Streambanks and Shorelines

(1) Where streambank or shoreline erosion is a nonpoint source pollution problem, streambanks and shorelines should be stabilized. Vegetative methods are strongly preferred unless structural methods are more cost-

effective, considering the severity of wave and wind erosion, offshore bathymetry, and the potential adverse impact on other streambanks, shorelines, and offshore areas.

(2) Protect streambank and shoreline features with the potential to reduce NPS pollution.

(3) Protect streambanks and shorelines from erosion due to uses of either the shorelands or adjacent surface waters.

Applicability: "This management measure is intended to be applied by States to eroding shorelines in coastal rivers and creeks...that constitute an NPS problem in surface waters. It is not intended to hamper the efforts of any States or localities to retreat rather than to harden the shoreline."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act
(Sec. 10.1-2100, *et seq.* of the *Code of Virginia*)
Chesapeake Bay Preservation Designation and Management Regulations (VR 173-02-01)

The Chesapeake Bay Preservation Area Designation and Management Regulations (V 173-02-01) specify eleven performance criteria (§ 4.2) that apply to proposed development activities on land within Chesapeake Bay Preservation Areas.

One designation is that of the Resource Protection Area (RPA). Section 3.2.A of the Regulations states:

> "Resource Protection Areas (RPAs) shall consist of sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant degradation to the quality of state waters."

The RPA includes tidal wetlands, nontidal wetlands contiguous to tidal shores, other lands deemed to be significant in the protection of state waters, and a buffer area, not less than 100 feet in width adjacent to the previously

mentioned land types and all tributary streams. Development in the RPA is limited to water dependant facilities or the redevelopment of existing facilities provided these activities adhere to the performance standards described in §4.3.A.1 and 2. These restrictions establish a minimum set-back requirement and create a buffer zone to reduce concentrated flows and promote infiltration of surface runoff in areas adjacent to the shoreline. However, shoreline erosion control projects may be constructed within the RPA according to the best available technical advice and applicable permit conditions (§ 4.3.B.1.d). The regulations do not establish a preferred hierarchy of best management practices, nor are protective devices required.

In addition, § 5.6.A of the Regulations requires that local governments within Tidewater Virginia review and revise their comprehensive plans to address the quality of state waters. Shoreline erosion problems and the proper location of shoreline erosion control structures must be specifically addressed.

This program is implemented through 84 local governments in the coastal plain region of the state. The program covers the Chesapeake Bay drainage area portion of the coastal zone management area. Designation of the Chesapeake Bay Preservation Area (CBPAs) does not cover the entire region as some local governments did not designate their entire jurisdiction. The Department estimates that 80 percent of all lands within Tidewater Virginia are designated CBPA.

This program is enforced at the state level by CBLAB, a nine member citizen board. CBLAB's consistency review process provides procedures for the detection of non-compliance in local programs. If a local program is found not in compliance with the Act, action including administrative hearings and/or judicial proceedings can be initiated. CBLAD also monitors local implementation and enforcement of the Act through land use management tools such as the comprehensive plan, zoning ordinance and subdivision ordinance.

Department of Conservation and Recreation

Agricultural BMP Cost-Share Program

The Agricultural BMP Cost-Share Program is a voluntary program which provides financial incentives to landowners for voluntary implementation of BMPs in order to improve water quality. Program participants are required to develop a conservation plan which should include measures to address all

sources of erosion: shoreline, streambank or other. Cost-share is available for stream protection and vegetative stabilization of marsh fringe areas. Each BMP has a specific minimum life span and the recipient is obligated to maintain the practice throughout its entire minimum life span.

Erosion and Sediment Control Law
(Sec. 10.1-560, *et seq.* of the *Code of Virginia*)

Projects disturbing greater than 10,000 sq. ft. are required to develop an erosion and sediment control plan. The plan must utilize practices available in the *1992 Virginia Erosion and Sediment Control Handbook*. State sponsored projects are reviewed and approved by the Department and private projects are reviewed and approved by the local government.

Shoreline Erosion Advisory Service (SEAS) (Sec. 10.1-702 of the Code of Virginia)

The Shoreline Erosion Advisory Service works with private property owners to provide technical advice on how to control shoreline erosion. The program promotes environmentally sound practices for shoreline erosion control. SEAS provides advice on structural and nonstructural methods of protecting the property. SEAS recommendations are given considerable weight by permitting agencies and often become permit conditions. DCR maintains a support contract with the Virginia Institute of Marine Sciences to provide project specific technical assistance as needed.

Department of Environmental Quality

Virginia Water Protection Permit Act (Sec. 62.1-44.15.5 of the *Code of Virginia*)

A Virginia Water Protection Permit (VWPP) is generally required to implement shoreline or streambank erosion control measures. Specific types of stabilization projects may not require permits. DEQ staff works with property owners to determine if vegetative methods will protect the property. Permits may be conditioned to require vegetative methods prior to the use of structural methods, and vegetative methods are encouraged. Erosion control is implemented on a voluntary basis by property owners and no mechanism exists

for the Department of Environmental Quality to require property protection.

Department of Game and Inland Fisheries

Virginia Endangered Species Act
(Sec. 29-230 through 29-237 of the *Code of Virginia*)

The Virginia Endangered Species Act, prohibits actions which would harass or harm a state or federally listed endangered or threatened species, including significant habitat modifications or degradation, or other intentional or negligent acts or omissions which kill or injure wildlife by significantly impairing essential behavior patterns including breeding, feeding or sheltering. The Department Game and Inland Fisheries administers the Virginia Endangered Species Program which provides consultatory comments to regulatory agencies issuing permits which may affect endangered or threatened species, and by the investigation and prosecution of violations. Permits required for streambank or shoreline erosion control projects require consultation with the Department Game and Inland Fisheries to help ensure the protection of these resources.

Virginia Marine Resources Commission (VMRC)

Coastal Primary Sand Dunes Management
(Sec. 28.2-1400 through 28.2-1420 of the *Code of Virginia*)

Submerged Lands Management Program
(Sec. 28.2-1200 through 28.2-1213 of the *Code of Virginia*)

Tidal Wetlands Management Program
(Sec. 28.2-1300 through 28.2-1320 of the *Code of Virginia*)

The VMRC administers the Submerged Lands, Tidal Wetlands and Coastal Primary Sand Dunes/Beaches programs and is charged with the review of all tidal wetlands and sand dune permit decisions of local wetlands boards. The Tidal Wetlands program applies throughout Tidewater, Virginia and each Tidewater locality has the option of adopting the wetlands or dunes acts and forming a wetlands board to review applications for use or development of tidal wetlands or dunes. The Submerged Lands program applies state-wide to all State-owned Submerged lands. Generally this would include waterways with flows greater than five cubic feet per second (CFS) or drainage areas greater

than five square miles.

Permits are issued through a Joint Permit review process involving local, state and federal agencies. Permits are reviewed based on compliance with statutory requirements, Wetlands Guidelines, Subaqueous Guidelines, Coastal Primary Sand Dunes/Reaches Guidelines and Mitigation/Compensation criteria as well as recommended Best management practices. Advisory assistance is provided by cooperating state and federal agencies. This includes comments from the Department of Environmental Quality, the Department of Conservation and Recreation, the Department of Health, the Department of Game and Inland Fisheries and environmental impact information included in the VIMS Shoreline Permit Application report prepared for each project.

MANAGEMENT MEASURE COMPLIANCE

No state enforceable programs exist to <u>require</u> property owners to protect their streambanks and shorelines from erosion which may cause nonpoint source pollution. State enforceable regulatory programs exist to protect streambank and shoreline features with the potential to reduce nonpoint source pollution. These programs include the Chesapeake Bay Preservation Program, the Coastal Primary Sand Dune/Beach Program, the Wetlands Management Program and the Virginia Water Protection Permit Program. The Chesapeake Bay Preservation Act specifically addresses and regulates land uses in coastal areas which could impact shorelines and coastal waters.

Programs exist to *promote* the voluntary protection of private property from shoreline and streambank erosion. Financial incentives are provided for nonstructural shoreline erosion control for agricultural lands through the Virginia Agricultural BMP Cost-Share Program. In addition, technical advisory services are offered through the Shoreline Erosion Advisory Service to encourage the proper installation of erosion control measures.

Collectively, state regulatory and incentive programs comply with the requirements of the Eroding Streambanks and Shorelines Management Measure.

HYDROMODIFICATIONS

Channelization and Channel Modification

A. Physical and Chemical Characteristics of Surface Waters	Meets
B. Instream and Riparian Habitat Restoration	Meets

Dams

A. Erosion and Sediment Control	Meets
B. Chemical and Pollutant Control	Meets
C. Protection of Surface Water Quality and Instream and Riparian Habitat	Meets

Streambank and Shoreline Erosion

A. Eroding Streambanks and Shorelines	Meets

Management measures for wetlands, riparian areas and vegetated treatment systems

CHAPTER 8

Management Measures for Wetlands, Riparian Areas, and Vegetated Treatment Systems

Wetlands comprise major portions of natural estuarine and riverine systems. Wetlands provide many ecological and socio-economic benefits including: water quality improvement, aquatic productivity, fish and wildlife habitat, shoreline erosion control, stormwater treatment, flood protection, recreation and economically valuable resources. Wetlands have been shown to be some of the most productive ecosystems on earth, producing more plant material per acre than the most productive farmland. As such wetlands, serve as the base of the aquatic food chain in the Chesapeake Bay ecosystem. Wetlands also serve important habitat functions for fish and wildlife, such as spawning and nesting areas, nursery areas for young and shelter from predators. Studies have shown that almost two thirds of all commercially harvested fish and shellfish species are associated with wetlands at some point in their lives. Commercial fishing industries and recreational hunting and fishing interests are heavily dependant on wetlands.

Another vitally important wetland function is water quality improvement. Wetlands occupy a strategic position between uplands and aquatic environments. This positioning provide wetlands the opportunity to trap and filter sediments and pollutants from upland runoff before they reach adjacent waters. Wetlands vegetation and root mass slow water flow which allows for the settlement and deposition of sediments and the associated nutrients and other pollutants. This same vegetation can utilize and recycle these trapped nutrients. In addition, some wetlands plants species have the ability to reduce other types of pollutants such as heavy metals and bacteria. Wetlands also act like sponges absorbing and temporarily storing flood waters. These flood waters are released on a more gradual basis minimizing flows downstream while providing water quality improvements.

Work Group Assessment Process

As noted in the previous chapter, the Hydromodification Work Group began meeting in May of 1993 to compare existing state programs to the management measures contained in Chapters 6 and 7 of the *EPA Guidance Specifying Management Measures For Sources Of Nonpoint Pollution In Coastal Waters*. The same approach was taken for analyzing the Wetlands, Riparian Areas, and Vegetated Treatment Systems Chapter as the Hydromodification Chapter.

Wetlands and Riparian Areas

	Protection of Wetlands & Riparian Areas	Restoration of Wetlands & Riparian Areas	Vegetated Treatment Systems
Virginia Water Protection Permit	X	X	X
Wetlands Boards Permit Program	X	X	X
Submerged Land Regulation	X	X	X
Sand Dune Law	X	X	X
Chesapeake Bay Preservation Act	X		X
Floodplain Management	X	X	
Shoreline Erosion Advisory Service	X	X	X
Erosion and Sediment Control			X
Stormwater Management Act			X
Scenic River Program	X	X	
Threatened and Endangered Species	X	X	
Agricultural BMP Cost Share Program	X	X	X

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PROGRAM ASSESSMENT BY MANAGEMENT MEASURE

The specified management measures for wetlands and riparian areas are identified and discussed in the section which follows. The management measures are presented as they appear in the program guidance issued by EPA and NOAA. Within the Wetlands, Riparian Areas, and Vegetated Treatment Systems chapter, there are three specified management measures. Applicable program descriptions are listed alphabetically and grouped together by the agency which administers them. In the compliance section which follows these descriptions, more consideration has been given to the relative importance of each of the individual programs.

This chapter identifies the requirements of each management measure, provides a brief program description of applicable state programs, and a discussion of how well these programs comply with the requirements of each management measure. Program descriptions are not comprehensive; rather, they focus on aspects of state programs applicable to the specified management measures. The management measure compliance discussion describes coordination between state programs and summarizes how well state programs meet management measure requirements.

A. Protection of Wetlands and Riparian Areas

Protect from adverse effects wetlands and riparian areas that are serving a significant NPS abatement function and maintain this function while protecting the other existing functions of these wetlands and riparian areas as measured by characteristics such as vegetative composition and cover, hydrology of surface water and ground water, geochemistry of the substrate, and species composition.

Applicability: "This management measure is intended to be applied by States to protect wetlands and riparian areas from adverse NPS pollution impacts."

APPLICABLE STATE PROGRAMS

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)

(Sec 10.1-2100, *et seq.* of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations (VR 173-02-01)

The Chesapeake Bay Preservation Area Designation and Management Regulations (VR 173-02-01) specify eleven performance criteria (§ 4.2) that apply to proposed development activities on land within Chesapeake Bay Preservation Areas.

One designation is that of the Resource Protection Area (RPA). Section 3.2.A of the Regulations states:

> "Resource Protection Areas (RPAs) shall consist of sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant degradation to the quality of state waters."

The RPA includes tidal wetlands, nontidal wetlands contiguous to tidal shores, other lands deemed to be significant in the protection of state waters, and a buffer area, not less than 100 feet in width adjacent to the previously mentioned land types and all tributary streams. Development in the RPA is limited to water dependant facilities or the redevelopment of existing facilities provided these activities adhere to the performance standards described in §4.3.A.1 and 2. These restrictions establish a minimum set-back requirement and create a buffer zone to reduce concentrated flows and promote infiltration of surface runoff in areas adjacent to the shoreline. The 100-foot buffer area must have vegetation "that is effective in retarding runoff, preventing erosion and filtering nonpoint source pollution."

This program is implemented through 84 local governments in the coastal plain region of the state. The program covers the Chesapeake Bay drainage area portion of the coastal zone management area. Designation of the Chesapeake Bay Preservation Area (CBPAs) does not cover the entire region as some local governments did not designate their entire jurisdiction. The Department estimates that 80 percent of all lands within Tidewater Virginia are designated CBPA.

This program is enforced at the state level by CBLAB, a nine member citizen board. CBLAB's consistency review process provides procedures of the detection of non-compliance in local programs. If a local program is found not in compliance with the Act, action including administrative hearings and/or judicial proceedings can be initiated. CBLAD also monitors local implementation and enforcement of the Act

through land use management tools such as the comprehensive plan, zoning ordinance and subdivision ordinance.

Department of Conservation and Recreation

Agricultural BMP Cost-Share Program

The Agricultural BMP Cost-Share Program is an incentive program offered as part of the Chesapeake Bay Restoration Program. Financial incentives are offered to landowners for voluntary implementation of BMPs in order to improve water quality. Cost-share participants are required to develop conservation plans which should identify wetland or riparian areas in need of protection or restoration. Cost-share is available for Woodland Buffer Filter Areas, Stream Protection, Grass Filter Strips and Vegetative Stabilization of Marsh Fringe Areas. Each BMP has a specific minimum life span and the recipient is obligated to maintain the practice throughout its entire minimum life span.

Floodplain Management Program (Sec.10.1-602 of the *Code of Virginia*)

Floodplain regulations prohibit the placement of fill in the floodways, and many localities prohibit development in the floodplain. Since wetlands and riparian areas often occur in the floodplain, indirect protection can be achieved.

Scenic Rivers Act (Sec. 10.1-400 through 10.1-418 of the *Code of Virginia*)

The Department of Conservation and Recreation reviews and makes recommendations to regulatory agencies regarding all planning for the use and development of water and land related resources or other uses which change the character of the stream or waterway or destroy its scenic values. Full consideration and evaluation of the river as a scenic resource will be given before alternative plans for use and development are approved. The Scenic Rivers Act is applicable statewide to those waterbodies designated as scenic rivers by an Act of the Virginia General Assembly.

Shoreline Erosion Advisory Service (SEAS) (Sec. 10.1-702 of the *Code of Virginia*)

The Shoreline Erosion Advisory Service works with private property owners to provide technical advice on how to control shoreline erosion. The program promotes environmentally sound practices for shoreline erosion control. SEAS provides advice on structural and nonstructural methods of protecting the property. Advice often includes recommendations on protecting eroding wetland areas. Emphasis is placed on minimizing wetlands impacts during erosion control implementation. SEAS recommendations are given considerable weight by the permitting agencies often become permit conditions. The Department of Conservation and Recreation maintains a support contract with the Virginia Institute of Marine Sciences to provide project specific technical assistance as needed.

Department of Environmental Quality

Virginia Water Protection Permit Act (Sec. 62.1-44.15.5 of the *Code of Virginia*)

Wetlands are protected through the Commonwealth of Virginia's anti-degradation policy, the Virginia Water Protection Permit (VWPP) Regulations and the State Water Control Law. The permitting process requires projects to avoid wetlands unless otherwise justified in the public review process. Water quality standards are currently being developed for wetlands. Mitigation may be required for projects permitted to impact wetlands.

Department of Game and Inland Fisheries

Virginia Endangered Species Act
(Sec. 29-230 through 29-237 of the *Code of Virginia*)

The Virginia Endangered Species Act, prohibits actions which would harass or harm a state or federally listed endangered or threatened species, including significant habitat modifications or degradation, or other intentional or negligent acts or omissions which kill or injure wildlife by significantly impairing essential behavior patterns including breeding, feeding or sheltering. The Department Game and Inland Fisheries administers the Virginia Endangered Species Program which provides consultatory comments to regulatory agencies issuing permits which may affect endangered or threatened species, and by the investigation and prosecution of violations. Permits required for streambank or shoreline erosion control projects require consultation with the Department Game and Inland Fisheries to help ensure the protection of these resources.

Virginia Marine Resources Commission (VMRC)

Coastal Primary Sand Dunes Management Program
(Sec. 28.2-1400 through 28.2-1420 of the *Code of Virginia*)

Submerged Lands Management Program
(Sec. 28.2-1200 through 28.2-1213 of the *Code of Virginia*)

Wetlands Management Program
(Sec. 28.2-1300 through 28.2-1320 of the *Code of Virginia*)

The VMRC administers the Submerged Lands, Tidal Wetlands and Coastal Primary Sand Dunes/Beaches programs and is charged with the review of all tidal wetland and sand dune permit decisions of local wetlands boards. The Tidal Wetlands program applies throughout Tidewater, Virginia and each Tidewater locality has the option of adopting the wetlands or dunes acts and forming a wetlands board to review applications for use or development of tidal wetlands or dunes. The Submerged Lands program applies state-wide to all state-owned submerged lands. Generally this would include waterways with flows greater than five cubic feet per second (CFS) or drainage areas greater than five square miles.

Permits are issued through a Joint Permit review process involving local, state and federal agencies. Permits are reviewed based on compliance with statutory requirements, Wetlands Guidelines, Subaqueous Guidelines, Coastal Primary Sand Dunes/Reaches Guidelines and Mitigation/Compensation criteria as well as recommended Best Management Practices. Advisory assistance is provided by cooperating state and federal agencies, including the Department of Environmental Quality, the Department of Conservation and Recreation, the Department of Health, the Department of Game and Inland Fisheries and environmental impact information included in the VIMS Shoreline Permit Application report prepared for each project.

MANAGEMENT MEASURE COMPLIANCE

Virginia has several regulatory programs which protect wetlands and riparian areas. The Coastal Primary Sand Dunes/Beach Program, Wetlands Management Program and The Chesapeake Bay Preservation Act are all applicable in the Tidewater region of Virginia. The Virginia Water Protection Permit Program and the Submerged Lands Management Program are applicable statewide. All of these programs include state enforceable

management measures. The Floodplain Management Program, Stormwater Management Program and the Scenic Rivers Programs add to the protection offered by the above mentioned statewide programs in their limited or local coverage areas.

In addition to the regulatory programs, other programs promote the protection of wetlands and riparian areas. The Agricultural BMP Cost-Share Program provides financial incentives for agricultural lands. The Shoreline Erosion Advisory Service offers technical advice to promote the protection of wetland and riparian areas.

When all of the above programs are considered as a package, the Commonwealth of Virginia meets the requirements of the management measure.

B. Restoration of Wetland and Riparian Areas

Promote the restoration of the preexisting functions in damaged and destroyed wetlands and riparian systems in areas where the systems will serve a significant NPS pollution abatement function.

Applicability: "This management measure is intended to be applied by States to restore the full range of wetland and riparian functions in areas where the systems have been degraded or destroyed and where they can serve a significant NPS abatement function."

Applicable State Programs

Department of Conservation and Recreation

Agricultural BMP Cost-Share Program

The Agricultural BMP Cost-Share Program is a voluntary program offered as part of the Chesapeake Bay Restoration Program. Financial incentives are offered to landowners for voluntary implementation of BMPs in order to improve water quality. Cost share participants are required to develop conservation plans which should identify wetland or riparian areas in need of protection or restoration. Cost-share is available for Woodland Buffer Filter Areas, Stream Protection, Grass Filter Strips and Vegetative Stabilization of Marsh Fringe Areas. Each BMP has a specific minimum life span and the recipient is obligated to maintain the practice throughout its entire minimum life span.

Floodplain Management Program (Sec. 10.1-602 of the *Code of Virginia*)

Floodplain regulations prohibit the placement of fill in the floodways. Restoration of wetlands and riparian areas may be obtained when removing unpermitted fill and other debris from the floodway.

Scenic Rivers Act (Sec 10.1-400 through 10.1-418 of the *Code of Virginia*)

The Department of Conservation and Recreation reviews and makes recommendations to the regulatory agencies regarding all planning for the use and development of water and land related resources or other uses which change the character of the stream or waterway or destroy its scenic values. Full consideration and evaluation of the river as a scenic resource will be given before alternative plans for use and development are approved. The Scenic Rivers Act is applicable statewide to those waterbodies designated as scenic rivers by an Act of the Virginia General Assembly.

Shoreline Erosion Advisory Service (SEAS) (Sec.10.1-702 of the *Code of Virginia*)

The Shoreline Erosion Advisory Service works with private property owners to provide technical advice on how to control shoreline erosion. The program promotes environmentally sound practices for shoreline erosion control. SEAS advice includes recommendations on wetlands establishment and restoration for erosion control or mitigation. SEAS recommendations are given considerable weight by the permitting agencies often become permit conditions. The DCR maintains a support contract with the Virginia Institute of Marine Sciences to provide project specific technical assistance as needed.

Department of Environmental Quality

Virginia Water Protection Permit Act (Sec. 62.1-44.15.5 of the *Code of Virginia*)

The Department of Environmental Quality will accept restoration of degraded wetlands as part of the mitigation proposal through the VWPP public review process. Typically, the ratios required for compensation are much higher than that of wetland creation. The mitigation plan would require reestablishment and maintenance of an appropriate hydrologic regime, the planting and survival of diverse wetlands plants and the basic restoration of wetland function. As the

program develops, the criteria for success in the restoration effort to become more strict and involve more complete function restoration.

Department of Game and Inland Fisheries

Virginia Endangered Species Act
(Sec. 29-230 through 29-237 of the *Code of Virginia*)

The Virginia Endangered Species Act, prohibits actions which would harass or harm a state or federally listed endangered or threatened species, including significant habitat modifications or degradation, or other intentional or negligent acts or omissions which kill or injure wildlife by significantly impairing essential behavior patterns including breeding, feeding or sheltering. The Department Game and Inland Fisheries administers the Virginia Endangered Species Program which provides consultatory comments to regulatory agencies issuing permits which may affect endangered or threatened species, and by the investigation and prosecution of violations. Permits required for streambank or shoreline erosion control projects require consultation with the Department Game and Inland Fisheries to help ensure the protection of these resources.

Virginia Marine Resources Commission (VMRC)

Coastal Primary Sand Dunes Management Program
(Sec. 28.2-1400 through 28.2-1420 of the *Code of Virginia*)

Submerged Lands Management Program
(Sec. 28.2-1200 through 28.2-1213 of the *Code of Virginia*)

Tidal Wetlands Management Program
(Sec. 28.2-1300 through 28.2-1320 of the *Code of Virginia*)

The VMRC administers the Submerged Lands, Tidal Wetlands and Coastal Primary Sand Dunes/Beaches programs and is charged with the review of all tidal wetland and sand dune permit decisions of local wetlands boards. The Tidal Wetlands program applies throughout Tidewater, Virginia and each Tidewater locality has the option of adopting the wetlands or dunes acts and forming a wetlands board to review applications for use or development of tidal wetlands or dunes. The Submerged Lands program applies state-wide to all state-owned submerged lands. Generally this would include waterways with flows greater than five cubic feet per

second (CFS) or drainage areas greater than five square miles.

Permits are issued through a Joint Permit review process involving local, state and federal agencies. Permits are reviewed based on compliance with statutory requirements, Wetlands Guidelines, Subaqueous Guidelines, Coastal Primary Sand Dunes/Reaches Guidelines and Mitigation/Compensation criteria as well as recommended Best Management Practices. The VMRC may accept restoration of degraded wetlands as part of the mitigation proposal through the permit public review process. The mitigation plan would require reestablishment and maintenance of an appropriate hydrologic regime, the planting and survival of wetland plants and the basic restoration of wetland function. Advisory assistance is provided by cooperating state and federal agencies. This includes comments from the Department of Environmental Quality, the Department of Conservation and Recreation, the Department of Health, the Department of Game and Inland Fisheries and environmental impact information included in the VIMS Shoreline Permit Application report prepared for each project.

MANAGEMENT MEASURE COMPLIANCE

All of the above programs either promote or require the restoration of wetlands and riparian areas. The Virginia Water Protection Permit Program, Coastal Primary Sand Dunes/Beaches Program and the Wetlands Management Program can all require restoration of areas impacted by program violations or as mitigation as a permit requirement. Programs promoting the restoration include the Agricultural BMP Cost-Share Program which provides financial incentives for agricultural lands and the Shoreline Erosion Advisory Services which provides technical assistance.

When all of the above programs are considered as a package, the Commonwealth of Virginia meets the requirements of the management measure.

C. Vegetated Treatment Systems

Promote the use of engineered vegetated treatment systems such as constructed wetlands or vegetated filter strips where these systems will serve a significant NPS pollution abatement function.

Applicability: "This management measure is intended to be applied by States in cases where engineered systems of wetlands or vegetated treatment systems can treat NPS pollution abatement function."

Applicable State Programs

Chesapeake Bay Local Assistance Department

Chesapeake Bay Preservation Act (CBPA)
(Sec 10.1-2100, *et seq.* of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations (VR 173-02-01)

The Chesapeake Bay Preservation Area Designation and Management Regulations (VR 173-02-01) specify eleven performance criteria (§ 4.2) that apply to proposed development activities on land within Chesapeake Bay Preservation Areas.

One designation is that of the Resource Protection Area (RPA). Section 3.2.A of the Regulations states:

> "Resource Protection Areas (RPAs) shall consist of sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant degradation to the quality of state waters."

The RPA includes tidal wetlands, nontidal wetlands contiguous to tidal shores, other lands deemed to be significant in the protection of state waters, and a buffer area, not less than 100 feet in width adjacent to the previously mentioned land types and all tributary streams. In addition, a second designation of Resource Management Area (RMA) is intended to protect the functional values of the RPA. The 11 performance criteria of § 4.2 guide development in these areas. One of the criteria require the control of stormwater. Department guidance procedures allow for vegetative practices to satisfy the criteria for low density development. In addition, the Department funded the preparation of a *Vegetative Practices Guide for Nonpoint Source pollution Control* for use in Preservation Areas.

This program is implemented through 84 local governments in the coastal plain region of the state. The program covers the Chesapeake Bay drainage area portion of the coastal zone management area. Designation of the Chesapeake Bay Preservation Area (CBPAs) does not cover the entire region as some local governments did not designate their entire jurisdiction. The Department estimates that 80 percent of all lands within Tidewater Virginia are designated CBPA.

This program is enforced at the state level by CBLAB, a nine member citizen board. CBLAB's consistency review process provides procedures of the detection of non-compliance in local programs. If a local program is found not in compliance with the Act, action including administrative hearings and/or judicial proceedings can be initiated. CBLAD also monitors local implementation and enforcement of the Act through land use management tools such as the comprehensive plan, zoning ordinance and subdivision ordinance.

Department of Conservation and Recreation

Agricultural BMP Cost-Share Program

The Agricultural BMP Cost-Share Program is a voluntary program offered as part of the Chesapeake Bay Clean-Up Program. Financial incentives are offered to landowners for voluntary implementation of BMPs in order to improve water quality. Cost-share is available for Woodland Buffer Filter Areas, Stream Protection, Grass Filter Strips and Vegetative Stabilization of Marsh Fringe Areas. Each BMP has a specific minimum life span and the recipient is obligated to maintain the practice throughout its entire minimum life span.

Erosion and Sediment Control Law
(Sec. 10.1-560, *et seq.* of the *Code of Virginia*)

Projects disturbing greater than 10,000 square feet require an erosion and sediment control plan utilizing measures contained in the *1992 Virginia Erosion and Sediment Control Handbook*. Vegetated filter strips and other practices using vegetation to prevent erosion and control sedimentation are contained in the Handbook.

Shoreline Erosion Advisory Service (SEAS)
(Sec. 10.1-702 of the *Code of Virginia*)

The Shoreline Erosion Advisory Service works with private property owners to provide technical advice on how to control shoreline erosion. The program promotes environmentally sound practices for shoreline erosion control. SEAS advice promotes the use of nonstructural, vegetative erosion control measures whenever possible. SEAS recommendations are given considerable weight by the permitting agencies often become permit conditions. The Department of Conservation and Recreation maintains a support contract with the Virginia Institute

of Marine Sciences to provide project specific technical assistance as needed.

Stormwater Management Law
(Sec. 10.1-603.2 through 10.1-603.15 of the *Code of Virginia*)

The use of constructed wetlands and vegetated filter strips to treat and control stormwater runoff are important aspects of this program.

Department of Environmental Quality

Virginia Water Protection Permit Act (Sec. 62.1-44.15.5 of the *Code of Virginia*)

Permits are required for this type of activity. As use of the systems increase and data is collected on the effectiveness, staff will encourage and may possibly require these techniques in specific situations. Caution is being exercised in the use of constructed wetlands as they must be placed outside of state waters for project approval.

Virginia Marine Resources Commission (VMRC)

Coastal Primary Sand Dunes Management Program
(Sec. 28.2-1400 through 28.2-1420 of the *Code of Virginia*)

Submerged Lands Management Program
(Sec. 28.2-1200 through 28.2-1213 of the *Code of Virginia*)

Tidal Wetlands Management Program
(Sec. 28.2-1300 through 28.2-1320 of the *Code of Virginia*)

The VMRC supports the use of wetlands as a treatment system for controlling nonpoint source pollution. Permits are requires for projects impacting wetlands or state-owned subaqueous bottom. The VMRC administers the Submerged Lands, Tidal Wetlands and Coastal Primary Sand Dunes/Beaches programs and is charged with the review of all tidal wetland and sand dune permit decisions of local wetlands boards. The Tidal Wetlands program applies throughout Tidewater, Virginia and each Tidewater locality has the option of adopting the wetlands or dunes acts and forming a wetlands board to review applications for use or development of tidal wetlands or dunes. The Submerged Lands program applies

state-wide to all state-owned submerged lands. Generally this would include waterways with flows greater than five cubic feet per second (CFS) or drainage areas greater than five square miles.

Permits are issued through a Joint Permit review process involving local, state and federal agencies. Permits are reviewed based on compliance with statutory requirements, Wetlands Guidelines, Subaqueous Guidelines, Coastal Primary Sand Dunes/Reaches Guidelines and Mitigation/Compensation criteria as well as recommended Best Management Practices. Advisory assistance is provided by cooperating state and federal agencies. This includes comments from the Department of Environmental Quality, the Department of Conservation and Recreation, the Department of Health, the Department of Game and Inland Fisheries and environmental impact information included in the VIMS Shoreline Permit Application report prepared for each project.

MANAGEMENT MEASURE COMPLIANCE

The Chesapeake Bay Preservation Act, the Virginia Erosion and Sediment Control Law and the Virginia Water Protection Permit Program can all require vegetated treatment systems under specific conditions. These are all regulatory programs with state enforceable measures applicable statewide. The Agricultural BMP Cost-Share Program offers financial incentives for the installation of vegetative treatment systems on agricultural lands. The Stormwater Management Program and the Shoreline Erosion Advisory Service promote the use of vegetative treatment systems by providing technical assistance.

When all of the above programs are considered as a package, the Commonwealth of Virginia meets the requirements of the management measure.

WETLANDS, RIPARIAN AREAS, AND VEGETATED TREATMENT SYSTEMS

A. Protection of Wetlands and Riparian Areas	Meets
B. Restoration of Wetlands and Riparian Areas	Meets
C. Vegetated Treatment Systems	Meets

Boundary discussion

CHAPTER 9

Boundary Discussion

The Commonwealth of Virginia plans to implement a coastal nonpoint source pollution control program within Virginia's existing coastal zone management area. Consistent with the intent of Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990, this program will build on and strengthen existing coastal resource management and nonpoint source pollution control efforts within Virginia's designated coastal zone.

The National Oceanic and Atmospheric Administration's (NOAA) basic coastal watershed boundary recommendation and the recommended "look beyond area" would require Virginia to create a separate Section 6217 management area which would extend well into the piedmont and ridge and valley physiographic regions. Implementing a program in the recommended area would not build on existing accomplishments; rather, it would require new legislation and regulations. Moreover, there is considerable public opposition to any proposal to implement a coastal nonpoint source pollution control program outside of the existing coastal zone.

Virginia has a long history of coastal resource management within Tidewater. The people of Virginia who live and work in Tidewater tend to have strong cultural ties to the Chesapeake Bay and Virginia's other coastal resources. Due to these tries, they have supported the enactment of legislation to protect these resources.

Virginia's coastal zone is coterminous with Tidewater Virginia which is defined in the Tidal Wetlands Act as counties and independent cities which touch upon any portion of a tidal water body. In fact, the term Tidewater is legal basis upon which the Virginia Coastal Resource Management Program defines the coastal zone. This geographic area closely corresponds to the NOAA's basic coastal watershed boundary recommendation and it provides a logical basis for defining the coastal nonpoint source pollution control program boundary.

There are a number of technical considerations regarding the hydrologic units used to determine NOAA's boundary recommendation that support Virginia's position that the coastal nonpoint source pollution control program should be implemented within Virginia's designated coastal zone.

First, the United States Geologic Survey (USGS) cataloging unit HUC02080205 on the James River does not include the head of tide. This unit is intended to demarcate the change in the river from free flowing to tidal. A hydrologic unit system analysis recently

completed in Virginia specifically locates the nontidal portion of the James River at the break between HUC02080205 and HUC02080206. This analysis was done at a 1:24,000 scale. The head of tide is contained in cataloging unit HUC02080206. Therefore, the HUC02080205 cataloging unit should not be included in the coastal watershed boundary recommendation. Similarly, the majority of HUC02080207 is intercepted by Lake Chesdin on the Appomattox River and the major remaining portion of this unit is located within Virginia's designated coastal zone.

Secondly, Virginia does not believe that the upper portions of the York River basin (HUC02080106) should be included in the coastal nonpoint source pollution control program boundary because the North Anna River is impounded at Lake Anna. This lake isolates the upstream portions of the drainage area from coastal waters. As well, the Virginia Nonpoint Source Pollution Watershed Assessment report indicates that there are no high priority watersheds in this portion of the York River basin.

With regard to the upper Potomac River basin, the Shenandoah River should not be included in the "look beyond" area of the NOAA boundary recommendation because it drains into West Virginia. Consistent with the statute limitations that exclude the State of West Virginia and the Susquehanna River basin in the State of Pennsylvania, this area should not be included in NOAA's recommendation.

We recognize that there are sources of nonpoint source pollution located outside of Virginia's coastal zone and that these sources of pollution can have a significant impact on the health of Virginia's coastal resources. However, creating a coastal nonpoint source pollution control program boundary which is separate from the coastal zone boundary and which extends into the mountains of Virginia is not a tenable way to address these sources of pollution. Rather, than extend the boundary, Virginia will continue with development and implementation of a tributary strategy approach to address these sources of pollution. The tributary strategy program has similar objectives as the coastal nonpoint source pollution control program but it will be implemented through a mix of regulatory controls and voluntary efforts. The tributary program will address both point and nonpoint sources of pollution. In addition, this program is already under development and has broad based public support.

As noted by NOAA and EPA in the Virginia Threshold Review comments, Virginia's designated coastal zone closely approximates the coastal watershed boundary recommendation except where the coastal boundary follows political jurisdictions rather than hydrologic delineations. We believe that these differences are not significant and can be supported by the political, programmatic, and technical considerations discussed above. Moreover, we believe that Virginia can achieve the water quality objectives of Section 6217 through program implementation within the existing coastal zone.

Administrative coordination

CHAPTER 10

Administrative Coordination

Virginia addresses nonpoint source pollution through a myriad of regulatory and incentive based programs administered by state agencies, local governments, and soil and water conservation districts (a list of these programs is included in the appendices to this report). Administrative coordination involving Virginia's nonpoint source pollution control and coastal resource management programs is achieved through committees, memoranda of understanding, and joint program administration. The following provides a description of administrative coordination efforts in Virginia.

As the designated lead nonpoint source pollution control agency, the Department of Conservation and Recreation (DCR) has overall responsibility for coordinating state nonpoint source pollution control activities under Section 319 of the Clean Water Act of 1987 and Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990. The Department of Environmental Quality (DEQ) is responsible for establishing and enforcing water quality standards, water quality monitoring to ensure compliance with water quality standards, and overall water quality management. In 1990, DEQ and DCR signed a Memorandum of Understanding (MOU) regarding the administration of nonpoint source pollution control programs. This MOU helps ensure close cooperation between these two agencies and a copy of this MOU is included in the submittal package.

Other MOU's, agreements, and plans are prepared on an as needed basis. Copies of these MOUs, agreements, and plans are also included in the submission package. Examples of existing MOUs, agreements, and plans include the following:

1. DCR and the Chesapeake Bay Local Assistance Department (CBLAD) have signed an MOU that establishes guidelines for cooperation on agricultural water quality, erosion and sediment control, stormwater management, and shoreline erosion stabilization programs.

2. DCR has signed an MOU with the U.S. Department of Agriculture, Natural Resources Conservation Service, the Virginia Polytechnic Institute and State University, and Virginia State University to help foster close cooperation between these agencies and universities.

3. DCR has entered into a conservation partnership with soil and water conservation districts through signed agreements with the Virginia Association of Soil and Water Conservation Districts.

4. DCR has also signed a MOU with the Dahlgren Division of Naval and Surface Warfare Center to provide technical assistance and oversight of erosion and sediment control and stormwater management efforts.

5. DCR annually reviews the Virginia Department of Transportation's (VDOT) erosion and sediment control and stormwater management specifications.

Another major agreement that has far reaching implications for coastal nonpoint source pollution control is the historic Chesapeake Bay Agreement signed by the Governors of Maryland, Pennsylvania, and Virginia; the mayor of the District of Columbia; the Administrator of the U.S. EPA and the Chair of the Chesapeake Bay Commission. This agreement establishes nutrient reduction goals for the Chesapeake Bay. As part of this initiative, Virginia is developing specific strategies for each Bay tributary. These strategies will address nonpoint and point source pollution control practices necessary to restore and protect the living resources of these tributaries.

In addition to the development of memoranda of understanding, DCR has formed a Nonpoint Source Pollution Control Advisory Committee to help coordinate ongoing and planned nonpoint source pollution control activities. Specifically, the Committee provides a forum for information exchange, program development, project prioritization, problem resolution, and grant coordination. All agencies which play a role in nonpoint source pollution control participate in this Committee.

In addition to the Nonpoint Source Pollution Advisory Control Committee, DEQ has formed an interagency coastal committee to help coordinate implementation of the Virginia Coastal Resources Management Program. Numerous other committees may be formed as needed to ensure proper coordination on a specific issue or to address nonpoint source pollution control or coastal resource management concerns which transcend the purview of any single agency. For example, the Secretary of Natural Resources has formed a Tributary Strategy work group to help guide the tributary strategy development and implementation process.

Coordination between state agencies and local governments is achieved through a variety of mechanisms including state oversight of local erosion and sediment control,

stormwater management, and wetlands management programs. In addition, the state provides technical assistance and program oversight to support local government implementation of the Chesapeake Bay Preservation Act. Local governments and planning district commissions are also represented on various committees formed to address nonpoint source pollution control and coastal resources management.

Monitoring and tracking

CHAPTER 11

Monitoring and Tracking

Guidance issued under Section 6217 requires water quality monitoring and management measures tracking to help determine if management measures are successful in improving water quality and protecting or improving water resources within the coastal zone and to determine if additional management measures are needed to meet water quality objectives. However, due to the prohibitive expense of monitoring the effectiveness of every management measure applied within the coastal zone, the guidance does not require a comprehensive monitoring and management measures tracking program. Rather, what is required is that states assess over time the success of the management measures in reducing pollution loads and improving water quality.
These monitoring objectives are to be accomplished through a combination of watershed monitoring to track the cumulative benefits of management measure implementation and demonstration projects to evaluate the efficacy of these measures. As well, tracking of management measures implementation is required to determine whether water pollution controls have been implemented, operated, and maintained adequately. This type of information is necessary to draw associations between management measure implementation and water quality data.

Since Virginia already has numerous monitoring and best management tracking programs, available information will be used to address many questions regarding the effectiveness of the program. Various monitoring and tracking programs in Virginia, including citizen monitoring programs, are described below.

EXISTING STATE MONITORING PROGRAMS

Chesapeake Bay Local Assistance Department

Polecat Creek Water Quality Monitoring Project (CBLAD)

In July, 1993 Chesapeake Bay Local Assistance Department initiated a ten-year water quality monitoring program in the Polecat Creek drainage. The primary goal of the monitoring program is to describe the efficacy of emerging land use regulations and policies in protecting adjacent water quality during urban development activities. The land use regulations and policies being tested are those developed by CBLAD and county governments in response to the Chesapeake Bay Preservation Act.

The project is designed around two types of monitoring networks trends (which will identify changes in water quality), and special study networks (which will identify or eliminate potential sources or reasons for any identified trends). The trend networks will monitor chemical and physical constituents (including flow, dissolved oxygen, temperature, pH, nutrients, sediments, and bacteria), biological integrity, and rain fall (quality, quantity and intensity). The special study networks will describe high flow and low flow conditions; impacts from logging and construction activities; impacts from industrial, commercial and agricultural nonpoint sources; and monitoring septic system discharges through groundwater.

Another important component of the Polecat Creek Project is the development of a geographic information system (GIS) which will allow the linkage of land use/land cover data and water quality data. The GIS will also be used to develop a nonpoint source pollution control model for the watershed.

Department of Conservation and Recreation

Hydrologic Unit Planning

The Department of Conservation and Recreation's Division of Soil and Water Conservation recently implemented a statewide Hydrologic Unit Planning (HUP) system. The system divides the state into sub-watersheds of USGS cataloging units and identifies nonpoint source pollution water quality problems within these sub-watersheds. County hydrologic unit maps have been used to collect information on land use, livestock and poultry inventories, erosion rates, disturbed land, and sludge and fertilizer use within each watershed.

By prioritizing nonpoint source pollution problems within the state, cooperating state agencies can optimize the use of funds made available for correcting nonpoint source pollution problems. The Virginia Agricultural Cost-Share Program has already targeted its funds based on these priorities.

Virginia Geographic Information System (VirGIS)

VirGIS was developed by the Department of Conservation and Recreation's Division of Soil and Water Conservation and the Virginia Tech Department of Agricultural Engineering

with contractual support from the Virginia Tech Information System Support Lab at Virginia Tech. VirGIS is a database used to track sources of nonpoint source pollution and target limited management resources. VirGIS maps and data are made widely available for other uses.

Submarine Ground Water Discharge to the Chesapeake Bay

The Virginia Polytechnic and State University through a Chesapeake Bay Program grant provided by the Department of Conservation and Recreation (DCR) has conducted a survey of submarine ground water discharge into the southern Chesapeake Bay since 1989. The ten sites used in the survey were selected on the basis of availability to one of three major land-use types agriculture, residential/urban, or forested wetland.

The objectives of this survey are 1) to test the hypothesis of linkage between upland ground water and ground water discharge entering the Bay over a wider geographical basis than had been attempted in the past; 2) to evaluate the relationship of ground water discharge to adjacent land-use activities; and 3) to evaluate the importance of maintaining sufficient plant buffer zones between upland activities and the Bay to protect surface water quality.

Ground water samples are collected quarterly. The ground water discharge at each site is measured with a seepage meter and an average discharge for each site is determined and reported as L/m /hr. The water quality parameters which are monitored include salinity, ammonia, nitrate, nitrite, and phosphate.

Nomini Creek

The Nomini Creek Watershed/Water Quality monitoring project was initiated in 1985, as part of the Chesapeake Bay Agreement of 1983, to quantify the impacts of agricultural best management practices (BMPs) on improving water quality. The water quality monitoring system was designed specifically to provide a comprehensive assessment of the quality of surface and ground water as influenced by changes in land use, agronomic, and cultural practices in the watershed over the duration of the project. Specific elements of the monitoring system include wet and dry-weather monitoring of the surface and groundwater; biological monitoring of streams; analysis of soils for physical and chemical parameters; and the analysis of atmospheric deposition. The primary chemical characteristics monitored include both soluble and sediment-bound nutrients and pesticides in surface

and ground water. Data was and continues to be gathered at two fully automated runoff stations and seven rain gauge sites within the 3700 acre watershed. Although existing wells were initially utilized, four pairs of groundwater monitoring wells were drilled in 1986 for better quality assurance in groundwater sampling. Three additional surface water monitoring sites were added in 1991 as part of a project designed to assess the impacts of BMPs on forestry logging operations in three small subwatersheds within the Nomini Creek watershed.

Owl Run

The Owl Run Watershed/Water Quality monitoring project was initiated in 1985 to demonstrate the effectiveness of animal waste BMPs in reducing nonpoint source pollution. The monitoring system was designed to provide comprehensive assessment of the quality of surface water as influenced by changes in land use, agronomic, and cultural practices in the watershed over a 10-year study period. Specific elements of the monitoring system include wet and dry-weather monitoring of the surface and groundwater; biological monitoring of streams; analysis of soils for physical and chemical parameters; and the analysis of atmospheric deposition. The primary chemical characteristics monitored include both soluble and sediment-bound nutrients, organic chemicals, insecticides, and herbicides in runoff water. Four fully automated runoff stations, eight rainfall gages, and one weather station are located within the 2800 acre watershed to define and characterize the spatial impact of climatic variables and land use on pollutant losses from the watershed.

Department of Forestry (DOF)

Department of Forestry Water Quality Monitoring Program

The Department of Forestry (DOF) water quality monitoring program began in 1990 as a part of the DOF nonpoint source pollution reduction initiative. The initiative combines chemical and biological monitoring with computer simulation modeling to produce insights into the characteristic and dynamic behavior of water in forest ecosystems. The program helps document the effects of timber harvesting on forest water quality. Water quality monitoring instruments are positioned at eight locations throughout Virginia and monitor the following parameters pH, total alkalinity, conductivity, nitrate-nitrogen, ortho-phosphate and phosphorous, sulfate, turbidity, suspended solids, organic carbon, hydrologic flow, and

benthic macro-invertebrates. DOF monitoring is funded through an EPA grant administered by the Department of Conservation and Recreation.

Department of Environmental Quality (DEQ)

Chesapeake Bay Fall Line Monitoring Program

DEQ, in cooperation with the United States Geological Survey (USGS), operates five, fall line monitoring stations to characterize nutrient loads entering the Chesapeake Bay and Virginia's tidal tributaries (James, Appomattox, Rappahannock, Mattaponi, and Pamunkey Rivers). The objective of the monitoring program is to characterize nutrient loading to the Chesapeake Bay and the tidal portion of its tributaries originating in the James, Rappahannock and York River basins.

Samples from these stations are tested for nitrogen, phosphorous, carbon, sediments and silica. Samples are taken semi-monthly from "base flow," and approximately 30 times a year during high flow periods to accurately characterize total nutrient loads. The total loading is composed of nutrients originating from both point and nonpoint sources in the watershed. Various methods (e.g. computer simulation models, land use information, examination of concentration/river flow associations) are used to estimate the percentages of point vs. nonpoint inputs.

Chesapeake Bay Monitoring Program

Monitoring stations are located throughout the main stem of the Chesapeake Bay and the tidal portion of the James, Rappahannock, and York Rivers. Data is collected from 27 stations in the main stem of the Bay and from approximately 35 stations along the James, Appomattox, Chickahominy, Mattaponi, Pamunkey, Rappahannock, and York Rivers. Sampling of water quality (e.g., nutrients, oxygen, pH, salinity, etc.) and biological conditions (i.e., benthic, phytoplankton and zooplankton communities) is conducted to characterize ecological status and trends in the Chesapeake Bay and Virginia's tidal tributaries. These ecological conditions are to a large degree influenced by inputs of nutrients originating from both point and nonpoint sources in the watershed. Samples are routinely collected either semi-monthly, monthly or quarterly.

Surface Ambient Water Quality Monitoring Program

The Department of Environmental Quality, Ambient Water Quality Monitoring Network consists of 711 sampling stations. Fifty-one of these stations comprise the core monitoring program. Samples are tested for a number of chemical and physical parameters on a variable basis to assess water quality throughout the Commonwealth. Long term water quality trends can be determined from this monitoring program.

Virginia Biological Monitoring Program (VBMP)

The program is administered by the DEQ's Water Division and consists of 180 stations within 116 hydrologic units (HUs). Samples are tested for dissolved oxygen, temperature, pH, fecal coliform bacteria, nutrients, and toxics. This program uses EPA's Rapid Bioassessment Protocol II habitat assessment technique to monitor benthic macroinvertebrates as an indicator of water quality. Using this protocol, waters are classified as nonimpaired, moderately impaired, or severely impaired. The classifications are used to help determine if water quality meets the fishable goal of the Clean Water Act (CWA).

Department of Health

Seawater Sampling Program and Marina Modeling and Evaluation Program

The Division of Shellfish Sanitation (DSS) is a part of the National Shellfish Sanitation Program (NSSP). DDS conducts routine monitoring of estuarine waters for fecal coliform and modeling of the effects of marina facilities are included in this program. Approximately 1,650 seawater samples are collected each month and analyzed for the presence of fecal coliform bacteria. DDS uses this monitoring information to determine the size of seasonal condemnations that would be required around proposed marinas. The Virginia Marine Resources Commission (VMRC) is responsible for marking and policing condemned shellfish beds.

EXISTING CITIZEN MONITORING PROGRAMS

Alliance for the Chesapeake Bay

Virginia Citizen Monitoring Program (CBCMP)

The Chesapeake Bay Citizen Monitoring Program is a network of 140 volunteers in Maryland, Pennsylvania, and Virginia that collects water quality data and information about the Chesapeake Bay and its tributaries. A quality assurance plan has been developed to ensure the precision and accuracy of data collected by its volunteers.

The Chesapeake Bay Citizen Monitoring Program has become a model for other citizen monitoring programs across the country and has won numerous awards. The program is currently funded by grants from the Virginia Department of Environmental Quality and the Chesapeake Bay Program.

In June, 1985 the pilot Chesapeake Bay Citizen Monitoring Program (CBCMP) began with 20 sites on the Patuxent River in Maryland and 16 sites on the James River in Virginia. Since then, the Virginia portion of the program (VCMP) has grown to manage over 120 volunteers on the James, York, Rappahannock, Potomac, Piankatank, Mattaponi, Pamunkey, Lynnhaven and Elizabeth Rivers, as well as on the creeks and embayments of the Eastern Shore.

The parameters tested are air and water temperature, water depth and clarity, salinity, pH and dissolved oxygen. Monitors also record wildlife observations, field observations of water conditions and color, weather, precipitation and general conditions of the site. All monitors sample weekly throughout the year. In 1992, a pilot nutrient sampling program began at eight sites and eight more sites were designated as Zebra Mussel Monitoring Stations.

The nutrient sampling program was implemented in conjunction with the Department of Environmental Quality - Water Division. Ten sites were chosen in areas of submerged aquatic vegetation (SAV). Monitors collect samples which are analyzed in a laboratory for dissolved inorganic nitrogen and dissolved inorganic phosphorus. Results will be used to help evaluate present status and future trends of nutrient concentrations in SAV growing areas. Concentrations can be compared to SAV habitat water quality criteria developed by the Chesapeake Bay Program.

Data generated by this program is used to augment the Department of Environmental Quality's mid-channel monitoring program. Citizen monitoring data are taken at near-shore sites and provide a means of analyzing the correlation between near-shore and mid-channel data. In 1992, Citizen Monitoring data were, for the first time, used to make assessments in Virginia's 305(b) Report to Congress on the quality of the State's waters. The wildlife observations, which are recorded with the help of a field guide, provide input to the Virginia Department of Game and Inland Fisheries on sightings of common or ordinary species. With the expansive network of volunteers, it is anticipated that the data generated by this program will be of particular value to local governments and jurisdictions throughout the Commonwealth.

Citizens involved in the VCMP learn about water quality and naturally develop a stewardship for "their rivers". The program was worked closely with such groups as Friends of the Rappahannock, Friends of Urbanna Creek, Save the Ole Piankatank, Rappahannock River Valley Association, Mattaponi and Pamunkey Rivers Association, James River Association, Chesapeake Bay National Estuarine Research Reserve System, University of Virginia's Long Term Ecological Research Center, Citizens for a Better Eastern Shore, York Chapter of Chesapeake Bay Foundation, Chesapeake Bay Youth Conservation Corps and Department of Conservation and Recreation, Division of State Parks.

To better manage the expanded program and provide feedback to the volunteers, a data management software program was developed. The program was presented at the second annual Virginia Environmental Education Conference, third National Citizen Monitoring Conference and the Coastal Society Conference. Data from the field are collected, verified and entered by ten volunteer Watershed Coordinators. These coordinators are recruited to act as managers for approximately ten monitors; taking management requests, troubleshooting, acting as an liaison to the Virginia Coordinator and most importantly, managing the data generated by the watershed group. The data is then imported to the central computer in the Richmond office where it is used to makes individual tabular reports and graphs for monitors. This software, called CitMon*MAN, makes it possible for monitors to see the seasonal trends in their data and is a useful motivating tool. CitMon*MAN make available a standardized format for reporting volunteer water quality data to state agencies. All data are also sent to the Chesapeake Bay Computer Center in Annapolis, Maryland where files are accessed by state agencies including the Department of Environmental Quality - Water Division. The data management program has been distributed to monitoring programs around the nation as far away as Hawaii.

Izaak Walton League of America (IWLA)

Save Our Streams Program (SOS)

The Izaak Walton League of America (IWLA) formally began the Save Our Streams (SOS) program in Virginia in 1988. The objectives of this program are 1) to increase the state's ability to assess surface water quality; 2) to promote an awareness of the state's aquatic resources; and 3) to bring concerned citizens together to more effectively address water quality issues on a watershed level.

Funding for the SOS program has been provided in the past by grants from the Department of Conservation and Recreation (DCR) and the Virginia Environmental Endowment. Biological monitoring data is collected by citizen volunteers at over 240 stations across the state and is sent to DCR by way of completed survey forms.

Virginia volunteers are trained at workshops to identify water pollution problems and to survey stream-dwelling organisms (macroinvertebrates) and various physical characteristics in order to determine stream health. Also, the volunteers receive a SOS sampling kit which contains the equipment, references, and directions necessary to conduct biological monitoring. Volunteers adopt a freshwater stream with one or more monitoring points (stations) along the stream. Each station is generally monitored four to six times a year. Based upon the most representative sample at the monitoring station (one of three replicate samples), a numerical score and a corresponding water quality classification (excellent, good, fair, or poor) are assigned to each station based on the structure of the biological community.

The IWLA biological monitoring is conducted in 71 of the state's 491 hydrologic units. The greatest spatial coverage is in the urbanized watersheds in the Northern Virginia area. The number of SOS monitoring stations in Eastern Virginia is very sparse. However, this is expected to change as IWLA has just recently adopted a SOS protocol for sampling in coastal plain streams. The SOS monitoring protocol was initially designed for shallow, free-flowing freshwater streams and was not applicable to saltwater invertebrates or coastal plain streams that are dominated by pool habitats.

DCR is working with citizen groups to solicit volunteers in those watersheds that have received a high priority in the state's nonpoint source assessment ranking. Citizen biological monitoring should continue to be a vital part of the state's nonpoint source assessment and watershed activities.

EXISTING BMP TRACKING PROGRAMS

Nutrient Management Plan Tracking Activities

Virginia's Nutrient Management Program has used a computer tracking and reporting system known as NMTRACK in several versions since 1989. The major items reported by the program included number of nutrient management plans completed, planned acreage, and nitrogen and phosphorus reductions achieved by plan implementation. Additional data were supplied on plan-related activities such as the number of manure tests run, manure spreader calibrations, quick nitrate tests, test plots established and harvested, farmer contacts, media contacts, and presentations made.

The program has been updated this year to accommodate reporting on expanded activities related to the accomplishment of specific goals listed in the Department of Conservation and Recreation's Division of Soil and Water Conservation Workplan. The additional reportable items include nutrient management plan revisions, plans reviewed, plan follow-ups, plan development, sludge site reviews visits to farmers (phone and personal), referrals received, nutrient industry contacts, media articles written, and Nutrient Management Displays used.

Voluntary BMP Implementation Tracking

While the impact of BMPs being implemented through cost-sharing efforts is well documented, vital information is missing on the extent and impact of voluntary (non-cost-share) implementation of BMPs. To close this information gap, the Department of Conservation and Recreation has contracted with the Biological Systems Engineering Department at Virginia Tech to collect information on the extent, type, trend, and motivation behind voluntary BMP implementation in Virginia. Over 6000 surveys were randomly distributed to farmers within the Chesapeake Bay basin and just over 1,300 surveys were returned. A final report on the survey results is expected in July 1995. Analysis of those results will continue in order to relate them to other state initiatives and tracking efforts. DCR is currently considering the extension of this survey to the remainder of the state.

Virginia Agricultural BMP Cost-Share Program Monitoring and Tracking

BMP implementation resulting from enrollment in the Virginia Agricultural BMP Cost-Share Program is tracked in a digital database. The following information is tracked for requests for cost-share assistance applicant's name and address, practice type and quantity, BMP location data including hydrologic unit code and UTM coordinates, VirGIS data, costs, funding request approval or denial, extent of BMP implementation, cost-share payment, and site specific soil loss and animal waste reductions. DCR uses the database model to report water quality improvements, to guide adjustments in program funding and administration, and to create randomized lists for program compliance spot checks. At the local level, soil and water conservation districts also use the BMP tracking information.

Soil and water conservation districts enter information regarding each request for cost-share assistance into a local database. Each district periodically uses the database software to sort, target, and rank requests for cost-share and approve funding for BMP implementation. The database software features an accounting section which allows districts to monitor local BMP implementation, local program funding status, and to request disbursement of program funds from DCR. At the close of each quarter, districts submit a copy of their local database to DCR for statewide compilation.

Monitoring and Tracking Coordination

To help improve coordination between federal and state agricultural program implementation tracking, the Department of Conservation and Recreation is currently working cooperatively with USDA, NRCS to develop improved procedures for data sharing and implementation tracking. This effort will address issues and develop alternatives for sharing equipment and databases, analyze processes for collecting and analyzing programmatic data, and develop methods that reduce duplication of effort and enhance delivery of service to customers.

Data Analysis

In addition to the monitoring and tracking programs described above, monitoring is also a requirement for numerous watershed implementation projects. These projects provide specific information about individual watersheds and they are occasionally the only source of information about a given watershed.

Much of the data being collected through Virginia's various monitoring and tracking programs and projects is being used in the development of tributary strategies. Ultimately, specific nutrient reduction strategies will need to be developed which target nonpoint and point source reductions for Chesapeake Bay tributaries. Clearly, extensive monitoring data is needed for development of these tributary strategies.

Because Virginia already has extensive and relatively comprehensive monitoring and tracking programs in place, no additional monitoring or tracking efforts are proposed at this time as part of coastal nonpoint source pollution control program development.

Technical assistance

CHAPTER 12

Technical Assistance

Section 6217 requires states to provide technical assistance to local governments and the public as part of program implementation. Virginia already has a well developed network of local government and public assistance programs which address nonpoint source pollution control and coastal resource management. A list and description of these programs is included below. Assistance provided by these programs includes technical and financial assistance programs designed to: 1) help local governments develop the land management plans and ordinances needed to protect coastal resources and control nonpoint source pollution and 2) assist private citizens with the implementation of management practices which help control nonpoint source pollution or conserve coastal resources. Assistance provided through these existing programs support implementation of most of the specified management measures.

One area where the need for additional technical assistance has been identified involves marina development and operation. To address this assistance need and help ensure compliance with the specified management measures, the Virginia Marine Resources Commission is developing a technical assistance program to work with marina owners and operators. Assistance provided by this program will be available beginning in FY 1996. This service is being funded through Section 6217 grant funds.

TECHNICAL ASSISTANCE PROGRAMS

Department: Chesapeake Bay Local Assistance
Program: Chesapeake Bay Preservation Program
Type of Assistance: Competitive Grant

Description of Assistance:

The Department will provide funds to assist local governments and planning districts in Tidewater Virginia in their efforts to designate Chesapeake Bay Preservation Areas in compliance with the Chesapeake Bay Preservation Act. The availability of local resources is an important consideration, and preference is given to those localities with the greatest need and where the greatest water quality benefits can be generated. Funding amounts vary based upon project costs.

Department: Chesapeake Bay Local Assistance
Program: Chesapeake Bay Preservation Program
Type of Assistance: Technical

Description of Assistance:

Department staff will provide direct assistance to local governments in implementing the provisions of the Chesapeake Bay Preservation Act. Such assistance includes the revision of comprehensive plans, drafting of zoning and subdivision ordinances, designation of preservation areas, and preparation of needed maps.

Department: Conservation and Recreation
Program: Agricultural Best Management Practices Cost-Share
Type of Assistance: Grant

Description of Assistance:

The Department administers an Agricultural Best Management Practices Cost-Share Program through local Soil and Water Conservation Districts. The program provides financial incentives and assistance to agricultural landowners and/or operators for the installation of best management practices. The best management practices address the loss of soil productivity caused by erosion and reduce the sediment and animal waste pollution of waters. The program targets willing participants from priority watersheds.

Department: Conservation and Recreation
Program: Assistance to Soil and Water Conservation Districts
Type of Assistance: Grant

Description of Assistance:

The Department administers financial grants to local Soil and Water Conservation Districts for operations, clerical assistance, and technical personnel. Grants have ranged from $13,000 to $70,000.

Department: Conservation and Recreation
Program: Digital Geographic Data Distribution
Type of Assistance: Technical

Description of Assistance:

The Department makes all of this developed and procured digital geographic data available to anyone. Public and private agencies, business, etc are provided, on request, with a report describing the data available, the geographic extent of the data, the formats available, and the process for ordering. An order form is provided. Assistance is offered on how best to use the data, or to locate more appropriate data for the user's application. Special processing services are provided if needed. Prominent digital data layers are: soils, agricultural land use, slope, erosion index, water quality index, watershed and jurisdiction boundaries, NWI wetlands, hydrology, and transportation.

Department: Conservation and Recreation
Program: Erosion and Sediment Control Ordinances
Type of Assistance: Technical

Description of Assistance:

Department staff assists localities in implementing and enforcing erosion and sediment control ordinances and in assessing stormwater management problems and issues. A minimum of 12 training seminars and two certification exams are planned each year.

Department: Conservation and Recreation
Program: Flood Prevention and Protection Assistance Fund
Type of Assistance: Categorical Grant; Loan

Description of Assistance:

The Department will make loans or grants to localities to provide the required matching funds for flood prevention or protection studies conducted by agencies of the federal government. Any grant may not exceed 50% of the funds required to be provided by the locality. The maximum term for any loan will be 20 years and the interest rate will be 3% annually. Although the General Assembly has authorized this program, no funds have been appropriated to implement it.

Department: Conservation and Recreation
Program: Flood Prevention and Protection Assistance Fund
Type of Assistance: Technical

Description of Assistance:

Floodplain Management Program staff provide technical assistance to localities in the form of floodplain protection studies and training and educational material.

Department: Conservation and Recreation
Program: Natural Resource Use and Protection
Type of Assistance: Technical

Description of Assistance:

Department staff will assist localities in analyzing their significant natural resources and in developing plans for their use and/or protection. In this regard, the staff will also assist localities in developing land use controls, management plans, conceptual site plans, and management or use agreements with other State agencies.

Department: Conservation and Recreation
Program: Natural Heritage Program
Type of Assistance: Technical

Description of Assistance:

Department staff has compiled site-specific information regarding plants, animals and habitats in Virginia. The database also contains information on rare plants and animals and significant habitats. In addition to making that information available, the Department will contract with local governments to prepare natural area inventories which can be specially useful in comprehensive land-use planning.

Department: Conservation and Recreation
Program: Nonpoint Source Pollution Management
Type of Assistance: Technical

Description of Assistance:

Department staff will provide assistance to localities on issues related to nonpoint source pollution control management. Technical assistance and education materials are the primary means of assistance, although limited financial support for the implementation of nonpoint source pollution control programs may be available.

Department: Conservation and Recreation
Program: Nutrient Management Program
Type of Assistance: Technical

Description of Assistance:

The Nutrient Management Program utilizes statewide nutrient management field specialists and program management personnel to develop and/or review voluntary and regulatory nutrient management plans; conduct educational programs for farmers, fertilizer dealers, and consultants; demonstrate appropriate nutrient management techniques; and assist farmers in soil nitrate testing, manure testing, and nutrient applicator calibration.

Department: Conservation and Recreation
Program: Shoreline Erosion Advisory Service
Type of Assistance: Technical

Description of Assistance:

Department staff will assist local governments in devising zoning criteria related to erosion rates. The staff will also help develop minimum design standards for erosion control structures constructed along shorelines.

Department: Conservation and Recreation
Program: Shoreline Erosion Advisory Service
Type of Assistance: Technical

Description of Assistance:

Department staff will assist local governments in evaluating shoreline property they own along tidal waters, in advising localities on methods of correcting erosion problems and on the best uses of the affected property.

Department: Conservation and Recreation
Program: Stormwater Management
Type of Assistance: Technical

Description of Assistance:

Department staff will assist localities in preparing and implementing a stormwater management plan and ordinance, and in assessing stormwater management problems and issues.

Department: Environmental Quality
Program: Coastal Resources Management Program
Type of Assistance: Competitive Grant

Description of Assistance:

Of the federal funds available for local coastal resources management, DEQ allocates $20,000 annually to each of the coastal Planning District Commissions (PDC's) to assist in providing technical assistance to their member localities. The remaining funds are distributed to local governments, primarily for devising innovative zoning techniques, improving enforcement of coastal resources related regulations, preparing

inventories and protection plans for coastal resources, low-cost construction and land acquisition for public access and/or habitat protection, etc. A grant recipient must provide a 50% match.

Department: Environmental Quality
Program: On-Site Assistance & Training Program
Type of Assistance: Technical

Description of Assistance:

If an evaluation of a sewage treatment plant, which is seriously failing to meet discharge requirements, reveals that its performance can be significantly improved through the use of improved operation and/or management practices, the Department will provided on-site training and assistance for the facility's staff and management.

Department: Environmental Quality
Program: Water Quality Management & Planning Activities
Type of Assistance: Competitive Grant

Description of Assistance:

The Department funds 75% of the cost of a variety of projects designed to improve water quality management and stimulate water policy planning. DEQ is particularly interested in projects which will address the 1987 Chesapeake Bay Agreement and the Clinch-Powell Interstate Agreement. Projects generally have an October 1 start date and proposals are solicited during the preceding winter. Grant amounts are flexible but are generally in the range of $30,000 to $50,000.

Department: Forestry
Program: Best Management Practices Program
Type of Assistance: Technical

Description of Assistance:

Department staff will provide advice and other forms of technical assistance to local governments regarding management of forest resources, guidelines for the preservation of trees by developers, general urban forestry problems, and other issues related to trees and forests.

Department: Forestry
Program: Land Use; Forestal Uses
Type of Assistance: Technical

Description of Assistance:

Local governments are allowed to enact ordinances providing for special assessments of property used for agricultural, horticultural, forestal, or open-space purposes. The staff of the Department of Forestry will provide guidance to local governments in judging whether particular parcels proposed for forestry use assessment meet the guidelines required by statute.

Department: Game and Inland Fisheries
Program: Fish and Wildlife Information Service
Type of Assistance: Technical

Description of Assistance:

The Department has compiled several wildlife databases which can provide local officials with information needed in preparing comprehensive plans and in managing natural resources. These databases contain information at the county level on the species in an area and their habitat requirements. From this information the Department can help assess the effect of proposed development on various species. There are also databases with which the Department can identify any threatened and endangered species in a specific area and provide information on fish populations.

Department: Game and Inland Fisheries
Program: Fish Passage Grant and Revolving Fund
Type of Assistance: Categorical Grant

Description of Assistance:

The Department will help fund the construction of fishways for any local government which owns a dam or other facility that prevents fish from traveling upstream from the ocean to spawn. The Department will pay 75% of the cost of the project and loan the balance to the locality at low or no interest, with the loan repaid over 10 years.

Department: Marine Resources Commission
Program: Tidal Wetlands Program
Type of Assistance: Technical

Description of Assistance:

Commission staff assists local wetlands boards by attending meetings and providing whatever advice and professional assistance is needed.

Department: Taxation
Program: Use Value Taxation
Type of Assistance: Technical

Description of Assistance:

In conjunction with the State Land Evaluation Advisory Council, the Department annually determines and publishes recommended use-values for qualifying real estate in agricultural, horticultural, forest, and open space uses in jurisdictions that have authorized use-value taxation. The Department provides technical assistance and answers questions concerning applications of the laws and procedures to localities which have adopted ordinances granting preferential real estate assessments to the above mentioned categories.

Department: Virginia Institute of Marine Science
Program: Estuarine Research Reserve Program
Type of Assistance: Technical

Description of Assistance:

Institute staff will share information gathered from its ongoing research an will assist local governments in making decisions regarding the effects of their policies and actions on natural resources. The Institute is also interested in learning what are the issues and problems facing local governments. For example, the Institute is conducting research on the impacts of sea level rise and fresh water diversion for public water supplies, and the information from this research could be used in determining the minimum instream flow necessary to protect aquatic life. Further, the Institute can assist local governments in the provision

of baseline information on shoreline erosion and the effects of the construction of shoreline erosion control structures.

Department: Virginia Institute of Marine Science
Program: Wetlands Inventory Program
Type of Assistance: Technical

Description of Assistance:

The Institute has prepared an inventory of all tidal wetlands in the State, cataloging their location and their ecological and biological characteristics and value. With this information, the Institute can provide maps showing the exact location of the wetlands.

Department: Virginia Institute of Marine Science
Program: Wetlands Advisory Program
Type of Assistance: Technical

Description of Assistance:

Institute staff assigned to the wetlands advisory program, provides scientific and technical advice to local wetlands boards. For each application for a permit to build in or near wetlands, a written assessment of the environmental impact of the proposed activity will be prepared. In addition, technical and scientific advice to local planning staffs on general issues pertaining to wetlands and shorelines is available.

Appendices

Appendix A

RESPONSE TO THRESHOLD REVIEW COMMENTS FROM NOAA AND EPA

ANALYSIS OF THRESHOLD REVIEW COMMENTS

This document addresses threshold review comments received from the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Environmental Protection Agency (EPA). It was developed based on information provided by state agencies which participated in the development of the Virginia Threshold Review Report. It forms a basis for determining what additional actions will be needed to comply with Section 6217 of the Coastal Zone Act Reauthorization Amendments.

Threshold review comments from NOAA and EPA provide an assessment of existing state programs that address nonpoint source pollution. At Virginia's request, NOAA and EPA conducted an informal review of all program elements included in the threshold review report submitted in June of 1994. Threshold review comments address the program boundary and all categories of nonpoint pollution addressed by the federal guidance. A threshold review meeting was held in Richmond on December 13 and 14, 1994, and we received threshold review comments March 27, 1995. The deadline for program submittal remains July of 1995; however, administrative changes made to the program provide for conditional approval for up to five years if necessary to make changes to address incomplete program elements.

THRESHOLD REVIEW COMMENTS AND STATE AGENCY RESPONCES

Boundary

Virginia Position

Virginia's threshold review document identifies three possible options for addressing NOAA's boundary recommendation. The options are as follows: 1) Modifying the Existing Coastal Zone, 2) Establishing a Separate 6217 Management Area, or 3) Demonstrating that a Smaller Area Will Restore and Protect Coastal Waters. The document indicated that no decision has yet been reached on how to respond to NOAA's boundary recommendation. However, at the threshold review meeting, it was explained that the Commonwealth will be seeking to retain the existing coastal zone as the State's 6217 management area. Therefore, all discussions at the threshold review were limited to programs that operate within Virginia's existing coastal zone.

NOAA and EPA Position

As discussed at the threshold review, NOAA's basic recommendation for the 6217 management area boundary was coastal watersheds. Virginia's existing coastal zone closely approximates the coastal watershed boundary recommended by NOAA, except in certain areas where the coastal zone boundary follows political jurisdictions rather than hydrologic delineations. Since the threshold review meeting, NOAA and EPA have issued further guidance regarding the geographic scope of state coastal nonpoint programs. As described in the January 6, 1995 letter to Dr. H. Wayne Beam, Chairman of the Coastal States Organization (See Appendix A), NOAA and EPA will generally defer to a state 6217 management area, except as described in item 4 below.

General Comments

1. The Introduction section of Virginia's threshold review document includes a discussion of the 6217 management area. The State's written description and map of NOAA's recommendation appear to have misinterpreted the boundary recommendation letter sent by NOAA to Virginia on March 31, 1993. NOAA's basic recommendation for Virginia was coastal watersheds, defined as the U.S. Geological Survey Cataloging Units adjacent to the coast and extending along estuaries to include the Cataloging Unit that encompasses the head of tide. NOAA's recommendation also pointed out that, for certain watersheds (in Virginia, the upper portion of the Rappahannock and Potomac watersheds), NOAA's Characterization Report contained information that there are significant indicators of nonpoint pollution above the coastal watershed boundary. For these so called "look beyond" watersheds, NOAA recommended only that the State evaluate these areas as part of the program development process.

2. NOAA and EPA believe that the coastal watershed provides a logical basis for establishing the geographic scope of coastal nonpoint programs. Further, NOAA and EPA recognize the limitations of the data that were used in making boundary recommendations and expect that states and territories will have more specific information to better delineate the geographic scope of their coastal nonpoint programs. Therefore, NOAA and EPA expect that Virginia may use additional information to determine its boundary, and may submit an alternative, less extensive 6217 management area in the July 1995 program submittal than that originally recommended by NOAA and EPA.

3. Based on the discussion at the threshold review meeting, it appears that Virginia will propose the existing coastal zone as the Commonwealth's 6217 management area. As described below, NOAA and EPA will generally defer to Virginia and the burden of proof is on the federal agencies to determine the adequacy of the 6217 management area to protect and restore coastal waters. As part of the July 1995

program submission, Virginia should identify the geographic scope of the coastal nonpoint program and provide a rationale for the proposed 6217 management area. NOAA and EPA recognize that state-specific circumstances will impact the types of information that Virginia will use. Therefore, NOAA and EPA will work cooperatively with the Commonwealth to agree upon a final boundary of the program that meets both the intent of the statute and Virginia's needs.

4. As part of the program approval process, NOAA and EPA must develop Findings on Virginia's 6217 management area. In order to develop these Findings, NOAA and EPA will review the Commonwealth's rationale for the 6217 management area, as well as any comments received during the public comment period. If there are indications that the 6217 management area excludes: (a) existing land or water uses that reasonably can be expected to have a significant impact on coastal waters of the State, or (b) reasonably foreseeable threats to coastal waters from nearby activities landward of the State's 6217 management area, NOAA and EPA will go through a three-step process and examine:

   (1) whether there is an existing coastal water problem, such as exceedances of state water quality standards, fishing advisories, shellfish bed closures, etc. NOAA and EPA will base this analysis on available information, including 305(b) and 319 reports and 303(d) lists. NOAA and EPA will also examine reasonably foreseeable threats to living coastal resources and evaluate whether threats are due to nonpoint sources landward of the Commonwealth's 6217 management area.

   (2) whether there are existing or reasonably foreseeable land or water uses excluded from the Commonwealth's 6217 management area that present or are reasonably expected to present impacts or threats to coastal waters identified above.

   (3) where necessary to resolve remaining questions, NOAA and EPA will work with Virginia to apply a variety of tools, including fate and transport models, local studies and other modelling analyses, to evaluate the delivery of nonpoint source pollutants to coastal waters.

RESPONSE:

The Commonwealth of Virginia plans to implement a coastal nonpoint pollution control program within Virginia's existing coastal zone management area. Consistent with the intent of section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990, this program will build on and strengthen existing coastal resource management and nonpoint pollution control efforts within Virginia's designated coastal zone.

The National Oceanic and Atmospheric Administration's (NOAA) basic coastal watershed boundary recommendation and the recommended "look beyond area" would require Virginia to create a separate section 6217 management area which would extend well into the piedmont and ridge and valley physiographic provinces. Implementing a program in the recommended area would not build on existing accomplishments; rather, it would require new legislation and regulations. Moreover, there is considerable public opposition to any proposal to implement a coastal nonpoint pollution control program outside of the existing coastal zone.

Virginia has a long history of coastal resource management within Tidewater. The people of Virginia who live and work in Tidewater tend to have strong cultural ties to the Chesapeake Bay and Virginia's other coastal resources, and they have supported the enactment of legislation to protect these resources.

Virginia's coastal zone is coterminous with Tidewater Virginia which is defined in the Tidal Wetlands Act as counties and independent cities which touch upon any portion of a tidal water body. In fact, the term Tidewater is legal basis upon which the Virginia Coastal Resource Management program defines the coastal zone. This geographic area closely corresponds to the NOAA's basic coastal watershed boundary recommendation and it provides a logical basis for defining the coastal nonpoint pollution control program boundary.

There are a number of technical considerations regarding the hydrologic units used to determine NOAA's boundary recommendation that support Virginia's position that coastal nonpoint pollution control program should be implemented within the Virginia's designated coastal zone.

- *The United States Geologic Survey (USGS) cataloging unit HUC02080205 on the James River does not include the head of tide. This unit is intended to demarcate the change in the character of the river from free flowing to tidal. A hydrologic unit system analysis recently completed in Virginia specifically locates the nontidal portion of the James River at the break between HUC02080205 and HUC02080206. This analysis was done at a 1:24,000 scale. The head of tide is contained in cataloging unit HUC02080206. Therefore the HUC02080205 cataloging unit should not be included in the coastal watershed boundary recommendation.*

- *The majority of HUC02080207 is intercepted by Lake Chesdin on the Appomattox River and the major remaining portion of this unit is located within Virginia's designated coastal zone. Therefore, we believe that the coastal zone boundary covers a sufficient portion of this cataloging unit to meet program objectives.*

- *Virginia does not believe that the upper portions of the York River basin (HUC02080106) should be included in the coastal nonpoint pollution control program boundary because the North Anna River is impounded at Lake Anna. This lake isolates the upstream portions of the drainage area from coastal waters. As well, the Virginia Nonpoint Source Pollution Watershed Assessment report indicates that there are no high priority watersheds in this portion of the York River basin.*

Prior to the administrative changes made to the program, Virginia was faced with the the burden of proof in refuting the boundary recommendation, which did in fact include the so called "look beyond" area. With these changes, NOAA and the Environmental Protection Agency (EPA) have agreed to generally defer to Virginia in making the program boundary determination. With regard to the so called "look beyond" area of the NOAA boundary recommendation which includes the upper Potomac Rappahannock River basins, Virginia has determined that this geographic area will <u>not</u> be considered part of the Section 6217 management area. Moreover, NOAA may have over steped their statutory authority in recommending that the Shenandoah River basin be included in the "look beyond" area because it drains into West Virginia. Consistent with the statute limitations that exclude the State of West Virginia and the Susquehanna River basin in the State of Pennsylvania, this area should not be included in NOAA's recommendation.

We recognize that there are sources of nonpoint pollution located outside of Virginia's coastal zone and that these sources of pollution can have a significant impact on the health of Virginia's coastal resources. However, creating a coastal nonpoint pollution control program boundary which is separate from the state coastal zone boundary and which extends into the mountains of Virginia is not a tenable way to address these sources of pollution. Rather, Virginia will continue with development and implementation of a tributary strategy approach to address these sources of pollution. The tributary strategy program has similar objectives as the coastal nonpoint pollution control program but it will be implemented through a mix of regulatory controls and voluntary efforts and will address both point and nonpoint sources of pollution. In addition this program is already under development and has broad based public support.

As noted by NOAA and EPA, Virginia's designated coastal zone closely approximates the coastal watershed boundary recommendation except where the coastal boundary follows political jurisdictions rather than hydrologic delineations. We believe that these differences are not significant and can be supported by the political, programmatic, and technical considerations discussed above. Moreover, we believe that Virginia can achieve the water quality objectives of section 6217 through program implementation within the existing coastal zone.

AGRICULTURE

Virginia Position

In the threshold review document, Virginia proposes that the Commonwealth fully meets the management measures for agricultural sources within the existing coastal zone except for irrigation water management, which is partially met. In NOAA's recommended 6217 management area, including those watersheds recommended for analysis as part of program development, Virginia proposes that the Commonwealth partially meets all management measures, except for B1 and B2, which are fully met.

Programs focused on in the document include the Chesapeake Bay Preservation Area Designation and Management Regulations, the Agricultural BMP Cost-Share Program, and the Virginia Pollution Abatement Permit Program. Other relevant programs are also described.

NOAA and EPA Position

Virginia has a well-developed agricultural water quality program within the existing coastal zone. The Chesapeake Bay Preservation Act (CBPA) requires soil and water quality conservation plans (SWQC plans) for a large number of farms in Tidewater Virginia. It appears to NOAA and EPA that SWQC plans generally address the erosion, nutrient, and grazing management measures as well as parts of other management measures (see specific comments below). While the SWQC plans appear to provide a good vehicle for implementing the agricultural management measures and plan components are technically sound, there may be a need for broader implementation within the management area.

As discussed at the threshold review meeting, the following comments focus on Virginia's programs within Tidewater Virginia (which approximates the existing coastal zone). Where the 6217 management area is mentioned in these comments, NOAA and EPA are generally referring to the Commonwealth's definition of Tidewater Virginia. NOAA and EPA note that for portions of the Eastern Shore and southeast Virginia, the Chesapeake Bay Preservation Act does not apply.

General Comments and Questions

1. In general, the threshold review submittal provides a good overview of the Virginia programs which address agriculture within the coastal zone. For certain management measures, the document proposes that State programs meet the program requirements without providing a specific discussion of how this is accomplished. For these instances, which are more fully described below, the State should provide some additional clarification in the program submission on

how Virginia's programs address individual measures.

Response: *Comment Acknowledged.*

2. The Virginia Land Use Assessment Law appears to provide a means to achieve greater implementation of the agricultural management measures. Are there currently a large number of farms within the 6217 management area participating in this program?

   Response: *The Virginia Department of Agriculture and Consumer Services (VDACS) sets standards for use value assessment and maintains acreage figures for a subset of land enrolled in use value assessment. The annual calculations of the actual use values are performed by Virginia Polytechnic Institute and State University (VPI&SU). The number of farms enrolled in local use value assessment programs has been requested from VPI&SU and, once received, will be provided.*

3. NOAA and EPA have received a copy of a report entitled *A Preliminary Analysis of Expected Farm Level Impacts of the Coastal Zone Reauthorization Amendments of 1990* prepared for the Virginia Department of Agriculture and Consumer Services (VDACS). While this study was not included in the threshold review document, it was discussed briefly at the threshold review meeting and appears to provide a good tool for evaluating economic impacts of the coastal nonpoint program. NOAA and EPA have provided some comments on this study in Appendix B of this document.

   Response: *Comment Acknowledged.*

4. NOAA and EPA understand a study is underway in Virginia to identify where agricultural best management practices (BMPs) have been voluntarily implemented on farms without cost-share assistance and not as part of governmental program. NOAA and EPA would appreciate more information when its available.

   Response: *The Department of Conservation and Recreation (DCR) is planning to complete additional analysis of the survey results. Upon completion DCR will provide NOAA and EPA staff with a copy of the results of the study.*

5. VR-173-02-01 §4.2.9 states that "land upon which agricultural activities are being conducted [in the Chesapeake Bay Preservation Area] shall have a soil and water conservation plan." If DCR finds by July 1, 1991 "that the implementation of the existing agricultural conservation programs is inadequate to protect water quality...the Board...may require implementation" of BMPs. What was the result of this 1991 study?

   Response: *DCR concluded in 1991 that no additional Chesapeake Bay Local Assistance Board (CBLAB) regulations concerning agriculture were justified for the implementation of the Chesapeake Bay Preservation Act (CBPA). A copy of the report is will be included in the final program submittal.*

Specific Management Measure Analysis

Erosion and Sediment Control Management Measure

1. The requirement for implementation of a soil and water quality conservation plan when the buffer area has been reduced to 25 feet appears to be in conformity with the erosion and sediment control management measure, since the soil and water quality conservation plans include the erosion component of a Conservation Management System (CMS). What remains difficult to evaluate is the extent to which farms within the 6217 management area are actually implementing either soil and water quality conservation plans or some other type of plan only if a landowner wishes to reduce the buffer to 25 feet, it is unclear whether this approach will ensure widespread implementation. Of those farmers who do not reduce the buffer to 25 feet, what percentage participate in cost-share programs which require a conservation plan?

   Response: *The Virginia Agricultural BMP Cost-Share Program requires that all requests for cost-share assistance result from the development and need to implement a conservation plan which addresses erosion control as a minimum. The U. S Department of Agriculture (USDA) Consolidated Farm Services Agency's Agricultural Conservation Program requires the same. The exact percentage of farmer participation in cost-share programs is not known.*

2. The requirement for a 100-ft buffer along any tributary stream may meet the second part of the erosion management measure. Sample maps showing where buffers apply in the 6217 management area would be helpful in evaluating how this requirement may meet the management measure. Also, any information that may have been compiled on the effectiveness of the buffers in reducing pollutant loadings would be helpful.

Response: *Maps showing how localities have typically designated Chesapeake Bay Preservation Areas are attached. While CBLAD has not independently done any assessments of the effectiveness of buffers (riparian areas) in reducing sedimentation, the 100 foot buffer meets or exceeds the filter strip design criteria specified in the Field Office Technical Guide. Buffer reductions are allowable with implementation of erosion control measures in the field: the twenty five and fifty foot buffers meet or exceed the field border design criteria specified in the Field Office Technical Guide (FOTG). As a practical matter the majority of farms have sought buffer area reductions and have implemented farm plans which meet the erosion and sediment control management measure.*

3. Regarding the Agricultural BMP Cost-Share Program, are spot check reports (form DSWC-112) the basis for the suspension of funding or the requirement that funding be returned due to a practice failure? How has the State addressed instances where spot checks identify failure to properly install or maintain a practice?

Response: *The spot check process monitors participants' BMP maintenance. If a practice is found in noncompliance, soil and water conservation districts (SWCD) will work with the participant to correct any deficiencies. If the deficiencies are not corrected within appropriate time frames, SWCDs will request a refund of the cost-share payment from the participant.*

4. The Virginia Income Tax Credit (§58.1 I-432, §58.1 I-337, and §58.1-436) provides a tax incentive for the purchase of no till equipment and advanced technology pesticide and fertilizer application equipment. How widespread is participation in the tax credit program? Are the levels of participation increasing?

Response: *Adoption of the no-till equipment tax credit has been extensive and contributed to the rapid adoption of no-till practices for conservation and economic reasons. Use of the credit for this purpose appears to be levelling off.*

Amendments by the 1990 General Assembly added certain types of nutrient and pesticide application equipment. The credit for nutrient and pesticide application equipment requires the operator to develop a nutrient management plan approved by the local Soil and Water Conservation District. DCR estimates that approximately 400 of the approximately 1,300 completed farm nutrient management plans

developed by DCR personnel were requested due to the tax credit. Participation in this part of the tax credit program is still increasing. DCR recently developed brochures which promote the tax credit and nutrient management to farmers. In addition to traditional approaches to distribution, the brochures are being distributed through retail farm equipment dealers.

Confined Animal Facility Management Measure (Large Units and Small Units)

1. The Virginia Pollution Abatement Permit Program and the General Permit seem to address the B1 measure for facilities greater than 300 animal units. However, coverage may be lacking for smaller facilities. The Virginia Pollution Abatement Permit Program requires storage for up to 25-year, 24-hour storm. Based on discussions at the threshold review, the practical application of the law results in facilities being designed to store the 25-year, 24-hour storm.

   Response: *State regulations allow the Department of Environmental Quality (DEQ) to impose the waste management requirements on any animal feeding operation that is causing a water quality impact, regardless of the number of animal units present. Moreover, Virginia's categories for animal feeding operations are identical to those in EPA's regulations at 40 CFR 122 Appendix B. From a practical standpoint, Virginia encourages voluntary compliance with the management measure through brochures recently developed by DCR which promote animal waste management and nutrient management to farmers regardless of operation size, and the commonwealth has the enforceable authority to address activities which are causing an adverse water quality impact. Additional copies of these brochures are enclosed.*

2. Recent changes to the Virginia Pollution Abatement Permit Program have been in place for the past year. Does Virginia have information on the number of confined animal facilities that have been permitted or have permit applications pending? What is the relative percentage of confined animal facilities in the 6217 management area affected by Virginia Code §62.1-44.17:1 (General Permit) as compared to the number of facilities subject to the applicability statements in the (g) guidance?

   Response: *According to DEQ's database, DEQ has issued VPA permits to 56 confined animal feeding operations. There are an unknown number of confined animal feeding operations under the old No-discharge Certificate program. DEQ expects that most of them will not be carried*

forward into the VPA program as the NDCs are phased out over the next three years since the sites have too few animals to qualify for the VPA program and do not pose a threat to water quality. In addition to the 56 VPA permits, DEQ has issued coverage to 14 owners under the new General Permit for Confined Animal Feeding Operations. The general permit is only applicable to operations with 300 or more animal units, so it will not cover all the facilities that are included in the EPA/NOAA guidance.

Virginia does not have information on the number of operations within the 6217 management area which are subject to the applicability statements in the (g) guidance, so cannot provide an estimate of the relative numbers. Given the lower number of animal operations, in general, within the 6217 management area it is expected that the number is low.

3. As discussed at the threshold review, poultry operations are permitted only if they use a wet manure system or if storage conditions are questionable. How is manure on non-permitted poultry farms treated in terms of runoff control and nutrient management?

Response: *Virginia has been aggressive in pursuing nutrient management plan development and implementation on non-permitted poultry operations. Several counties in the major poultry producing areas have ordinances which address storage and appropriate land application of manure. An estimated 20 additional counties are now considering similar zoning ordinances. Many of the ordinances require an approved nutrient management plan and storage site for new and existing poultry operations.*

4. Listed below is a comparison of the cutoffs (# head) of the Virginia permit program and the (g) management measures:

	CAFO (VPDES)	IAFO (Gen. Permit)	B1	B2
beef feedlots	1,000	300	300	50
horses	500	150	200	100
dairies	700	200	70	20
layers/broilers	100,000	30,000	15,000	5,000
turkeys	55,000	16,500	13,750	5,000
swine	2,500	750	200	100

Does Virginia have information on the number of operations in the 6217 management area that fall into the Confined Animal Feeding Operation (CAFO), Intensified Animal Feeding Operation (IAFO), B1 and B2 categories? This information may be useful in tracking implementation of the management measures.

Response: *DEQ has permitted 7 CAFOs and 49 IAFOs under the VPA individual permit. 14 facilities have been issued a VPA general permit. The number of general permits issued in the 6217 management area is unknown; however, the number is expected to be low due to the limited number of confined animal feeding operations located in the proposed 6217 management area.*

5. According to the threshold review discussion with Virginia, operations below the number of listed for IAFO (but still required to store runoff under B1 measure) could be issued an individual permit. An individual permit can be issued if the site is a "potential or actual contributor of pollution" (an on-site visit is required). Depending on the number of operations that might be affected, this could provide a vehicle for ensuring implementation of the management measures for operations that fall below the State cutoffs for number of animals.

Response: *Comment Acknowledged*

Nutrient Management Measure

1. SWQC plans include a nutrient management component. Does CBLAD require implementation of a nutrient management plan? Do any local governments in Tidewater Virginia have requirements for plan implementation?

Response: *A complete nutrient management plan is included as a component of a SWQC plan. Full implementation of a SWQC plan is required in order for a farmer to reduce the buffer to 25 feet total width. For a 50 foot reduction, acceptable nutrient management and soil erosion control best management practices are required to be implemented.*

Several counties have chosen to require plan implementation. One county requires plan implementation prior to granting local sludge application permits.

2. Does Virginia have information on the number of farms that are likely to develop nutrient management plan within the 6217 management area?

   Response: *DCR estimates 3,000 farm nutrient management plans will be developed in the next 5 to 7 years in the 6217 management area due to tax credit, VPA permits, cost-share, and sludge regulations. Another 3,000 nutrient management plans will be developed for agricultural tracts through the CBPA in the same period.*

3. For the General Permit program, DEQ can require a nutrient management plan for operations less than or equal to 1,000 AU having liquid waste. How often has this been done? Under the circumstances has this been done? Is there written guidance on this?

   Response: *Under the VPA general permit, all operations down to 300 animal units in size must submit an approved nutrient management plan. There are no exceptions. This requirement is established under Sections 62.1 - 44.17:1 of the Code of Virginia (attached).*

Pesticide Management Measure

1. In the program submission, please provide a copy of the guidance used to develop Pest Management Plans. It would also be helpful to include an example plan for a typical crop grown in the 6217 management area.

   Response: *A copy of the guidance and an example of a pest management plan will be included in the program submittal.*

2. The threshold review document (p. 2-24) states "Chesapeake Bay Local Assistance Board policy requires a pest management plan." It appears that this requirement has been implemented by including a pest management component as part of the soil and water quality conservation plan. Are pest management plans developed for other agricultural operations when a SWQC plan is not required? How does Virginia ensure that pest management plans are implemented?

   Response: *Pest management plans are developed for state-owned agricultural operations as part of required comprehensive conservation plans. NRCS is utilizing pest management planning as part of voluntary total resource conservation planning.*

Curently there are no formal inspections being done for the implementation of pest management plans by farmers. The pest management plan is an educational tool that guides the farmer toward economic and ecological choices when making a pest control decision. By law, the farmer must follow the label on the pesticide container and with restricted use pesticides, the applicator must be licensed. The Virginia Department of Agriculture also performs random inspections to make sure that the application procedures for applying restricted use pesticides are followed and that label instructions are followed.

3. VR 115-04-03 §17 requires that "all pesticide application equipment shall be properly equipped to dispense the proper amount of material." Part B of §17 requires anti-backflow devices for hoses. These provisions appear to address parts 5 and 6 of the management measure.

   Response: *No response required.*

4. Certification exempts pesticides applied for private use (§3.1-249.52, VA Pesticide Control Act). How does the State reach farmers who apply pesticides themselves and do not participate in Extension Service programs?

   Response: *Famers who use restricted use pesticides are required by the Virginia Pesticide Control Act to have a private pesticide applicators license; Sect. 3.1-249.54(A). In order to be licensed, farmers are required to participate in Cooperative Extension training sessions on pesticide use. Private applicators are also required to participate in recertification training sessions every two years to keep their license up to date. This training is intensive and includes the many aspects of pesticide use and safe-guarding the environment.*

   Farmers who are not licensed must rely on their local chemical dealer to apply restricted use pesticides, if needed.

   Extension attempts to reach all farmers with educational efforts through newsletters, newspaper articles, field days, winter workshops and through one on one contact.

Grazing Management Measure

1. As described in the threshold review document, within the Resource Protection Area the buffer area can be grazed so long as the buffer is managed to retard runoff, prevent erosion and filter nonpoint source pollution from runoff. How does this requirement work in practice? Does the management of the buffer area include any of the items in component (1) of the management measure? In the program submission, it would be helpful to relate how the management of the buffer may accomplish the specific components of the (g) management measure.

   Response: *Maintaining the quality and performance of the buffer while allowing cattle to graze can be accomplished with proper management or very low animal densities. Specifications for maintenance of pasture (seeding rates, clipping, animal densities, etc) and for vegetative borders and filter strips are provided in the USDA NRCS Field Office Technical Guide(FOTG).*

   Practices such as intensive rotational management, streambank fencing, hardened watering access or alternative drinking water locations, and density limitations can be employed to allow grazing without compromising the buffer's performance. The practices are chosen to meet the needs of the specific operation and the characteristics of the sensitive area.

   The use of management practices such as grazing land protection, loafing lot management, no-till pasture and hayland and streambank fencing significantly reduce the physical disturbance and reduce direct loading of animal waste and sediment caused by livestock. For this reason, these types of management practices are financially supported through the state's Agricultural Best Management Practices Cost-Share Program to ensure that the buffer area is properly maintained and remains effective. In addition, the USDA-Consolidated Farm Services Agency also provides financial assistance for many of these practices.

   The CBPA requires localities to include agricultural provisions in their ordinances and has thereby delegated enforcement of these provisions to the localities.

   Virginia provides financial assistance to landowners for BMPs that protect the riparian zone directly. In addition, proper management of adjacent lands to prevent erosion, channelization, etc. is also addressed and financially supported. Both the CBPA and the grazing management measure focus on the riparian zone, with

acknowledgement that the control of erosion from grazing lands above the riparian zone is also important.

Depending on the natural characteristics of the site, and the nature of the operation, one or more of the management measures may be addressed in a SWQCP to protect the buffer and sensitive resource. The CBPA refers to the USDA-NRCS FOTG to reduce erosion on grazing land.

2. The buffer area requirements under §4.3.B of the CBPA Regulations include "a 100-foot buffer area of vegetation that is effective in retarding runoff, preventing erosion, and filtering nonpoint source pollution...buffer area shall be deemed to achieve a 75% reduction of sediments and a 40% reduction of nutrients." How is the function of the buffer maintained?

   Response: *Specifications for maintenance of vegetative buffers and filter strips are provided through the NRCS's Field Office Technical Guide. In addition to maintaining the buffer itself, the FOTG also provides standards and specifications for managing lands directly adjacent to the buffer to prevent the buffer from being impaired. Although forested riparian buffers are left in their natural state, actions can be taken to prevent channelized flow from entering the buffer.*

3. The threshold review document includes a description of the practices that have been used to meet the management measure as part of the Agricultural BMP Cost-Share Program. According to the document, participants who implement the Stream Protection and Woodland Buffer Filter Area BMPs are required to exclude livestock from sensitive areas as a practice component. Other BMPs listed, such as Grazing Land Protection and Loafing Lot Management, provide alternative water sources. These BMPs appear to be in conformity with the set of options listed under component (1) for this management measure.

   Response: *Under the Agriculture BMP Cost-Share Program, livestock exclusion from live streams and other sensitive features is required as a practice component of the Grazing Land Protection (SL-6) and Loafing Lot Management Systems (WP-4B) practices.*

Irrigation Water Management

1. The Surface Water Management Area regulation, VR-680-15-03 does not seem to regulate against unnecessary withdrawals, i.e. withdrawals where soil conditions indicate irrigation is not necessary. Can the measurement of soil-water depletion volume be incorporated into the permit and certificate program? If not, at least the regulation provides a means of tracking where there are surface water withdrawals and where there may be a need to address irrigation.

   Response: *Water conservation will be a major part of every Surface Water Withdrawal Certificate DEQ issues. DEQ considered the option of including soil moisture management in the permits issued under the Surface Water Management Area regulation; however, after consultation with Cooperative Extension, DEQ decided not to require it. Extension experts felt that farmers would not over irrigate, because of the expense involved in operating the irrigation equipment. In addition, Extension will be offering public information seminars on water conservation for farmers in the Surface Water Management Areas. These seminars will address the issue of irrigation only when soil moisture indicates the need for it. Irrigation of Virginia crops is limited and primarily only for supplemental water during the summer.*

2. The exemptions under §2.1.C of the Surface Water Management Area regulation require a "Surface Water Withdrawal Certificate containing details of a board approved water conservation or management plan." Part V of the regulation describes the Certificate, which could be used to implement part (1) of the irrigation management measure.

   Response: *DEQ intends to make the Surface Water Withdrawal Certificate the mechanism by which DEQ contributes to the implementation of part (1) of the irrigation management measure. Permits would require reporting of the volume of irrigation water applied and could include a condition requiring uniform application of water; however, at this time it is not believed to be necessary to require soil-water depletion volume measurements to ensure that soils are not over irrigated. Again, irrigation of Virginia crops is limited and primarily for supplemental water during the summer.*

3. It appears that Virginia addresses the second part of the management measure by requiring backflow preventers when chemigation is used as in accordance with the Virginia Pesticide Control Act.

Response: *Comment Acknowledged*

4. Has Virginia considered adding irrigation management as a component to the SWQC plans where irrigation water is applied to agricultural land in Chesapeake Bay Preservation Areas.

   Response: *Irrigation management is not being considered as a component of SWQC plans at this time since irrigation is not widespread within the region.*

FORESTRY

Virginia Position

Virginia proposes that the State meets all the management measures for the forestry category. The Virginia Department of Forestry has the lead for implementation of the State's forestry nonpoint source program. The Department of Forestry has an effective program that controls nonpoint source pollution associated with forestry activities through a combination of voluntary and financial incentive programs coupled with the Virginia Silvicultural Water Quality Law (SWQL). These incentive programs consist of an aggressive educational and training program, an inspection program that checks for BMP compliance, a state-wide water quality monitoring program, and a cooperative agreement between consultant foresters and the Department of Forestry.

NOAA and EPA Position

Based on the information provided, it appears to NOAA and EPA that Virginia's Silvicultural Water Quality Law and Forestry BMP Manual provide a sound basis for addressing the forestry management measures. Because the Silvicultural Water Quality Law is relatively new, NOAA and EPA would like Virginia to provide some additional detail on experience in implementing the law. As described below, this additional information will be helpful in understanding the Silvicultural Water Quality Law is used to ensure implementation of the (g) management measures. Virginia's well-documented use of education and the State's strong voluntary program to implement management measures on forest land are to be commended.

Opening Statement

Virginia's forestry program continues to be based on a voluntary effort backed by an enforceable mechanism targeting water quality. The forestry community believes this balanced approach serves both the environment and the economy best. It is also our belief that the harvesting community is evolving and more readily accepting that water quality issues are important in their daily operations.

One example of this evolution is recently promulgated Sustainable Forestry Principles. These principles grew out of Forest Industry's willingness to be proactive and work out solutions to their set of nonpoint source problems. The American Forest and Paper Association (AF&PA) initiated this effort with nearly every major pulp and paper company joining the ranks. I attach a copy for your review.

Furthermore, Virginia's forestry community appreciates the time and energy spent by EPA and NOAA to understand forestry and its relationship to the Coastal Zone Management Act. Our hope is to continue to foster this understanding and build trust to accomplish our mutual goal of sustaining environmental quality. We also appreciate your compliments with regard to our present program.

General Comments and Questions

1. At the threshold review meeting, the Department of Forestry described several case histories where the Silvicultural Water Quality Law has been used to correct improper application of the State's forestry BMPs. This discussion was extremely helpful in understanding how the law works in practice. Because these applications of the law occurred subsequent to the development of the threshold review materials, they were not described in the document. NOAA and EPA would appreciate the inclusion of some examples in the program submission, especially where they demonstrate how the Silvicultural Water Quality Law has been used to ensure implementation in cases where failure to implement BMPs would be "likely to cause pollution".

   Response: *Silvicultural Water Quality Law (SWQL) Case Histories: The Virginia Department of Forestry (DOF) offers two examples of how the SWQL has worked to prevent sedimentation from entering the waterways of Virginia.*

   a. *A logging contractor in southeastern Virginia was using a previously established rock ford stream crossing. This stream crossing was a sediment source. Upon a routine DOF inspection, we asked the contractor to stop using this stream crossing and recommended corrective action. Stabilization*

measures were instituted to divert water from the stream approaches, re-shape the approaches, re-establish ditches and turn-outs, and apply stone. A permanent crossing structure was placed in the stream. Approximate cost to conduct this remedial work was $19,000.

b. *Our Best Management Practices (BMP) manual lists proper culvert sizes to be used based on watershed area above the stream crossing. All new stream crossing installations utilizing a culvert must be sized properly. Recently a logging contractor installed a smaller culvert pipe than recommended in the BMP manual. Upon routine inspection, the field forester asked the logging contractor to remove the pipe and install the correct size. The contractor agreed and installed the correct pipe size. In subsequent harvesting operations, this logger has contacted the DOF to ensure he is using the correct culvert size.*

2. In the program submission, Virginia needs to further describe the applicability of the State's programs as compared to the applicability statements for the (g) management measures. The Department of Forestry inspects operations larger than 5 acres. It is important to note that, while the preharvest planning, timber harvesting, site preparation and forest regeneration, and fire management measures do not apply to commercial harvesting on areas of 5 acres or less in size, the other management measures generally apply where "silvicultural or forestry operations are planned or conducted" (see applicability statement for each management measure).

Response: *The 5 acre cut-off with regard to a formal inspection is a procedural effort by the DOF to be more time-efficient. The program applicability does not stop below this mark. In fact, most tracts below this minimum are known to the DOF but are not formally inspected. Also, the DOF possesses a Water Quality Complaint System which has no acreage delineation. For example, if a complaint comes in from a logging job under 5 acres, the DOF would inspect it using Form 3-25, Water Quality Complaint Investigation Form. The SWQL could then be utilized if necessary.*

Specific Management Measure Analysis

Preharvest Planning

1. Preharvest planning is not required in Virginia, however, as stated in the threshold review submittal, the "combination of voluntary and incentive programs and the Silvicultural Water Quality Law may equal or exceed the effectiveness of the preharvest planning management measure" (p. 3-12). Does Virginia have an estimate of the percentage of harvesting operations in the last two years which have utilized preharvest planning?

   Response: *Our inspection program reported that 37% of harvesting operations had a pre-harvest plan in 1994. This is a rise from a reported 35% in 1993. Although these reported figures are lower than desired, one must look at several factors which would cause these figures to be low. First, we know that some planning has to take place prior to locating on a tract of land. Any good business person realizes the need for planning. The question is "What is your methodology for planning?" We believe that a much higher percentage of planning takes place than is reported on this inspection form. All loggers will walk over tracts prior to purchasing the timber. Are they not planning when they perform this walkover? We believe they are. At the same time, however, we would like more formal recognition given to important natural features such as streams. The DOF has encouraged pre-harvest planning through on-the-ground educational efforts and distributed pre-harvest planning forms for use.*

   Second, we have discussed with field staff the need to ask the right questions when performing a BMP inspection. Sometimes the answer to a listed question is assumed and not asked. Also, field personnel will interpret pre-harvest planning a certain way not intended in the actual procedure.

   With these thoughts in mind, the DOF is continuing to pursue this issue on private land with vigor and believe the percentage will rise significantly. All forest industry lands have pre-harvest plans written on them prior to harvesting.

2. How does Virginia ensure the preharvest planning is conducted on tracts prior to the commencement of silvicultural operations? Please describe the notification procedure and compliance audits in more detail.

Response: *The DOF, in association with forest industry, completes 2 random BMP/Water Quality Audits each year. Our 4th audit will take place in June, 1995. Thirty tracts of land are randomly pulled from our inspection file. Five tracts from each of the 6 DOF regions.*

These tracts are visited by a two-person inspection team and evaluated for BMP and water quality compliance. Eighty-three percent of inspected tracts had an adequate level of BMP implementation.

3. The requirements of the preharvest plan are somewhat general and do not appear to address all the components of the management measure. For example, the guidelines for preharvest planning do not appear to address management measure component (a)(5), "to consider additional contributions from harvesting or roads to any known existing water quality impairments or problems in watersheds of concern."

Response: *Loggers do not have this type of information available to them directly. The DOF, in cooperation with the Division of Soil and Water, has prioritized all the watersheds in Virginia with regard to their erosion potential. This information has been utilized to target Logger BMP training programs. As the use of GIS and satellite technology become more available, this type of information will become more accessible to the logging community.*

Also, pre-harvest and Stewardship planning by the DOF will always include the use of soil surveys and other pertinent technical information. The soil survey is the field forester's best tool to evaluate potential erosion.

4. Section 10.11-1162 et seq. of the Code of Virginia (also known as the Seed Tree Law) applies to timber cutting for commercial purposes on one acre or more of land on which loblolly, shortleaf, pond or white pine, singly or together, occur and constitute ten percent of more of the live trees on each acre. There is an exemption from the Seed Tree Law in cases where a preharvest plan is prepared and approved by a State Forester. How broad is the application of this law in the 6217 management area as far as those operations subject to the applicability statements in the (g) management measures?

Response: *Approximately 75% of the tracts harvested in the 6217 area come under the influence of the Seed Tree Law. This notification procedure*

automatically pulls in a DOF forester to assess the site. The DOF has used this law as a means of not only ensuring re-planting of trees harvested but also to capture this pre-harvest planning issue. Although the Seed Tree Law states that a pre-harvest plan can be used to grant an exemption from the law, it is rarely used. In reality, both methods will capture the pre-harvest planning aspects because the law paperwork itself has space for tract silvicultural recommendations plus a location map.

5. Under the Virginia Land Use Assessment Law, forest landowners are entitled to a reduced tax assessment where a forest management plan (including a preharvest plan) has been prepared. Does Virginia have information on the number of tracts of timer within the 6217 management area that are assessed under forestry land use and have developed forest management plans? The threshold review document indicates that 65 of 95 counties in the State have adopted this program. How many of these are in the 6217 management area?

   Response: *The actual number of tracts assessed under land use has not been determined. However, 19 (63%) localities in the coastal zone are covered under land use. To qualify for land use, a landowner must submit a management plan written and signed off by a forester. This is a powerful method to ensure that the land is adequately managed and protected during silvicultural operations. If silvicultural operations are performed that do not meet the BMP manual guidelines or SWQL criteria, a recommendation can be made to an individual county by the DOF to have the land removed from the land use taxation rate and returned to a residential rate. The threat of losing the land use tax rate has been used to leverage compliance with BMP guidelines.*

6. Do the cost-share programs in the Department of Forestry have provisions for suspension of funding/repayment of funds if the BMPs are not implemented?

   Response: *Both the Federal Forestry Incentives Program (FIP) and the State Reforestation of Timberlands (RT) program have provisions for non payment if any SWQL violations or potential SWQL violation is pending. This has been used several times as an extra incentive to complete work.*

Preharvest Planning Summary

Although pre-harvest planning is not required in Virginia, numerous mechanisms exist which establish or have already established pre-harvest plans for harvested tracts. Our BMP manual, SWQL, Seed Tree Law, and Land-Use Tax rates all contribute to an outcome-based program which has proven successful in the prevention of forestry nonpoint pollution. Additionally, cost-share programs require water quality compliance in order to allocate monies to landowners for reforestation work.

The forestry community must also comply with the Chesapeake Bay Act which requires BMP's including pre-harvest planning, in the Resource Protection Areas.

Streamside Management Areas (SMAs)

1. A component of the management measure which may warrant some additional discussion is the component to manage SMA canopy species to provide a sustainable source of large woody debris for channel structure and aquatic species habitat. This is not mentioned in the Virginia's guidelines for Streamside Management Zones (SMZs).

   Response: *The Virginia BMP manual under Guidelines for Streamside Management Zones (SMZ) states "a minimum of 50% of the crown cover or 50 square feet of basal area per acre is to be evenly retained in the SMZ". Consequently, no specific activity in the SMZ works against the management for large woody debris. Natural mechanisms such as stream meander and beaver activity have a profound effect on the amount of large woody debris.*

   Current Riparian Zone Information and Educational activities have highlighted the need for large woody debris to foster aquatic habitat. As the Chesapeake Bay Riparian Buffer Program takes shape and begins to influence management activities, this concept will receive additional attention. This concept has been addressed and will continue to be addressed in individual forest management and Stewardship Plans.

2. Protection against detrimental changes in temperature seems to be addressed by the specification for a "minimum of 50% of the crown cover or 50 square foot of basal area per acres...evenly retained in the SMZ."

Response: *Scientific evidence has stated that SMZ 50 foot width with 50% crown cover or 50 square feet basal area adequately maintains and/or moderates stream temperature.*

Road Construction/Reconstruction

1. The threshold review document did not specify how the Submerged Lands and Tidal Wetlands Permit Program and the local Wetlands Board Permit Program relates to the road construction/reconstruction management measure. What is the applicability of this law? Does this authority extend to the construction of roads within a certain number of feet from a water body? Are all water bodies covered or is there limited applicability?

   Response: *With regard to the Submerged Lands Program, all road construction crossing streams requires a permit if the stream flow exceeds 5 cubic feet per second (cfs). The DOF and the Marine Resources Commission (VMRC), who has legislative authority over submerged lands, have an excellent working relationship including the collaborative effort in stream permitting. There is no distance delineation in the permit program, however, significant potential sediment sources near a stream have been identified and corrective action required in some permits. Regarding Tidal Wetlands, all activities in these areas require a permit from VMRC.*

2. What are the regional storm return periods for which road drainage systems are designed?

   Response: *All our BMP's are designed for a 10 year regional storm period.*

3. The BMP manual does not include any practices that call for the stabilization of soil during road construction such as silt fences, mulching or straw bales. Does the manual require the use of proper road surfacing material to prevent excess erosion, particularity during wet weather conditions?

   Response: *The Virginia BMP manual under Guidelines for Truck Haul Roads, numbers 3, 5, 8, 11, 12, and 14 all discuss the use of measures to ensure sedimentation to waterways does not occur. Only by proper construction can sedimentation be prevented. The practices that are cited in the comments are all mitigative not preventative. If any road construction/reconstruction practice has the potential to cause*

sedimentation or is causing sedimentation, then the SWQL will allow the DOF to recommend corrective action. This corrective action may include some of the practices described in the comments. Most typical Virginia harvesting operations, especially in the Coastal Zone, do not require cuts or fills.

Road Management

The following components of this measure do not appear to be specifically addressed by the forestry BMP manual: (2) evaluate the future need for a road and close roads that will not be needed, (3) remove drainage crossings and culverts if there is reasonable risk of plugging or failure from lack of maintenance, and (4) remove temporary stream crossings. What does the road/stream crossing maintenance procedure entail?

Response: *The Virginia BMP manual under Guidelines for Truck Haul Roads has a section devoted to road maintenance and management. Seven items are listed including wet weather activities and close-out inspections. Furthermore, some of the answers to EPA/NOAA comments are listed elsewhere in the BMP manual such as culvert maintenance and periodic cleaning. Typically, logging contracts require the road to be returned to its original condition when harvesting is completed. The landowner usually assumes full responsibility following harvest. If a problem should occur, potential or otherwise, the SWQL can and will be used on either the logger or landowner to ensure water quality protection.*

Timbering Harvesting

1. The description of applicable State programs are somewhat generalized in comparison to the specific elements of the management measure. It is therefore difficult to evaluate whether the elements of the Timber Harvesting measure are being implemented through the applicable programs cited. It may be helpful to focus the discussion on which program is most directly applicable and how it relates to specific management measure components.

Response: *We believe the Virginia BMP manual describes fully the scope of the Timber Harvesting Management Measure. The first 11 chapters of the manual deal entirely with timber harvesting and all secondary measures listed on pages 3-59 of the guidance are covered in the manual. The guidance on yarding systems does not pertain to the Virginia Coastal Zone.*

2. Does Virginia have information on citations issued under the authority of the Debris in Streams Law?

   Response: *All potential Debris in Stream violations were handled prior to any necessary legal action. These cases were identified through routine inspections. The logger or landowner were asked to remove the debris and this was accomplished. To date, no legal action has been taken with regard to this regulation.*

3. The BMP manual addresses the drainage requirements for landings, roads, culverts, skid trails and roads. The manual does not appear to focus as much on the overall preventative measures connected to proper siting; for example, locating roads, trails, landings and stream crossings in suitable areas away from steep slopes and sensitive areas. How can these considerations be incorporated into the manual?

   Response: *Both the BMP manual and the small Logger's Guide address the planning issue well. The identification and location of sensitive areas are all necessary planning activities for a timber harvest. All logger training given by the Department of Forestry begins with pre-harvest planning that incorporates sensitive area identification and location. All forest industry tracts have pre-harvest plans. As a reminder, the Chesapeake Bay Act requires the use of BMP's in the Resource Protection Area. This area is actually larger than the current coastal boundary and even includes entire counties such as Mathews County.*

   The current Logger's Guide is being revised through a Section 319 grant. This revision will also thoroughly promote pre-harvest planning as the most important BMP. This manual will be completed in 1996. Additional training will accompany manual distribution.

Site Preparation and Forest Regeneration

The BMP manual does not appear to specifically recommend that site preparation be suspended during wet weather periods. Also, the protection for ephemeral drainage during mechanical tree planting, protection of surface waters from logging debris, and conducting bedding operations in high-water-table areas during dry periods are not specifically mentioned.

Response: *Site preparation activities do not need to be specifically instructed to be suspended during wet weather. First, prescribes burning can not be performed during wet weather. Second, the Virginia chemical site preparation program explicitly states that no spraying will occur during wet weather. Third, all mechanical activities require dry soil conditions to be efficient and effective. Contractors who perform site preparation activities during wet weather will suffer excessive equipment breakdown and waste time and money.*

With regard to mechanical tree planting, 98% of tree planting in Virginia is done by hand. Bedding occupies a very small percentage of planting in Virginia. The protection from equipment in ephemeral drainage is a moot point since very little is done in Virginia and tree planting equipment running in ephemeral drainage in the Virginia Coastal Plain will not be planting long. Contractors are just unwilling to risk equipment in saturated conditions.

The Debris in Stream Law applied to site preparation activities as well as harvesting activities. Consequently, excessive logging debris in waterways is unlawful in Virginia.

Fire Management

As described in the threshold review document, the Department of Forestry must be notified before all silvicultural prescribed burns and sites inspections are performed to ensure that prescribed burning and wildfire suppression and rehabilitation activities comply with the Silvicultural Water Quality Law. These provisions appear to address the management measure.

Response: *Comment Acknowledged*

Revegetation of Disturbed Areas

Virginia appears to meet this management measure. The State may want to emphasize using a mix of species for the successful establishment of vegetation.

Response: *Comment Acknowledged*

Forest Chemical Management

1. According to the threshold review document, p. 3-39, aerial spraying is being used as a method for delivering herbicide. This program should also be cited under section F, site preparation.

   Response: *Most aerial spraying in Virginia is not for site preparation but for pine release. Eighty-six percent of all aerially-applied chemical is for release. Typically, no site preparation is performed when one plans for a pine release spray. We consider this positive in terms of water quality because no ground is disturbed.*

2. According to the threshold review, Virginia contracts all aerial spraying and all DOF field personnel are certified applicators. A spraying plan must be completed before spraying begins. This process provides a good means to ensure implementation of this management measure. In the program submission, Virginia should provide some additional detail on how the provisions of the spraying plan address the elements of the management measure.

   Response: *We believe the orginial submittal covered these issues sufficiently, however, we attach a typical spray contract which address in detail this management measure. The chemicals used are designated for forestry application and no custom mixing is permitted. Chemical amounts are determined ahead of time at the lowest effective dose possible. Location maps are required prior to spraying with all water areas designated.*

Wetlands Forest

1. In the program submission, please describe the circumstances under which silvicultural activities in wetlands would require a permit.

   Response: *Section 404 of the Clean Water Act describes the limits of forestry activities in wetlands. All silvicultural activities are "normal, ongoing...". Consequently, almost none require a permit. Any other activity would constitute some other land issue such as clearing for development. One must not confuse land clearing for development or other land use change as silvicultural activity.*

   As indicated in the Virginia BMP manual in the Wetlands section, "discharge of fill material into waters of the United States from

ditching, or other activities whose purpose is to convert forested wetlands to some other use or where the flow or circulation of the waters may be impaired or reach reduced is not exempt and would require a permit". Also, placing of spoil from ditches in wetlands and not for road building requires a permit.

2. The BMP manual includes wetlands as a separate section and describes soil types, preharvest planning, roads, and other BMPs in forested wetlands. The inclusion of a separate section for wetlands forest provides a direct link to this management measure. The technical elements in the manual appear to meet the management measure.

   Response: *Comment Acknowledged*

Summary

Forestry activities account for 5% or less of the nonpoint source pollution potential in the eastern United States. Sufficient enforceable mechanisms are in place in Virginia to comply with management measures specified in federal guidance within the 6217 coastal area. The Virginia Department of Forestry has the lead for implementation of Virginia's forestry nonpoint source program.

A very effective combination of direct DOF activities as well as secondary activities lead to a very high rate of BMP compliance and water quality protection. Examples of direct activities include The Silvicultural Water Quality Law, Seed Tree law and BMP manual as well as extensive site inspection and educational program. Pertinent indirect activities include cost-share incentives, the Chesapeake Bay Act and the Virginia land use tax rate programs.

Virginia's forest industry continues to be proactive in their efforts to limit water quality degradation and heighten BMP awareness. The American Forest and Paper Association Sustainable Forestry Principles have been adopted by every major Virginia forest products company. Several of these principles directly relate to water quality protection, BMP compliance and riparian buffer enhancement. A strong training program in these areas is ongoing including 8 BMP Logger workshops from June 1994 through March 1995.

Virginia continues to lead the forestry community nationwide in the forestry nonpoint source effort. Our multi-faceted, outcome-based program fosters compliance through education and information supported by enforceable mechanisms. This program balance maximizes environmental protection, agency efficiency and economic return while minimizing bureaucracy and paperwork.

We trust these additional comments provide a greater understanding of our program and how it fits in with the Coastal Zone legislation. We look forward to continued discussions should further questions arise.

URBAN

NOAA and EPA have acknowledged that Virginia provided "a thorough and candid analysis" of the States' existing programs. The following responses to the NOAA and EPA comments are intended to assist NOAA and EPA to fully understand how Virginia will apply its programs to implement the urban management measures.

General Comments

1. In general the primary gaps in existing programs appear to be related to geographic coverage and technical provisions for the management measures related to stormwater management and onsite disposal systems (OSDS). As discussed at the threshold review, the Virginia Department of Health is proceeding with plans to address current problems with design standards for new OSDS. The proposed changes described at the threshold review for OSDS sound promising and appear to address gaps between existing programs and the new onsite disposal systems management measure.

   Response: *The comment acknowledges that Virginia is proceeding to address any current problems and no additional action is recommended.*

2. It would be helpful for the State to provide additional descriptions detailing the coverage or lack of coverage for each of the State's programs as they compare with the applicability statements for each of the (g) management measures.

   Response: *Additional details are provided in response to the specific comments by EPA and NOAA which follow.*

3. Have all localities compiled with the incorporation/implementation requirement of VR 173-02-01 §5.6, which requires that local governments review and revise their comprehensive plans to address the quality of State waters.

   Response: *Section 5.6 requires local governments to review and revise their comprehensive plan in accordance with the 6 areas outlined in the regulations. To date, the Chesapeake Bay Local Assistance Board has reviewed and approved 11 plans.*

4. How many localities have adopted the suggested ordinance for the Chesapeake Bay Preservation Area Overlay District (local assistance manual pages V-1 through V-46)? Are such ordinances the basis for review by the Board? Are they generally adopted on a county-wide basis?

Response: *Fifty-three (53) of eighty (80) localities have adopted the Model Ordinance. Ordinances are part of the CBLAD first phase reviews. Initial prgram reviews consist of a review of local ordinances and maps designating Chesapeake Bay Preservation Areas (i.e. where the ordinances apply). Forty localities have adopted jurisdiction wide provisions, five have adopted watershed-wide (i.e. Chesapeake Bay drainage areas only) and seven localities have adopted programs that apply a varying number of the ordinance standards (i.e. stromwater management) jurisdiction-wide while the remaining standards apply only to CBPAs. In total 80 of 84 localities have adopted provisions which are consistent or provisionally consistent with the regulations.*

Specific Management Measure Analysis

New Development Management Measure

1. The Stormwater Management Act §10.1-603 enables the establishment of local stormwater management programs but does not require them. The Chesapeake Bay Preservation Area Designation and Management Regulations include stormwater management provisions but, as identified in the threshold review document, there may be technical inconsistencies between these requirements and the management measures.

Response: *Comment does not require a response and appears to be related to #2 below.*

2. The following represent what appear to be inconsistencies between the State's minimum criteria for local stormwater management plans and the specific requirements of the (g) management measure:

- As described on page 4-11 of the threshold review document, the State's technology based approach does not quite achieve the level of protection stipulated under the 80% TSS standard.

Response: *EPA and NOAA should reconsider their approach to specifying a single set of standards (i.e., 80% TSS removal). Since the preparation of the threshold review document, Virginia has completed a two year legislative subcommittee study referred to as SJR 44. This study, among other things, included a technical advisory committee which thoroughly evaluated existing criteria for water quality measures in stormwater management facilities. In general, Virginia concludes that existing criteria meet or exceed the requirements specified by EPA and NOAA. As practical matter it is quite possible to argue that the existing erosion and sediment control standards, if properly implemented, achieve "no net increase" or 80% TSS reduction in many instances. With regard to specific stormwater management criteria, the CBLAD criteria are proposed principally on the basis of "no net increase" except for situations involving redevelopment. In the case of redevelopment the CBLAD standard meets or exceeds the "no net increase" standard by requiring at least a 10% reduction.*

- §1.4.B.3. Single-family residences separately built and not part of a subdivision, including... and §1.4.B.4. land development projects that disturb less than one acres of land area... are exempt from the stormwater management program requirements.

Response: *The CBLAD requirements do not exempt single-family residences. Also, erosion and sediment control including increases in runoff are now regulated under the E&S law for single family houses. As a practical matter any remaining development of single-family residences under the exemption are insignificant.*

- It appears that Virginia lacks water quantity control requirements as specified in management measure element II.(2). The State notes that the Erosion and Sediment Control Law provides requirements for the protection of waterways from sediment deposition and erosion and damages due to increases in volume, velocity and peak flow rate of stormwater for the designated frequency storm. It appears that the focus of these requirements is sediment, erosion and flood control rather than the implementation of long term post-development controls for the maintenance of predevelopment peak runoff rates and average volumes, e.g., 19.c.(4) "provide a combination of channel improvement, stormwater detention/retention or other measures which is satisfactory to the plan approving authority to <u>prevent downstream erosion</u>." §2.2.A. of the Stormwater Management Regulations is more directly applicable to the management measure, but these regulations only apply to local governments who have adopted stormwater programs.

Response: *This appears to be a circular discussion. Specifically, Virginia's principal objective in controlling post-development peak runoff rates and average volumes is to mitigate the effects of flooding, steam channel erosion and associated environmental effects due to quantity changes. It seems the real debate concerns the degree of control required. Virginia contends this is variable based on site specific conditions which cannot be successfully prescribed with current technology or knowledge on a regional or state wide basis without site specific analysis. Virginia's rules provide a mechanism for these controls to be established and implemented locally.*

- Virginia did not discuss implementation of this management measure for roads, highways and bridges, including local roads. §10.1-603.5 requires that State agencies must secure an approved stormwater management plan from the Department. Are the criteria for this plan the ones listed in §2.2? Have State agencies, in lieu of such a plan, annually submitted stormwater management standards and specifications? Are these standards in conformity with this management measure or otherwise consistent with the general requirements in §2.2?

Response: *Yes to all questions.*

- Although redevelopment is covered under the Chesapeake Bay Preservation Area Designation and Management Regulations, the requirement is somewhat different than the 80% TSS loading reductions as specified in the management measure. The requirement for redevelopment projects to achieve a 10% reduction of nonpoint source pollution in runoff based on the pre-development loadings may not be equivalent to the 80% standard. What pre- development loadings are included within this analysis (only phosphorus)? How does the 10% standard equate to the 80% TSS reduction requirement.

Response: *See comment above: In general we believe the requirement meets or exceeds the reduction goals of the management measures if implemented properly. Specifically, the CBLAD 10% standards meets or exceeds §A.I.b - a "no net increase" standard - rather than the 80% reduction requirement. While both pre- and post-development computations only rely on phosphorus, the CBLAD program has always used phosphorus as an Indicator Pollutant. Given current understanding of the relationship between sedimentation and phosphorus loadings, if phosphorus is removed by 10%, sediment is also likely to be removed by at least 10% .*

3. It would be helpful for the State to describe those areas which fall under the requirement in §4.2.8. that "Post-development runoff... that is currently served by water quality best management practices shall not exceed the existing load of nonpoint source pollution in surface runoff." Are all areas within Tidewater Virginia covered by this requirement? How does this work and how widely has the 20% pervious cover requirement, as per §4.2.8.(4), been implemented?

Response: *Page IV-25 of the Local Assistance Manual provides localities guidance with determining "sites being served by water quality best management practices." The Manual states:*

(1) In general, runoff pollutant loads must have been calculated and BMP selected for the expressed purpose of controlling NPS pollution. However, if existing facilities can be shown to achieve the current standard of NPS control, local authorities may consider the site as being served by water quality BMPs.

(2) If BMPs are structural, facilities must currently be in good working order, performing at the design levels of service. The local authority may require a review of both the original structural design and maintenance plans to verify this provision. A new maintenance agreement may be required to ensure consistency with the locality's SWM requirements.

Most Tidewater localities with adopted programs have this provision in their ordinance. This provision is rarely used since few sites undergoing redevelopment were developed with water quality BMPs.

The 20% pervious cover provision § 4.2.8(4) is not a requirement; it is a compliance option. While pervious cover is restored on many sites, the actual computations only indicate about a 10-12% restoration is needed to meet the 10% reduction requirement. Because the computations show a small restoration is necessary, the 20% standard of § 4.2.8.(4) is rarely used.

4. Does Virginia have information on the number of local governments that have adopted local stormwater management programs?

Response: *Yes, between 9 and 14 localities have established programs. Many other stormwater management programs have been adopted under various authorities such as zoning and subdivision ordinances. Virginia is currently working to review these programs and develop a more accurate assessment of ongoing stormwater management*

activities throughout the state. Approximately 80 counties, 39 cities and 29 towns will be screened in an initial review.

Watershed Management Measure

1. The Chesapeake Bay Preservation Act, including the designation of Resource Protection Areas (RPAs) and Resource Management Areas (RMAs), appears to implement the objectives of this management measure by protecting sensitive lands that provide significant protection of State waters from nonpoint source pollution.

   Response: *This comment does not require a response.*

2. How does Virginia coordinate (on a watershed basis) the elements in the watershed management measure? The Chesapeake Bay Preservation Area Designation and Management Regulations encourage the development of regional or watershed plans as a means to comply with water quality criteria. Many local governments developed such plans? Have all local governments in Tidewater Virginia incorporated water quality considerations, as specified in this management measure, into their comprehensive plans?

   Response: *Virginia coordinates the measures outlined in the guidance through statutory provisions outlined in the threshold review document. Additionally, many localities prepare watershed plans in response to various issues. For example, four Northern Virginia localities have joined together to protect the water quality of their prime drinking water source: the Occoquan. Many localities have prepared and/or implemented watershed plans for portions of their jurisdictions. Examples include the counties of Arlington, Chesterfield, Fairfax, Hanover, Henrico, James City, Prince William, Stafford, and the cities of Fredericksburg and Newport News. Certainly, water quality considerations are often a driving factor in the watershed plan development at the local level. As CBLAD continues to review local comprehensive, future local land use plans and useswill embody the policies contained in Section 5.6, which in our opinion, meets or exceeds the management measure.*

3. How do the Division of Soil and Water Conservation's activities associated with the Virginia Geographic Information System (VIRGIS) relate to this management measure? It appears that hydrologic unit planning could be viewed as supporting a State watershed management program.

Response: *The VIRGIS systems continues to be a very useful planning and implementation tool to carry out the provisions of the management measures and section 319 nonpoint source pollution reduction goals.*

Site Development Management Measure

1. The Chesapeake Bay Preservation Area Designation and Management Regulations appear to address this management measure for those areas within Tidewater above 2,500 square feet (there is no *de minimis* cutoff in the (g) guidance).

   Response: *This comment does not require a response.*

2. The State notes that Sections 1.4 and 4.5.B.1 of the regulations provide a distinction between public and other roads. These requirements specify that road alignment and design must be optimized to minimize the encroachment into the RPA and adverse effects on water quality. What does this mean in practice? Is there guidance further detailing what requirements apply?

   Response: *All roads, including public and "other" roads, must be aligned and designed to minimize encroachment in the Resource Protection Area and to minimize effects on water quality. Please see §§ 4.3.A.3.b and 4.5.B.1.a of the Regulations. Appropriate design can include providing perpendicular rather than skewed crossings, and carefully limiting the disturbed area to less than the right-of-way.*

3. §15.1-49(h) was apparently not included in the package, so NOAA and EPA did not review these site plan review process requirement. Virginia should further describe and include a copy of these provisions in the program submission.

   Response: *Attached is a copy of §15.1-49(h) of the Code of Virginia. This section does not provide specific steps, but rather gives all Virginia localities the power to require such a review.*

4. Does the State have additional guidance for implementation of stormwater management requirements which apply to State agency projects?

Response: *The Virginia Stormwater Management Regulations VR 215-02-00, require state agency projects to comply with any local requirements in addition to the specific regulation requirements if it is practical for them to do so. Under the CBLAD program, state agencies are required to exercise their authorities consistent with local program.*

Construction Site Erosion and Sediment Control Management Measure

1. The State has a good erosion and sediment control program which appears to provide the authority to implement this management measure.

   Response: *Comment acknowledged.*

Construction Site Chemical Control Management Measure

1. The threshold review describes a number of programs that are used in conjunction to address this management measure. In the program submission, the State needs to describe how the various facets of the State programs described in this section are coordinated to ensure compliance? A typical erosion and sediment control plan or other site development plan that incorporates the provision of the management measure might be helpful.

   Response: *Virginia enforces its program and regulations generally independent of one another for purposes of clarity in enforcement authority and other legal issues. Coordination is obtained in numerous ways, for example: erosion and sediment control plans developed for construction sites generally singularly meet requirements for DCR regulations. CBLAD regulation and NPDES regulations where the rules apply also address coordingation. However, separate enforcement authorities may be exercised to enforce the provisions approved, by respective authorities, in one plan.*

2. Does Virginia have any information on the number or percentage of localities that have incorporated, by reference, the nutrient management practices specified in the Erosion and Sediment Control Handbook?

   Response: *Yes. DCR maintains files on the specific provisions of every local program in the state. To review this in an exact manner would be extremely labor intensive; however, generally most local programs incorporate the Handbook by reference in their local ordinances.*

3. The State noted that "Certain Virginia regulations require that application equipment be in good working order and properly calibrated." It was unclear from the threshold review document what regulations were referenced.

   Response: *The regulations referenced are promulgated under the Virginia Pesticide Control Act (See 3.1-249.27 et seq. of the Code of Virginia)*

Existing Development Management Measure

1. Within Tidewater, the Chesapeake Bay Preservation Area Designation and Management Regulations provide an excellent vehicle for addressing nonpoint source load reductions in developed areas where redevelopment is occurring.

   Response: *Comment acknowledged.*

2. What localities have designated Intensely Developed Areas (IDAs) under §3.4?

   Response: *To date, 14 localities have designated IDA's. Few localities have designated Intensely Developed Areas (IDAs) because the actual advantages are minimal. An initial concept for IDAs was to relax buffer requirements in areas of existing, intense development. However, many localities have discovered the regulations provide adequate flexibility to deal with buffer issues in such redeveloping ares. In addition, the IDA classification forced all projects to be called "redevelopment," and the 10% reduction over existing site conditions is near impossible for "infill" sites with no existing imperious cover to meet. Since many local governments want to encourage infill development for a variety of reasons, including water quality, this disadvantage discouraged many localities from designating IDAs.*

3. The State notes that, under the RPA requirements, localities must consider implementing measures to establish the minimum 100 foot buffer if it is currently inadequate or does not exist. What does this mean in application and how has this requirement been implemented at the local level?

   Response: *Technically, that requirement could be construed to mean localities could force the planing/vegetation of inadequate buffers for any site. However, many localities lack the staff time to actively seek out such*

cases and force compliance. Rather, localities review buffer adequacy on a site by site basis whenever development activity takes place on a particular parcel.

4. Although Section 5.6.A of the Chesapeake Bay Preservation Area Designation and Management Regulations requires local governments to review and revise their comprehensive plans to address water quality, including revisions to address existing pollution sources and the potential for water quality improvements through redevelopment activities, the state has not described implementation of this requirement. Have local governments identified local and/or regional priority watershed reduction opportunities and established schedules for implementing such controls?

   Response: *While all Tidewater localities have not completed the requirements of § 5.6, the Board's review process requires localities to identify specific strategies and time frames for implementation in order to be found consistent with this section of the regulations.*

5. Virginia's Stormwater Management Act and Regulations allow local governments to establish and administer stormwater utilities to defray costs associated with local program administration. How may local governments in Virginia have developed such utilities?

   Response: *Utilities are authorized under Section 15.1-292.4 of the Code of Virginia instead of the Stormwater Management Act. However, at this time, 7 large localities have adopted utilities. Nearly all fall under NPDES municipal permits. Many other localities are investigating utilities or pro-rata share contribution provisions for funding local programs.*

New Onsite Disposal Management Measure

1. It is unclear from the State's submission which onsite disposal systems (OSDS) are required to be permitted under the Virginia Pollution Discharge Elimination System (VPDES) program.

   Response: *All residential systems under 1,000 gpd which discharge effluent above ground, whether to a stream or to a drainage way, are permitted under the VPDES program and require a construction and operation permit from the Virginia Department of Health (VDH).*

2. As acknowledged in the threshold review document, the Sewage Handling and Disposal Regulations do not appear to address the management measure element to "Establish protective separation distances between OSDS system components and groundwater which is closely hydrologically connected to surface waters." Based on discussions at the threshold review meeting, it appears that Virginia will be addressing this issue through revised septic regulations that provide for greater separation distance. NOAA and EPA support this effort.

   Response: *In some instances (estimated fewer than 35% of issued permits) the current Sewage Handling and Disposal Regulations do not establish adequate separation distances between OSDS components and ground water. The proposed regulations were written to correct this problem and if adopted as written, should bring the Commonwealth into compliance with Federal recommendations.*

3. The State requires pretreatment of mass drainfields if the nitrogen loadings exceed 10 mg/l. Has the State determined that nitrogen loadings less than 10 mg/l do not pose a problem to aquifers or surface waterbodies? How does the State determine where there is inadequate subsurface treatment to prevent cumulative loadings which are detrimental to surface, ground or coastal waters?

   Response: *The Commonwealth determined that the cumulative nitrogen loadings from single family dwellings are not likely to lead to ground water nitrogen levels in excess of 10 mg/l based on simple mass balance equations at development densities that soils meeting the Sewage Handling and Disposal Regulations can be found in the Commonwealth. Ten milligrams per liter is widely accepted as the public health action level for nitrogen contamination. Additional limits have not been proposed at this time.*

4. Does the State have requirements for de-nitrification systems in areas where excess nitrogen loadings contribute to impairment of coastal waters or their tributaries? Has the State identified any such areas?

   Response: *With regard to OSDS, Virginia does not have requirements for de-nitrification systems. Under the State water quality law, DEQ has the authority to regulate an activity where excess nitrogen loadings contribute to impairment of state waters.*

5. The State under Section 32.1-164 of the Code of Virginia requires a written construction permit and a facility inspection during construction by the district or local health department. What is the relationship of district and local health departments with the State Department of Health? The commissioner has the authority to ensure compliance. Is this authority delegated to the district and local health departments?

Response: *Local and district health departments operate under the Sewage Handling and Disposal Regulations as their minimum standard. Local, more stringent regulations are allowable. Each district health director reports to the State Health Department and is delegated programmatic authority by the Commissioner. This delegation is in writing and appears in a contract between each locality having a local health department and the state health department. Individual Environmental Health Specialists are delegated permit issuing authority by the Commissioner upon successfully completing onsite wastewater training.*

6. The State allows setback distances from certain waterbodies or landforms to be reduced to 10 feet in specified soil types. How often does this occur and is such practice adequately protective considering cumulative loadings and wet weather events that result in soil saturation?

Response: *There are only two instances where the VDH allows a 10-foot separation distance to water bodies or land forms that may be saturated. One instance is where permits are issued near drainage ditches and this requires that the absorption trench bottom be placed above the seasonally high water table level. The Commonwealth uses soil mottles (chroma 2 or less) to identify the water table level's highest occurrence. Our experience indicates that gray mottles do reliably indicate water table levels and consequently do protect against events which would result in saturated soil conditions. In these instances, sufficient soil for treatment would occur below the trench bottom to prevent significant biological contamination of nearby trenches. The proposed regulations substantially improve the level of protection provided in texture group I and II soils over the level of protection provided in the current regulations.*

The other instance where systems may be as close as 10 feet to a water body is where the system is installed in a texture group III or IV soil (silty and clayey soils) and the system used produces unsaturated flow. Once again, stand-off distances to a water table would have to

be complied with and would result in systems that are installed with the trench bottoms 12" - 20" above the water table. The only time that such a system would be expected to be saturated would be during flood events. The Sewage Handling and Disposal Regulations prohibit the placement of systems where sustained flooding (24 hours or more) occurs annually (or more frequently). In general, floodplains and water tables (observed or indicated by grey mottles) would prohibit most systems from being installed as close as 10' to any body of water.

Also concerning Tidewater Virginia, CBLAD regulations requiring a 100 foot minimum RPA setback from all Tidewater tributaries. Drainfields are not an allowed use in the RPA.

Operating Onsite Disposal Systems Management Measure

1. The State phosphorus detergent limitations are in conformity with this management measure.

   Response: *Comment acknowledged.*

2. The Alternative Discharging Sewage Treatment Regulations for Single Family Dwelling, although point source related, are a good model for similar requirements for conventional OSDS systems. The State does not, as noted in the threshold review document, have requirements for the routine inspection of conventional septic systems. How do the Chesapeake Bay Preservation Area Designation and Management Regulations ensure that pump-outs occur within 5 years?

   Response: *The Regulations require local governments to ensure that pump-out provisions are met. To assist localities with this task, the department (CBLAD) has performed a number of activities. CBLAD, in cooperation with Chesterfield County, developed and distributed some software designed to provide a database and notification system for localities. The department also conducted a study in the Three Rivers Soil and Water Conservation District area to show adequate facilities existed for actual disposal of tank effluent. This region was perceived to have the greatest need, i.e. shortage of disposal facilities, so this study allayed concerns about long-term disposal mechanisms. Finally, the department continues to provide money through both competitive and non-competitive means to help localities establish and aggressively use their database information to ensure proper notification and compliance by individuals.*

3. How have localities or local offices of the State Health Department addressed failing drainfields or inadequate OSDS?

   Response: *Localities have addressed failing septic systems through a variety of means including policies for extension of sewer services to areas experiencing septic failures. Most commonly, local health departments issue repair permits for failing systems and take enforcement actions when systems are not repaired in a timely manner. In areas near shellfish waters the Department (VDH) conducts inspections to identify failing systems and then issues repair permits.*

4. Has the State considered inspections or replacement requirements upon transfer of ownership of property where OSDS is utilized?

   Response: *No, the Department (VDH) has not considered inspections or replacement requirements for OSDS when a property transfer occurs. VDH has no authority under the Code of Virginia to require such inspections or replacements of existing working septic systems.*

   However, most mortgage companies require inspections and make it very difficult if not impossible to get a loan for property until repairs are made to OSDS.

Pollution Prevention Management Measure

1. The State has a number of pollution prevention activities addressing turf management and OSDS operation and maintenance. How does the State address each of the other activities in the management measure?

   Response: *The threshold review document summarizes the State's activities which address these management measures.*

2. The Waste Reduction Assistance Program appears to be a good program. Does this program include a nonpoint source facet?

   Response: *There are some indirect effects on nonpoint sources. For example: by encouraging waste minimization and reducing, the potential for improper disposal of waste is also reduced.*

Management Measure for Planning, Siting, and Developing Roads and Highways

The State's policies and regulations appear to meet the intent of this management measure.

Response: *Comment acknowledged.*

Management Measure for Bridges

What alternative approaches is the State considering to fully meet this management measure? How are decisions made to approve the location of structures over water bodies?

Response: *The State will utilize the NEPA (National Environmental Policy Act) and Federal and State environmental review process in addition to measures specified on the threshold review to meet this intent of this measure. Currently, bridge locations are thoroughly evaluated using these processes.*

Management Measure for Construction Projects

Existing State policies and regulations appear to meet the intent of this management measure.

Response: *Comment acknowledged.*

Management Measure Construction Site Chemical Control

Existing State policies and regulations appear to meet the intent of this management measure.

Response: *Comment acknowledged.*

Management Measure for Operation and Maintenance

Is the State contemplating any new or revised policies to expand the scope of operation and maintenance requirements, such as those described for the I-295 James River Crossing, within the 6217 management area?

Response: *No additional measures are planned.*

Management Measure for Road, Highway, and Bridge Runoff Systems

The State identifies a gap in not having current policies in place to implement this management measure. Are any proposals or recommendations being developed to address this measure?

Response: *The State in many instances has used the state's stormwater management regulations to treat offsite and existing areas to compensate for bridge and other highway runoff. NPDES requirements will cover a majority of the remaining systems. The remaining areas are generally considered an insignificant coastal impact.*

MARINA AND BOAT OPERATION

General Comments

1. Please include a copy of the Virginia Water Protection Permit Regulation (VR 680-15-02) with the program submittal.

   Response: *A copy of the Virginia Water Protection Permit Regulation is included in the program submittal.*

2. Please describe the inspection process associated with permit issuance, and some information on the relative number of new and expanding marinas inspected for permit compliance.

   Response: *All marina permits, including applications for new facilities, expansions or applications for shoreline stabilization are inspected before permits are issued. In fact, in 1994 the Virginia Marine Resources Commission inspected 30 such application sites. Site inspections always involve VMRC and VIMS staff. If wetlands are involved, the local wetlands board of their staff may also inspect the site. Once permits are issued all projects for marina construction are inspected by VMRC staff to ensure compliance.*

Specific Management Measure Analysis

Siting and Design Management Measures

Marina Flushing Management Measure

Existing Commonwealth permit requirements and policies appear to address this management measure. A specific requirement for marina flushing is addressed in the "Criteria for the Siting of Marinas or Community Facilities for Boat Mooring" (VR 450-01-0047) as administered by the Virginia Marine Resources Commission (VMRC).

Response: *This comment does not require a response.*

Water Quality Assessment Management Measure

The Virginia Water Protection Permit Regulations require pre- and post- construction monitoring at marina sites for DO, temperature, pH, and pathogen indicators as a permit requirement. How is the pre-construction monitoring information used to predict post-construction water quality conditions? If post-construction monitoring indicates water quality degradation, what steps are taken to rectify the situation? At the threshold review meeting, there was discussion of requirements for corrective actions if there were water quality violations: please include this information in the program submittal.

Response: *We currently lack the necessary modeling tools which would allow predictive assessments of changes in water quality due to construction and operation of a marina complex. Additionally, we have not had a case where post-construction monitoring indicated degraded water quality. Therefore it has been unnecessary to attempt corrective actions. We have provided an example of a marina permit for your information.*

Habitat Assessment Management Measure

This management measure appears to be addressed by existing programs.

Response: *Comment acknowledged.*

Shoreline Stabilization Management Measure

This management measure appears to be addressed through comments received from the Shoreline Erosion Advisory Service (SEAS) and Virginia Institute of Marine Science

(VIMS) during the Submerged Wetlands and Tidal Wetlands Permit review process. Are SEAS and VIMS involved in all marina construction and expansion permits?

Response: *The Virginia Institute of Marine Science provides technical advisory assistance to VMRC on all marina permit applications. The Shoreline Erosion Advisory Service reviews and comments on the majority of permit applications.*

Storm Water Runoff Management Measure

The Commonwealth appears to have policies and mechanisms to meet the objectives of this management measure. However, the requirement for an 80% reduction in TSS from hull maintenance areas was not specified.

Response: *Although the 80 percent TSS standard is not specifically addressed; from a practical standpoint, the management practices required through the permit review process are consistent with those specified in the management measures guidance. An analysis of applicable BMPs is being completed as part of a Virginia Coastal Resources Management Program grant to the Virgnia Marine Resources Commision (VMRC). This study should complement the existing marina water quality programs.*

Fueling Station Design Management Measure

This management measure is a design requirement for marina facilities where fueling stations will be involved to ensure ease of access and protection against fuel spills. The Code of Virginia at §62.1-44.34 adequately addresses oil spills and contingency plans for clean up; however, it is not clear that ease of access and protection against fuel spills are taken into account under marina design criteria.

Response: *For each new marina or marina expansion that includes the addition of a fueling facility we evaluate the location of the facility. In addition, we require that a fuel spill contingency plan be made a part of the permit. Contingency plans may require that spill containment material be readily available on site.*

Sewage Facility Management Measure

Existing policies and regulations appear to meet the objective of this management measure for ensuring that facilities and pumpouts are installed at new and expanding marinas and that signs on dump stations will give information on operating instructions, fees, and restrictions. However, in the program submission, there should also be a discussion of the procedures used to ensure that these facilities are designed to allow ease of access and post signage to promote use.

Response: *Each marina and other place where boats are moored (OPWBAM) is required to provide onshore toilet facilities, boat sewage holding tank pump-out service and a sewage dump station for boats using portable toilets. Any new or expanding marina or OPWBAM is required to have a VDH approved plan for all sanitary facilities before VMRC permit is issued. The Marina Regulations list the minimum standards for pump-out facilities and sewage dump stations for VDH plan approval. These standards address the ease of access and user friendly aspects to promote use of the facilities. Marinas and OPWBAM are inspected yearly by the VDH to determine that these services are available. The required Certificate to Operate is issued when all services are in working order. Both the pump-out facility and the sewage dump station are required to post signs identifying location and listing operational directions.*

In addition, all marina permits require that signs be posted prohibiting discharges from vessel holding tanks and indicating where pump out facilities are located. This condition addresses several management measures.

As part of a Virgnia Coastal Resources Management Program grant, a technical advisory service will be established to encourage marina owners and operators to post sinage and promote the use of pump-out facilites.

Operation and Maintenance Management Measures

Solid Waste Management Measure

It appears that the Commonwealth has policies and regulations to implement this management measure as applied to new and expanding marinas.

Response: *VDH gathers information to determine if solid waste collection containers are available. This information is turned over to the U.S. Coasl Guard upon their yearly request.*

Fish Waste Management Measure

The Commonwealth indicates that this management measure is only partially met since the solid waste law specifically exempts fish or crab bait. What approach will be taken to address fish waste at marinas where it is determined to be a source of pollution?

Response: *The Virginia Department of Health (VDH) gathers information to determine if solid waste collection containers are available. This information is turned over to the U.S. Coastal Guard upon their yearly request.*

In addition §10.1-1419 of the Waste Management Act (copy attached for reference) contains a requirement that litter receptacles be placed and maintained in areas accessible to the public. Among the areas listed are marina, boat launching areas, boat moorage and fueling stations, public and private piers and bathing areas. This along with public education regarding this issue from a pollution prevention standpoint could meet, or partially meet, the management measure.

A technical advisory service funded through a Virgnia Coastal Resources Management Program grant will promote the proper disposal of fish waste.

Liquid Material Management Measure

The Commonwealth has a number of policies that apply to waste management; including dumping, oil spills, and oil discharge contingency plans. However, more discussion is needed to show how marinas will provide adequate disposal facilities for liquid wastes such as solvents, paints, antifreeze, and oil and how the use of these facilities will be encouraged.

Response: *The State Water Control Law and various state regulations prohibit the improper disposal or discharge of solvents, paints, antifreeze, oil, or other harmful liquids. In addition, several statutes and regulations require proper disposal facilities at marinas. Further, signs are required at marinas to encourage use of these facilities.*

Again a Virgnia Coastal Resources Management Program grant to the Virgnia Marine Resources Commission will promote the proper management and disposal of liquid material through a technical advisory service.

Petroleum Control Management Measure

More information is requested to determine how the Commonwealth applies its present policies at marina sites to meet the requirements of this management measure. Are there specific requirements to control spills at marina fuel pumps? Are bilge wastes prevented from being discharged in surface waters? Are State-registered boats with inboard tanks required to install fuel tank air vents?

Response: *Permit conditions are included to preclude such discharges and to require spill control equipment to be maintained on site. For each new marina or marina expansion that includes the addition of a fueling facility VMRC evaluates the location of the facility. In addition, a fuel spill contingency plan is made a part of the permit. Contingency plans may require that spill containment material be readily available on site.*

Boat Cleaning Management Measure

More information is requested to determine how the Commonwealth applies its present policies at marina sites to meet the requirements of this management measure. Please describe how conditions in the Water Protection Permit can be used to implement this management measure.

Response: *Currently, boat cleaning with detergents is not addressed through the Virginia Water Protection permit process. Boat maintenance involving solvents, hull scraping and repainting must be conducted in a maintenance facility located out of the water where discharges can be effectively controlled.*

Also, at new marinas or at marinas that are expanding to include cleaning areas in association with a travel lift, we generally require that sediment traps be included in the design. In addition our marina siting criteria require that facilities incorporating boat maintenance operations shall include plans for the efficient collection and removal of sand blasting material, paint chips, and other by-products of maintenance operations.

Again a Virgnia Coastal Resources Management Program grant will promote the proper BMPs at boat cleaning facilities through a technical advisory service.

Public Education Management Measure

This management measure appears to be adequately addressed.

Response: *Comment acknowledged.*

Maintenance of Sewage Facilities Management Measure

This management measure appears to be adequately addressed.

Response: *Comment acknowledged.*

Boat Operation Management Measure

This management measure is partially addressed by the State's "no wake zone" designation. What approach is being considered to protect shallow water habitat from heavy boat traffic and intensive activity (e.g. water skiing, jetski boats, etc.)?

Response: *To some extent this measure is being addressed by the marina siting criteria which indicate that marinas should not be located close to areas of very high resource value such as shellfish species.*

HYDROMODIFICATION

<u>Virginia Position</u>

The hydromodification management measures are covered primarily by a joint permitting process that coordinates review for multiple permits by various State and Federal agencies. The keystone agencies and related programs are the Virginia Marine Resources Commission for Subaqueous Lands Management, Tidal Wetlands Management, and Coastal Primary Sand Dunes/Beaches Management, the Department of Environmental Quality for Water Protection Permits, and the Chesapeake Bay Local Assistance Department for the Chesapeake Bay Preservation Act.

NOAA and EPA Position

The permitting process and programs as described in the threshold review document should be effective at implementing major portions of the hydromodification management measures. Some of the management measures are only partially met through the programs as described. In some cases, there is a need to show how these programs will be applied or modified to carry out the intent of the measures.

General Comments and Questions

1. Channel modification projects which are projected to have minor, or "insignificant", impacts to State waters and wetlands, and which qualify for Nationwide or Regional Permits from the Corps of Engineers, may not be reviewed by the State. What criteria determine "minor" or "insignificant"? Do the criteria for determining "minor" or "insignificant" take nonpoint source abatement functions into account?

   Response: *The criteria to determine "minor" or "insignificant" is up to the individual reviewing the site specific project. Each agency provides guidance on what is "minor" or "insignificant". NPS abatement functions are evaluated, on an agency by agency basis.*

2. Have some of the general permit categories under 401 been decertified? What is the State process in these cases?

   Response: *DEQ has dropped approval of certain 401 certification categories.*

3. The Scenic River Act is applicable statewide to the 225 miles of Virginia waterways which have been designated as scenic rivers. How many miles are within the 6217 management area? Is it anticipated that the designation will be awarded to additional stream miles in the 6217 management area? During the threshold review meeting, the strengths of this program for implementing specific management measures were discussed. Please include this information in the program submittal.

   Response: *It is anticipated that additional miles of Scenic River will be added in the 6217 management area. Additional information regarding the Scenic River program will be included in the final program submittal.*

Specific Management Measure Analysis

Channelization and Channel Modification Management Measures

1. In the program submittal, some further discussion of how the appropriate agencies coordinate activities for individual permits would be helpful. Discussion on this issue at the threshold review meeting was instructive.

   Response: *The joint permit application is mailed to the Virginia Marine Resources Commission and the Commission forwards copies for the application to the reviewing agencies. Each agency reviews the project and makes an agency determination. The Corps of Engineers holds a joint permit meeting with the reviewing and advisory agencies to obtain comments on the applications. The Virginia Department of Transportation holds an interagency coordination meeting to obtain comments from the reviewing and advisory agencies. Agency personnel may also attend coordinated site visits to evaluate proposed projects.*

2. Do the applicable programs evaluate proposed channelization activity in terms of stream geomorphology and stability, i.e. the ability of the stream, over time, to be able to transport flows and sediment while maintaining channel dimension, pattern, and profile?

   Response: *The proposed definition of channel stability as being able to transport flows and sediment while maintaining channel dimension, pattern and profile is a "new" concept in the Commonwealth of Virginia. The "Stream Classification and Restoration Short Course" taught by David Rosgen in March introduced this definition at the shore course, it would appear the permitting process will begin to incorporate these concepts into their review and approval process.*

3. The first two portions of the channelization management measures appear to be addressed through the permits and programs described. How are the operation and maintenance sections of these management measures addressed?

   Response: *O&M is an activity credited in the CRS. The activities of the SEAS program and the riparian restoration efforts by the Department of Conservation and Recreation and the Department of Forestry address these concerns. Citizen Groups which monitor the conditions of selected rivers also impact these areas.*

4. The Commonwealth has proposed to meet the channelization and channel modification management measures principally through a permit program which will evaluation new work proposed within channels. While this approach addresses important aspects of channel modification, in only looking at new work that is proposed within channels, there is the potential to overlook problems within existing channels. Are there conditions within existing channels that include the kinds of nonpoint source activities and effects discussed in the (g) guidance for hydromodification activities? In the program submittal, Virginia should describe the nature and extent of any existing nonpoint source problems associated with the types of hydromodification described on page 6-3 of the (g) guidance.

   Response: *There are likely to be conditions within existing channels that result in nonpoint sources of pollution. However, the extent and significance of the problems have not been determined or identified.*

   The activities of the SEAS program and the riparian restoration efforts by the Department of Conservation and Recreation and the Department of Forestry address these concerns.

5. In the program submittal, please describe how BMPs for channel modification are chosen and recommended. It appears that several agencies identify and recommend BMPs to reduce undesirable water quality and habitat impacts during the review of applications for proposed new work. This is mentioned on page 6-8 of the threshold review document under discussion of the Water Protection Permit and Submerged Lands Management Program. What reference documents are used to describe and obtain design information for channelization BMP's? What process is used to identify appropriate BMPs for the kinds of nonpoint source activities and effects discussed in the (g) guidance?

   Response: *Problems are evaluated on a site specific basis and BMPs are recommended after site evaluation and study. For problems requiring permits, the environmental agencies will review the proposal and may make recommendations on how to address the problem.*

Physical and Chemical Characteristics of Surface Waters

1. Please clarify the circumstances under which State agencies are involved in the "hydraulic evaluation" that is performed for proposed channelization projects. Page 6-7 of the threshold review document suggests that "hydraulic evaluations" of proposed channelization projects are undertaken only by local governments. The

only reference that seems to relate to this is in the Flood Damage Reduction Act, at §10.1-602 (6), which seems to stipulate what the Department of Conservation and Recreation shall do for periodic evaluation of compliance and enforcement of the floodplain laws, in cooperation with local governments.

Response: *State agencies are involved in proposed channelization projects on a site by site basis if permits are required to accomplish the proposed work. The permitting agencies may request design calculations to support the proposed work. After a site specific evaluation, modifications in the project may be suggested or made mandatory as a condition of the permit.*

Modifications to floodways are to be reviewed by the State Coordinating Office for the Flood Insurance Program in DCR. NFIP participating communities are visited on average once every three years for a review of program compliance. Lack of compliance with NFIP standards can lead to financial sanctions through reduced disaster assistance and reduced availability of federal funds.

2. The Stormwater Management Act, as described in the threshold review document, specifies that stormwater management plans are required for projects which would disturb an acre or more and which would affect stormwater quantity and quality. This potentially excludes a large number of projects, which, when considered together (particularly within the confines of any single watershed), may contribute to the types of nonpoint source impacts discussed in the (g) guidance for hydromodification activities. How does the Commonwealth address smaller projects within the 6217 management area which are not subject to the Stormwater Management Act, buy may still have cumulative impacts on water quantity and quality?

Response: *The Chesapeake Bay Preservation Act helps to address certain types of cumulative impacts associated with projects that disturb more than 2,500 square feet but less than one acre. Projects must implement BMPs to insure no reduction or loss in water quality.*

Instream and Riparian Habitat Restoration

The threshold review document describes protection for threatened and endangered species and fish passage. In the program submittal, please describe how the applicable programs protect other important components of instream and riparian habitat (i.e. temperature, substrate, and submerged aquatic vegetation).

Response: *Habitat protection and the protection of threatened and endangered species are not mutually inclusive. Further explanation regarding specific parts or elements of the overall habitat should not be needed.*

Dams Management Measures

Erosion and Sediment Control

This management measure is intended to apply to both construction and maintenance of dams. Some activities associated with dam construction or maintenance may disturb small areas, but because of the location of these areas, there is potential for significant sediment loading to adjacent waters. Does Virginia address activities that result in land disturbance less than thresholds in the Erosion and Sediment Control Law?

Response: *If erosion of lands below the threshold limits of the Erosion and Sediment Control Law impacts State waters, the VMRC "Subaqueous and Wetlands Guidelines" and the DEQ "State Water Control Law" would come into play to limit water quality problems associated with the unregulated projects.*

Chemical and Pollutant Control

1. Do the Operation and Maintenance Plans referenced in the Sediment and Erosion Control Section on page 6-14 of the threshold review document include control of nutrients and toxic substances?

   Response: *Operation and Maintenance Plans don not specifically address nutrients and toxic substances.*

2. Please clarify how the Solid Waste Management Regulations Program limits application, generation and migration of toxic substances in the construction of new dams and in construction activities associated with the maintenance of dams.

   Response: *Solid Waste Management Regulations along the State Water Control Law and pollution prevention programs at the Department of Environmental Quality help address the application, generation, and migration of toxic substances by requireing proper disposal of construction chemicals, making it illegal to pollute waters of the Commonwealth and encouraging proper handeling and disposal of these chemicals.*

3. How do the applicable programs address proper storage and disposal of toxic materials at dam sites, other than to ensure ultimate disposal within properly designed and operated sanitary landfills?

   Response: *The "Virginia Water Control Law" does not permit the release of toxic materials into State waters. Therefore, proper storage, handling, and disposal are mandated by State Law.*

4. Please clarify the relationship of the Virginia Water Protection Permit (p.6-19 bottom) to the implementation of this management measure. The threshold review document states that conditions requiring safe handling and storage of all chemicals and proper debris disposal "can" be made part of this permit and that BMP's "can be added" to the conditions of this permit. Are the kinds of concerns addressed by this management measure typically reviewed and addressed by the Commonwealth's Department of Environmental Quality (DEQ) as part of its review of Water Protection Permit applications for dam construction?

   Response: *These types of concerns are typically addressed as part of permit review.*

5. The duties and responsibilities assigned to the Virginia Pesticide Control Board are pertinent to implementing part of this management measure. Is there a similar administrative body which evaluates the use and storage of other toxic substances used in the construction and/or normal maintenance activities of dams?

   Response: *Yes. The Department of Environmental Quality in the administration of the "Virginia Water Control Law".*

Water Quality/Habitat

The permitting process addresses water quality and habitat impacts resulting from construction of new facilities. What process is used to ascertain effects of dam operation once the dam is built and functioning? Can the recertification process be used to address water quality and habitat issues associated with dam operation? Is there a data gathering process that tracks effects of dam operation on water quality and habitat?

Response: *Conditions made part of the Virginia Water Protection Permit can be used to determine dam operation impact on water quality.*

Recertification of a Dam Safety O&M Certificate can not be used to address water quality and habitat issues associated with dam operation unless such dam operation affects the integrity of the dam.

Conditions established in the Virginia Water Protection Permit is an official method to tract impacts to water quality. Information gathered by volunteer citizen watch or environmental advocacy groups may be available for selected dams.

Streambank and Shoreline Erosion Management Measures

1. Is there a mechanism to determine where shorelines and streambanks are causing nonpoint source pollution and should be stabilized? The Agricultural BMP Cost Share Program appears to provide a vehicle to address stabilization of shorelines on agricultural lands and the Chesapeake Bay Preservation Act-addresses practices that could be applied to existing eroding streambanks. Also, the Shore Erosion Advisory Service provides technical advice on shoreline erosion. Research by Virginia documents to the extent of the problems resulting from shoreline erosion. It will be important to show how existing programs will achieve nonpoint source control from eroding streambanks and shorelines.

   Response: *The Shoreline Situation Reports completed by VIMS in the mid-to-late 1970's provide historical shoreline erosion rates for the counties and cities along the Chesapeake Bay and its tributary rivers. The reports can be used to identify shorelines providing a targeted amount of sediment to the Bay system.*

   An information campaign advertising the services of the SEAS program can be developed and targeted at selected segments of the shoreline providing a specified sediment load to the Bay system. The SEAS program would provide advice on how to control the erosion problem and implementation of control measures would still be voluntary by the landowners.

   <u>The intent of this measure was never to make shoreline protection mandatory on the property owner.</u> Voluntary implementation of control measures was the intent of the measure.

2. The CBPA Program, the Coastal Primary Sand Dune/Beach Program, and the Wetlands and Water Protection Permits appear to address the second component of the management measure which states: "protect streambank and shoreline

features with the potential to reduce NPS pollution." It would be helpful to include some additional detail on how technical information is provided through the Department of Forestry to ensure protection of shorefront wooded buffers which possess particularly important water quality benefits.

Response: *The Department of Forestry assists with the protection of riparian and shorefront forested buffers through programs which encourage the use of BMPs.*

WETLANDS, RIPARIAN AREAS AND VEGETATED TREATMENT SYSTEMS

Virginia Position

Virginia protects wetlands and riparian areas through several regulatory programs, including the Coastal Primary Sand Dunes/Beaches Program, Wetlands Management Program, Chesapeake Bay Preservation Act, Virginia Water protection Permit Program, and Submerged Lands Management Program. The Commonwealth proposes that the combination of these programs, together with other programs that promote wetlands protection, met the requirements of the management measures for wetlands, riparian areas, and vegetated treatment systems.

NOAA and EPA Position

The programs described in the threshold review document and discussed at the threshold review meeting appear to provide Virginia with a sound approach for addressing the management measures for wetlands, riparian areas, and vegetated treatment systems. The comments below relate to the need for some additional information and clearer description of how existing programs may be used to ensure implementation of individual management measures.

General Comments and Questions

1. How will Virginia protect and restore those freshwater wetlands which serve significant nonpoint source abatement functions that are not contiguous to tidal shores, as referenced in the Chesapeake Bay Preservation Act? Please describe the process that will be used to identify those wetland/riparian areas serving a significant nonpoint source benefit. Are these considered at a watershed or landscape scale?

   Response: *The "State Water Control Law" and the Virginia Water Protection Permit will be utilized to protect nontidal wetlands. The permit process will be utilized and the projects evaluated on a site specific*

case by case basis. A number of localities have designated noncontiguous wetlands as RMAs, thus assuring a level of protection apart from the existing permit programs.

2. The Commonwealth has proposed to meet the wetland protection management measures principally through a permit program which will evaluate new work proposed within wetlands and riparian areas. While this approach addresses important aspects of wetland protection and restoration, there may be nonpoint source impacts on wetlands and riparian caused by "off-site" activities, such as watershed changes farther upstream. Does Virginia have a means to address activities outside of wetlands and riparian areas which may contribute to nonpoint source impacts on those resources?

   Response: *Clearly a major emphasis of the CBPA is to protect locally identified or designated wetlands and riparian areas from impacts caused by upstream activities. The RPA reflects a commitment to a concept in which a "management buffer" is created at a landscape scale to protect riparian areas from off-site disturbances, including those which may be unmanaged.*

Specific Management Measures Analysis

Wetlands/Riparian Protection

1. Please clarify how the applicable mechanisms and programs will be coordinated among the responsible agencies in order to achieve this management measure.

   Response: *Documents such as the "Joint Permit Application", Virginia Water Protection Permit and Section V of the Shoreline Development BMP's Handbook provide insight into the coordination process followed by Virginia agencies.*

2. What criteria are used to evaluate nonpoint source activities and effects during a permit review?

   Response: *The criteria is based on the merits of each site specific project. Each Agency reviews the project per their own rules and guidelines.*

Restoration of Wetlands/Riparian Areas

The emphasis of the Commonwealth's proposed strategy to meet this management measure seems to focus on mitigation of wetlands damage and destruction. Please describe programs that promote restoration of wetlands/riparian areas for nonpoint source benefits. For instance, the Agricultural BMP program is listed in the threshold review document (see page 7-9) as one of the applicable state programs. Could this be used to help implement this management measure by encouraging restoration of wetlands in agricultural areas?

> ***Response:*** *The Agricultural BMP Program could be modified to encourage the restoration of wetlands in agricultural areas. Specific BMPs could be added to encourage restoration of prior converted wetlands. The activities of the SEAS program and the Department of Conservation and Recreation and the Department of Forestry activities promote the restoration of wetland/riparian areas of nonpoint source benefits.*

Vegetated Treatment Systems

The Commonwealth's threshold review document presents a number of programs that can be used to promote the use of constructed wetlands and vegetated filter strips. These programs appear to be in conformity with the management measure.

> ***Response:*** *Comment acknowledged.*

Appendix B

Response to Public Comments

To facilitate public review and comment, a public announcement was sent to approximately 325 individuals and the executive summary for the document was uploaded to the Virginia Library and Information Network. There were forty seven requests for the document.

Although the Commonwealth of Virginia has maintained a very open and inclusive program planning and development process, there was very little public interest in the final program submission. In fact, the Friends of the Shenandoah River provided the only written comments received during the required thirty day public review and comment period. A copy of the letter from the Friends of the Shenandoah River is included in the program submittal package.

Comment: The Friends of the Shenandoah River recommended that the Commonwealth of Virginia include the Shenandoah River watershed in the program management area.

Response: As discussed in the program boundary section of this submittal document, implementation of the coastal nonpoint source pollution control program in the Shenandoah Valley would require Virginia to create a separate Section 6217 management area and would not build on existing accomplishments but would require that new legislation and regulations be developed. Virginia has already taken significant steps to address nonpoint sources of pollution in Tidewater Virginia. Moreover, the Commonwealth is moving forward with implementation of Tributary Strategies to compliment these efforts and to address sources of nonpoint pollution originating in watersheds outside tidewater Virginia.

Appendix C

VIRGINIA COASTAL NONPOINT SOURCE POLLUTION CONTROL PROGRAM

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Appendix D

List of Referenced Documents

Chesapeake Bay Local Assistance Department

Chesapeake Bay Local Assistance Manual
Chesapeake Bay Preservation and Management Regulations (VR 173-02-01)

Department of Conservation and Recreation

Virginia Erosion and Sediment Control Handbook, Third Edition, 1992
Virginia Erosion and Sediment Control Regulations (VR 625-02-00)
Virginia Field Operations Technical Guidance
Virginia Nonpoint Source Management Program Implementation Report
Virginia Nonpoint Source Pollution Watershed Assessment Report
Virginia Nutrient Management Handbook
Virginia Stormwater Management Regulations (VR 215-02-00)

Department of Environmental Quality

1992 305(b) Virginia Water Quality Assessment
Emission Standards for Open Burning (Rule 4-40)
Groundwater Withdrawl Regulations (VR 680-13-07)
Oil Discharge Contingency Plans and Administrative Fees for Approval (VR 680-14-07)
Solid Waste Management Regulations (Sec. 62.1-194 *et seq.*, of the *Code of Virginia*)
Surface Water Management Area Regulation (VR 680-15-03)
Virginia Coastal Resource Management Program Report
Virginia Hazardous Waste Management Regulations (VR 672-10-1)
Virginia Pollution Abatement (VPA) Permit Program Regulations (VR 680-14-01)
Virginia Water Protection Permit Regulation (VR 680-15-02)
Water Withdrawl Reporting (VR 680-15-01)

Department of Forestry

A Guide to Wildland Fuels Smoke Management
Forest Statistics for Virginia, 1992 Resource Bulletin
Forestry Best Management Practices for Water Quality in Virginia

Department of Game and Inland Fisheries

Regulations of the Commission of Game and Inland Fisheries, Commonwealth of Virginia

Department of Housing and Community Development

BOCA National Plumbing Code
CABO One and Two Family Dweling Code
Uniform Statewide Building Code, Volume 1 New Construction Code (VR 394-01-21)

Department of Labor and Industry

Construction Industry Standard for Sanitation, 1926.51 (VR 425-02-72)
Fire Protection, Construction Industry, 1926.150 through 1926.159 (VR 425-02-114)
General Safety and Health Provisions, Construction Industry Standard for Sanitation, 1926.51 (VR 425-02-72)

Appendix E

INDEX TO KEY ENVIRONMENTAL PROGRAMS IN VIRGINIA

(applicable to CZARA Section 6217)

Chesapeake Bay Local Assistance Department (CBLAD)

Chesapeake Bay Preservation Act (CBPA) (Sec.10.1-2100 through 2115 of the *Code of Virginia*)
Chesapeake Bay Preservation Area Designation and Management Regulations (VR 173-02-01)

Department of Conservation and Recreation (DCR)

Dam Safety Act (Sec. 10.1-604, *et seq.* of the *Code of Virginia*)
Erosion and Sediment Control Law (Sec. 10.1-560, *et seq.* of the *Code of Virginia*)
Floodplain Management Program (Sec. 10.1-602, *et seq.* of the *Code of Virginia*)
Nutrient Management Program
Scenic Rivers Act (Sec. 10.1-400 through 10.1-418, of the *Code of Virginia*)
Shoreline Erosion Advisory Service (Sec. 10.1-702, *et seq.* of the *Code of Virginia*)
Stormwater Management Act (10.1-603.1, *et seq.* of the *Code of Virginia*)
Virginia Erosion and Sediment Control Regulations (VR 625-02-00)
Virginia Agricultural Best Management Practices Cost Share Program (Sec. 10.1-500, *et seq.* of the *Code of Virginia*)
Virginia Stormwater Management Regulations (VR 215-02-00)

Department of Environmental Quality (DEQ)

Emission Standards for Open Burning (Rule 4-40)
Groundwater Management Act (Sec. 62.1-242 through 62.1-270, of the *Code of Virginia*)
Groundwater Withdrawl Regulations (VR 680-13-07)
Oil Spills (Art. 11, Sec. 62.1-44.34, of the *Code of Virginia*)
Oil Discharge Contingency Plans and Administrative Fees for Approval (VR 680-14-07)
Oil Discharge Contingency Plan (Sec. 62.1-44.34:15, of the *Code of Virginia*)
Solid Waste Management Regulations (Sec. 62.1-194, *et seq.* of the *Code of Virginia*)
State Water Control Law Amendment (Sec. 62.1-44.15.5, *et seq.* of the *Code of Virginia*)
State Water Control Law (Sec. 62.1-44.2, *et seq.* of the *Code of Virginia*)
Surface Water Management Act (Sec. 62.1-242, *et seq.* of the *Code of Virginia*)
Surface Water Management Area Regulation (VR 680-15-03)
Virginia Waste Management Act (Sec. 10.1-1400, *et seq.* of the *Code of Virginia*)
Virginia Hazardous Waste Management Act (VR 672-10-1)
Virginia Pollution Abatement (VPA) Permit Program Regulations (VR 680-14-01)
Virginia Water Protection Permit Regulation (VR 680-15-02)
Virginia Pollutant Discharge Elimination System(VPDES) (VR 680-14-01)
Virginia Coastal Resource Management Program
Waste Reduction Assistance Programs
Water Withdrawl Reporting (VR 680-15-01)

Department of Forestry (DOF)

Aerial Spray Program
Debris in Streams Law (Sec. 62.1-194.2, *et seq.* of the *Code of Virginia*)
Forestry Best Management Practices for Water Quality in Virginia
Reforestation of Timberlands Program
Silvicultural Water Quality Law (Sec. 10.1-1181, *et seq.* of the *Code of Virginia*)
Stewardship Incentive Program
Virginia Seed Tree Law (Sec. 10.1 - 1163, *et seq.* of the *Code of Virginia*)
Water Quality Complaint System

INDEX TO KEY ENVIRONMENTAL PROGRAMS IN VIRGINIA

(applicable to CZARA Section 6217)

Virginia Department of Agriculture and Consumer Services (VDACS)

Cotton Boll Weevil Quarantine (VR 115-04-14)
Gypsy Moth Quarantine (VR 115-04-12)
Nursery Inspection General Rules (VR115-04-15)
Pesticide Disposal Program
Pesticide Container Recycling Program
Plants & Plant Products Inspection Law (Sec. 3.1-188.32, *et seq.* of the *Code of Virginia*)
Registration and Certification of Grape Nursery Stock (VR 115-04-17)
Regulations Governing Licensing of Pesticide Businesses Operating Under Authority of the Virginia Pesticide Control Act (VR 115-04-22)
Regulations Governing Pesticide Applicator Certification Under Authority of the Virginia Pesticide Control Act (VR 115-04-23)
Rules and Regulations for Enforcement of Virginia Pesticide Law (VR 115-04-03)
Virginia Pesticide Safety and Management Program
Virginia Pesticide Control Act (Sec. 3.1-249.27, *et seq.* of the *Code of Virginia*)

Virginia Department of Health (VDH)

Alternative Discharging Sewage Treatment Regulations for Single Family Dwellings
Environmental Health Services Law (Sec. 32.1-164, of the Code of Virginia)
Marina Education Programs
Rules and Regulations Governing the Sanitary Control of Oysters, Clams and Other Shellfish (Sec. 28.2-803 through 28.2-808, of the *Code of Virginia*)
Sewage Collection and Treatment Regulations
Sewage Handling and Disposal Regulations
Virginia Sanitary Regulations for Marinas and Boat Moorings (Sec.32.1 -246, of the *Code of Virginia*)

Virginia Department of Transportation (VDOT)

Adopt-a-Highway Program
Virginia Department of Transportation Road and Bridge Specifications, January 1991.

Virginia Marine Resources Commission (VMRC)

Coastal Primary Sand Dune Program (Sec. 28.2-1400 through 28.2-1420, of the *Code of Virginia*)
Criteria for the Siting of Marinas or Community Facilities for Boat Moorings (VR 450-01-0047)
Submerged Lands Management Program (Sec. 28.2-1200 through 28.2-1213, of the *Code of Virginia*)
Submerged Lands and Tidal Wetlands Permit Program and the Local Wetlands Board Permit Program (Section 28.2-1200 through 28.2-1300, of the *Code of Virginia*)
Tidal Wetland Management Program (Sec. 28.2-1300 through 28.2-1320, of the *Code of Virginia*)

Virginia State Police

Road Safety

Final Report: Shoreline Erosion Advisory Service Accomplishment (1/196 - 3/31/96)

The Shoreline Erosion Advisory Service Accomplishment (SEAS) program provided advice to 50 tidal shoreline property owners during this quarter. Environmental review and comment of shoreline protection projects was provided by the staff at the Corps of Engineers joint permit processing meeting and the Virginia Department of Transportation's interagency coordination meeting. 3 educational presentations regarding proper design and implementation of shoreline protection measures were also given during the quarter.

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Department of Conservation & Recreation

CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES