

# FINDINGS FOR THE VIRGIN ISLANDS COASTAL NONPOINT PROGRAM

## FOREWORD

This document contains the findings for the coastal nonpoint pollution control program submitted by the Government of the Virgin Islands of the United States (Virgin Islands) pursuant to Section 6217(a) of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA). The findings are based on a review of the Virgin Islands 6217 Coastal Nonpoint Pollution Control Program. The National Oceanic and Atmospheric Administration (NOAA) and the U.S. Environmental Protection Agency (EPA) reviewed this information and evaluated the extent to which it conforms with the requirements of CZARA.

NOAA and EPA commend the Virgin Islands on the substantial amount of time and effort put into developing your program and we appreciate the commitment you have shown to complete an ambitious task with limited resources. We will continue to work with coastal states and territories to ensure that these findings represent an accurate assessment of current state and territory abilities and efforts to address coastal nonpoint source pollution. We recognize that there may be further administrative changes to the coastal nonpoint program that will impact these findings and we assure you that, once such changes are finalized, we will review these findings in light of the changes and make any necessary adjustments.

## APPROVAL DECISION

NOAA and EPA approve the coastal nonpoint pollution control program submitted by the Government of the Virgin Islands of the United States pursuant to Section 6217(a) of the Coastal Zone Act Reauthorization Amendments of 1990, subject to certain conditions.

This document provides the specific findings used by NOAA and EPA as the basis for the decision to approve the Virgin Islands program. It also provides the rationale for the findings and includes conditions that will need to be met for the Virgin Islands to receive final approval of its program. The timeframes associated with conditions become effective on the date of the approval letter for these findings.

## INTRODUCTION

This document is organized by the major nonpoint source categories and subcategories identified in the section 6217(g) guidance and the administrative elements identified in the program guidance (including the boundary for the 6217 management area). Where appropriate, NOAA and EPA have grouped categories and

subcategories of management measures into a single finding. The structure of each finding follows a standard format. Generally, the finding is that the Virgin Islands program includes or does not include management measures in conformity with the (g) guidance and includes or does not include enforceable policies and mechanisms to ensure implementation. For further understanding of terms in this document, the reader is referred to the following:

Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters (EPA, January 1993)  
Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance (NOAA and EPA, January 1993)  
Flexibility for State Coastal Nonpoint Programs (NOAA and EPA, March 1995)

The references in this document refer to the Virgin Islands 6217 Coastal Nonpoint Pollution Control Program ("program submittal"). NOAA and EPA have written this document as succinctly as possible. We have relied upon, but do not repeat here, the extensive information that the Territory has included in its program submittal. Further information and analysis is contained in the administrative record for this approval decision and may be reviewed by interested parties at the following locations:

EPA/Office of Wetlands, Oceans and Watersheds  
Assessment and Watershed Protection Division  
Nonpoint Source Control Branch  
401 M St., SW (4503-F)  
Washington, DC 20460  
Contact: Ed Drabkowski (202-260-7009)

EPA Region II (2WMWSP)  
290 Broadway  
New York, NY 10007-1866  
Contact: Donna Somboonlakana (212-637-3700)

NOAA/Office of Ocean and Coastal Resource Management  
Coastal Programs Division  
SSMC-4, N/ORM3  
1305 East-West Highway  
Silver Spring, MD 20910  
Contact: Jewel Griffin (301-713-3109, Ext. 163)

## I. BOUNDARY

**FINDING:** The Virgin Islands has included the entire Territory as the management area within which it will implement the coastal nonpoint program. Therefore, the Virgin Islands 6217 management area is sufficient to control the land and water uses that have or are reasonably expected to have a significant impact

on the coastal waters of the Virgin Islands.

## II. AGRICULTURE

**FINDING:** The Virgin Islands program includes management measures in conformity with the 6217(g) guidance and includes enforceable policies and mechanisms to ensure implementation throughout the 6217 management area.

**RATIONALE:** The Department of Agriculture (DOA), the Virgin Islands Conservation District (VICD), and the Department of Planning and Natural Resources (DPNR) finalized a Memorandum of Understanding (MOU) on December 4, 1995 that establishes a mechanism to ensure implementation of the agricultural management measures. Under the MOU, VICD will develop conservation plans in accordance with the Natural Resources Conservation Service Field Office Technical Guide that will be in conformity with the 6217(g) measures. Farmers who do not voluntarily request development of a conservation plan will be required to develop an earth change plan pursuant to the Environmental Protection Law, Title 12, Chapter 13, Virgin Islands Code (VIC) 533. Earth change plans developed on agricultural land contain erosion control, nutrient and pesticide management plans that can be used to address the agricultural management measures.

The conservation plans and earth change plans are enforceable. DOA's roles under the MOU are to monitor farms for compliance, record the level of compliance, and notify DPNR and farmers of noncompliance with conservation plans. VICD, in addition to developing conservation plans, will provide technical assistance to farmers not in compliance. DPNR will monitor coastal waters for agricultural pollutants and monitor farms without conservation plans for compliance with earth change plans. In cases of noncompliance with either conservation plans or earth change plans, DPNR will take enforcement action under the rules and regulations of the Virgin Islands Coastal Zone Management Act (VICZMA) and the Environmental Protection Law.

## III. FORESTRY

**FINDING:** The Virgin Islands has provided sufficient justification to support a categorical exclusion of forestry from its coastal nonpoint program.

**RATIONALE:** As described on pages 102-105 of the program submittal, commercial forestry is not viable in the Virgin Islands. There is limited forestry activity on St. Croix, but no formal or official forestry program currently exists in the Territory. From 1955 to 1972, a forest regeneration program was established on St. Croix for research purposes only. Due to past land use patterns associated primarily with the cultivation of sugar cane, much of the island is covered with second growth and scrubby timber composed of non-commercial species. Other factors that preclude

commercial forestry are land ownership patterns, competition for alternative uses of the land, soils and topography. A large portion of the forested lands are inaccessible and situated on steep slopes. Therefore, such limited forestry activities do not and are not reasonably anticipated to present significant adverse impacts to coastal waters.

#### IV. URBAN

##### A. NEW DEVELOPMENT

**FINDING:** The Virgin Islands program includes management measures in conformity with the 6217(g) guidance, except for projects that are not required to submit a major land development permit application. The Virgin Islands program includes enforceable policies and mechanisms that can be used to ensure implementation.

**CONDITION:** Within three years, the Virgin Islands will include in its program management measures in conformity with the 6217(g) guidance for projects that are not required to submit a major land development permit application and revise existing programs as proposed on page 46 and appendix 9 of the program submittal.

**RATIONALE:** The Virgin Islands has a thorough process for review of development activities in the 6217 management area, including requirements for (Major and Minor) Land and Water Development Permits. This review is intended to minimize the adverse impacts of development on marine productivity, habitat value, storm buffering capability and water quality. The two primary authorities for development review are the VICZMA, which requires coastal zone management (CZM) permits, and the Environmental Protection Program, which requires earth change permits. Currently, there are two tiers (first tier and second tier) defined under the VICZMA and two application forms used for CZM permits and earth change permits. As part of the CZM permit application, an Environmental Assessment Report (EAR) is required for all water projects (Major and Minor) and all Major land development projects in the first tier. In the second tier, an earth change permit is required in accordance with the Environmental Protection Law. The Territory has proposed to: 1) amend its program to require nonresidential developments to implement approved storm water practices and 2) to revise the rules and regulations for earth change permits to make them consistent with the requirements, review process and applicability of the VICZMA. The proposed revisions to the Rules and Regulations of the Environmental Protection Program are included as appendix 9 of the program submittal. Upon adoption of the revised rules and regulations, a single Earth Change/EAR application will be used.

Subsequent to the initial program submittal, the Virgin Islands submitted supplemental information that included a revised

major land development permit application. Section I of the application includes item 5.02.05, Stormwater Drainage, which lists TR-55 calculations as a requirement of the application. Section 6.03(d) of the EAR Guidelines for Land Development requires that post-development peak runoff rates and average volumes must be maintained at levels that are similar to pre-development levels. Section 6.03(f) of the EAR Guidelines for Land Development further describes what is necessary for stormwater calculations: "Include TR-55 to show postdevelopment loadings of TSS reduced so that the average annual TSS loadings are not greater than predevelopment loadings." These requirements are in conformity with the 6217(g) guidance but are limited in their applicability to major permit applications. Not included are minor projects, described on page 46 of the program submittal as including subdivisions, construction of one or two single-family residences, construction of a duplex and improvement to an existing structure. Because of limited land availability and potential for cumulative impacts from small-scale development, the Virgin Islands needs to include in its program stormwater management measures for projects that are not subject to major permit application requirements.

#### B. WATERSHED PROTECTION and EXISTING DEVELOPMENT

**FINDING:** The Virgin Islands program includes management measures in conformity with the watershed protection management measure and includes enforceable policies and mechanisms to ensure implementation for both watershed protection and existing development, except in areas currently delineated as the second tier under the VICZMA. The Virgin Islands program does not yet include management measures for existing development in conformity with the 6217(g) guidance.

**CONDITION:** Within two years, the Virgin Islands will complete development of a Watershed Management Plan, as described on page 50 of the program submittal. Within three years, the Virgin Islands will finalize the proposed revisions (included as appendix 9 of the program submittal) to the rules and regulations of the Environmental Protection Program to make them consistent with the requirements, review process and applicability of the VICZMA.

**RATIONALE:** The designation of Areas of Particular Concern (APCs), Environmental Protection Program, and the requirements for an EAR under the VICZMA provide a strong foundation for watershed protection. In particular, section 906 of the VICZMA provides for the conservation of significant natural areas to protect marine productivity, habitat value and storm buffering capabilities through the CZM permit review process. Development in the first tier is reviewed for consistency with these broadly written goals. This process assures that the environmentally sensitive areas identified in the watershed protection management measure are protected. As described above under new development, when

amended as proposed, the earth change permit requirements and associated review will be based on the same criteria as those used for CZM permitting activities in the first tier, affording equivalent levels of protection throughout the 6217 management area.

This review process, although protective on a site level basis, does not necessarily result in a watershed level focus. The Virgin Islands is encouraged to increase the degree of emphasis and coordination at the watershed level for all watersheds and to pursue the adoption of management plans for its eighteen APCs.

To address the existing development management measure, the Virgin Islands has proposed to develop a Watershed Management Plan consistent with the Land and Water Use Plan that prioritizes watersheds for implementation of best management practices. This proposal includes a schedule of implementation for existing sources. As proposed, the Watershed Management Plan will result in conformity with the existing development management measure by prioritizing watersheds for the implementation of best management practices and including a schedule for implementing appropriate controls.

#### C. SITE DEVELOPMENT, CONSTRUCTION SITE EROSION AND SEDIMENT CONTROL and CHEMICAL CONTROL

**FINDING:** The Virgin Islands program includes management measures in conformity with the 6217(g) guidance and includes enforceable policies and mechanisms to ensure implementation.

**RATIONALE:** The revised Handbook for Homebuilders and Developers provides clear guidelines to follow in implementing the site development management measure. The Environmental Protection Law, VICZMA, and Title 12, VIC, Chapter 3, 123 (Trees and Vegetation Adjacent to Watercourses) provide authorities that can be used to ensure implementation of the site development management measure. The VICZMA and the Environmental Protection Program require permits for all earth change activities. The development application and checklists for these permits, coupled with the Environmental Protection Handbook, provide both guidance and a review process to assure that proper erosion and sediment and chemical control are implemented by applicants for development projects. Major projects in the coastal zone are also required to submit an EAR. Compliance with the erosion and sediment control requirements for both earth change and CZM permits is verified by a site visit by the Earth Change Officer. Under the Environmental Protection Law, cease work orders, arrest of violators and fines may be used to ensure compliance with permits.

The Virgin Islands is encouraged to finalize the draft Development Applications and Checklists described on page 46 of the program submittal. The adoption of these checklists will provide a consistent and objective basis by which to evaluate

proposed projects and their potential environmental impacts.

NOAA and EPA also recommend that the Virgin Islands establish, through the VICZMA and earth change permit processes and accompanying erosion and sediment control plans:

1) a minimum time period within which revegetation of exposed soil on a site should occur and within which temporary soil stabilization measures should be in place following land clearing; and 2) a requirement that permanent stabilization measures be in place before a certificate of occupancy is issued.

#### D. NEW and OPERATING ONSITE DISPOSAL SYSTEMS (OSDS)

**FINDING:** The Virgin Islands program does not yet contain management measures in conformity with the 6217(g) guidance but includes enforceable policies and mechanisms to ensure implementation.

**CONDITION:** Within two years, the Virgin Islands will amend its program to include measures for alternative systems in areas unsuitable for conventional systems, appropriate performance standards for the alternative systems, and measures to assure that existing failing systems are repaired or replaced.

**RATIONALE:** The Virgin Islands, through Section 1404-72 of the Sanitation Regulations, has broad enforcement authority to address water pollution related to OSDS. The Virgin Islands has recognized, however, that revisions to its existing program are needed to address several major program deficiencies and has proposed changes to fill these gaps. Chief among these necessary changes is the need to provide management measures that protect coastal water quality where conventional OSDS are not suitable and in areas where additional nitrogen reduction is needed. The proposed measures for alternative systems will address both of these issues.

In addition, the Virgin Islands has acknowledged the need to enhance its program to ensure that existing OSDS are inspected, operated and maintained properly. As described on page 58 of the program submittal, the Virgin Islands has proposed several actions to address failing and failed systems. The Territory proposed to begin inspection of existing systems by October, 1996. An inventory of reported failures will be used to conduct inspections and the DPNR will require remedial actions for failed systems. The Virgin Islands is strongly encouraged to pursue these efforts, recognizing that inspection and replacement of existing systems may need to be phased in over the timeframe for full coastal nonpoint program implementation.

#### E. POLLUTION PREVENTION

**FINDING:** The Virgin Islands program includes management measure in conformity with the 6217(g) guidance.

**RATIONALE:** As described on pages 61-65 of the program submittal, the Virgin Islands has numerous pollution prevention programs that address the elements of the pollution prevention management measure. Of particular note are the publications, slide shows, presentations and activities of the Cooperative Extension Service of the University of the Virgin Islands. NOAA and EPA encourage the Virgin Islands to expand program activities to include turf/golf course management and pet waste management.

#### F. ROADS, HIGHWAYS, AND BRIDGES

**FINDING:** The Virgin Islands program includes management measures for roads, highways, and bridges in conformity with the 6217(g) guidance, except for the management measures for operation and maintenance and runoff systems. The program includes enforceable policies and mechanisms to ensure implementation, except the Virgin Islands program does not apply to existing roads, highways and bridges that contribute to adverse effects in surface waters.

**CONDITION:** Within three years, the Virgin Islands will include in its program management measures in conformity with the 6217(g) guidance for operation and maintenance and runoff systems and include enforceable policies and mechanisms to ensure implementation for existing roads, highways and bridges that contribute to adverse effects in surface waters.

**RATIONALE:** The Virgin Islands earth change and CZM permit programs include authorities and associated requirements to ensure implementation of the roads, highways, and bridges management measures as they relate to new developments. As described above for the new development management measure, the Virgin Islands is planning a comprehensive program revision that will consolidate reviews and revise checklists to make permitting requirements consistent. These changes will further improve the ability to implement the planning, siting, and development, construction project and chemical control management measures for roads, highways and bridges.

The Department of Public Works has authority to conduct maintenance activities under Highways and Motor Vehicles Title 20, Chapter 1 VIC Section 1, but a program to address the operation and maintenance of existing roads is not described. NOAA and EPA recommend that the Virgin Islands consider including operation and maintenance practices that apply during and after construction in permit applications, checklists, and any associated technical references that may be developed. Title 20, Chapter 1 VIC, Section 43 requires the Governor to submit to the Virgin Islands legislature long-range road and highway programs and recommendations for improvement. These programs could be used to address the runoff systems management measure if the road and highway projects include improvements to existing runoff control structures.

## V. MARINAS AND RECREATIONAL BOATING

**FINDING:** The Virgin Islands program includes management measures in conformity with the 6217(g) guidance and includes enforceable policies and mechanisms to ensure implementation.

**RATIONALE:** New and expanding marinas in the Virgin Islands are required to obtain a CZM permit. This permit must include an EAR. EAR guidelines have recently been revised to include supplemental EAR guidelines for marina development. These supplemental guidelines provide the EAR preparer/permit applicant with the management measures, which "must" be addressed in the EAR, as well as "recommended practices" that can be used to implement the management measures. These guidelines apply to the construction of new marinas, the expansion of existing marinas, and the operation and maintenance of existing marinas.

The Virgin Islands has several enforceable policies and mechanisms that can be used to ensure implementation of the marinas operation and maintenance management measures. These authorities address solid and hazardous waste, fish waste, liquid material, petroleum control, boat cleaning, and boat operation and are contained in the Virgin Islands Code, Title 12, Chapter 17; Title 19, Chapter 56; and Title 25, Chapter 12 and 16 and Section 408(c). In response to concern over environmental impacts of jet skis, rules and regulations have been promulgated to regulate the use of personal watercraft in the Territory.

## VI. HYDROMODIFICATION

**FINDINGS:** The Virgin Islands program includes management measures in conformity with the 6217(g) guidance and enforceable policies and mechanisms to ensure implementation of the management measures, except the Virgin Islands program does not include a process to improve surface water quality and restore instream and riparian habitat through the operation and maintenance of existing modified channels.

**CONDITION:** Within three years, the Virgin Islands will develop a process to improve surface water quality and restore instream and riparian habitat through the operation and maintenance of existing modified channels.

**RATIONALE:** The Virgin Islands Building Code and the CZM Program implement the elements of the management measures for channelization and channel modification and for shorelines and streambanks, except for restoration of instream and riparian habitat through the operation and maintenance of existing modified channels. Projects involving channel alterations consider overall stability of the channel, flood carrying capacity, and effects on water velocity caused by steepening or other alterations. The Code provides for stabilizing side slopes and stream bottoms with grass, adding spillways and shaping stream beds wherever land clearing

and grading occur near altered stream channels. Large trees are protected wherever they offer no obstruction to flow. Additional practices are used where necessary to ensure efficient function and stability of streams. The VICZMA requires that all development be designed to minimize adverse impacts on habitat and water quality and prohibits land development within 100 feet of mean high tide, except for preparation of access ways to the beach.

Subsequent to the program submittal, the Virgin Islands provided additional information on the freshwater environment in the Virgin Islands. Though the existence of small streams (guts) is very limited in the Virgin Islands, it appears that there are opportunities to improve instream and riparian habitat in some of the existing modified channels. NOAA and EPA encourage the Virgin Islands to identify opportunities to restore instream and riparian habitat in those channels in order to meet the condition above.

In the program submittal, the Virgin Islands requested an exclusion for dams. The Virgin Islands has eight dams, of which seven provide water supply for agriculture and are operated and maintained in conformance with conservation plans developed by the Department of Agriculture. For these agricultural dams, the erosion and sediment control and chemical and pollutant control management measures for dams are addressed through Earth Change plans for agricultural lands. The management measure to protect surface water quality and habitat from the effects of dams is inapplicable to the Virgin Islands because of the absence of perennial streams and unique hydrology of the Territory. The eighth dam (Creque Dam) is no longer in use and impounds a dry, silted-in reservoir. Because this dam is not functional and does not impound surface water, it is not subject to the dams management measures.

The management measure for eroding streambanks and shorelines does not apply to the Virgin Islands program because: (1) there are no perennial streams in the Virgin Islands, and (2) the (g) management measure does not apply to open ocean shoreline, which characterizes the shorelines of the Virgin Islands.

## VII. WETLANDS, RIPARIAN AREAS AND VEGETATED TREATMENT SYSTEM

**FINDING:** The Virgin Islands program includes management measures in conformity with the 6217(g) guidance and includes enforceable policies and mechanisms to ensure implementation, except there are exemptions and limitations in the geographic coverage of the program.

**CONDITION:** Within three years, the Virgin Islands will develop a process to identify and implement opportunities to remedy problems in wetlands/riparian areas that do not come up for review under existing permit authorities.

**RATIONALE:** The Virgin Islands requires permits for disturbance of any growth of mangroves (which comprise the bulk of Virgin Islands wetlands). The policy in granting mangrove permits is to prevent a net loss of wetlands. The Virgin Islands also evaluates impacts of proposed development on wetlands habitat at the site. When wetlands are degraded due to improper development, the CZM Program can initiate mitigative measures, but because of a staff shortage and because the Virgin Islands Land Development Permit contains a joint CZM-Corps of Engineers application process, staff prepare and submit a report to the U.S. Army Corps of Engineers. The Corps then implements mitigative practices.

The CZM permitting process protects wetlands and riparian areas on a case-by-case basis as projects in wetlands are reviewed under existing permit authorities. However, the Virgin Islands program does not provide for implementation of management measures in the absence of a permit application for a proposed alteration or modification to an existing wetland.

To implement the management measure promoting restoration of wetlands and riparian areas, the Territory supports the purchase of environmentally sensitive areas for conservation and restoration purposes through the Natural Resources Reclamation Fund, which collects fees from rents, reclamation projects, permits, and fines paid pursuant to the provision of the VICZMA.

Because of topography and climate, the Virgin Islands does not always recommend retention structures to treat stormwater runoff. However, the Virgin Islands routinely requires establishment of vegetation at disturbed sites and vegetated filter strips to treat stormwater runoff. The Virgin Islands utilizes these practices to reduce stormwater impacts and may include such practices as permit conditions. The Virgin Islands intends to pursue this strategy to implement the management measure to promote the use of vegetated treatment systems.

## VIII. ADMINISTRATIVE COORDINATION

**FINDING:** The Virgin Islands program establishes mechanisms to improve coordination among territorial agencies and between cooperating federal and regional agencies.

**RATIONALE:** The Virgin Islands proposes to implement the coastal nonpoint program through a combination of existing territorial authorities administered by agencies identified on pages 122-123 of the program submittal. The DPNR is the lead agency which will ensure implementation of the management measures in the Territory. DPNR has worked cooperatively with relevant agencies and academic institutions in the Virgin Islands to provide the basic structure for coastal nonpoint program development. Coordination mechanisms include MOUs (between the DPNR, the Virgin Islands Conservation District and the Department of

Agriculture) to implement the agriculture measures and an Interagency Agreement (between DPNR and the U.S. Department of the Interior Geological Survey) for the operation and maintenance of surface water, ground water and sediment monitoring stations in the Virgin Islands. Additionally, the Virgin Islands Nonpoint Source Pollution Technical Committee, comprised of representatives from all agencies who are responsible for program development and implementation, is a mechanism to ensure nonpoint source management issues are considered by the respective entities.

## IX. PUBLIC PARTICIPATION

**FINDING:** The Virgin Islands program provides opportunities for public participation in the development and implementation of the coastal nonpoint program.

**RATIONALE:** In the program submittal, the Virgin Islands describes several activities that provide opportunities for public participation in the coastal nonpoint program during the preparation and implementation phases. These opportunities include conducting several public meetings and workshops throughout the Virgin Islands and an annual Virgin Islands Nonpoint Source Conference. In addition, an MOU was initiated (between the DPNR and University of Virgin Islands) to develop and support education and public awareness programs. The Virgin Islands Nonpoint Source Pollution Technical Committee is responsible for coordinating and disseminating current and future nonpoint source outreach and technical assistance materials to the public and interested parties. Public comments were received on the program document (published July 1995). The Virgin Islands has provided for additional opportunities for public review of program elements that were missing from the original submittal.

## X. TECHNICAL ASSISTANCE

**FINDING:** The Virgin Islands program includes programs that will provide technical assistance to the public for implementing additional management measures.

**RATIONALE:** In the program submittal, the Virgin Islands describes a variety of technical assistance initiatives available to the general public, including the DPNR's new policy on providing assistance to other governmental agencies and interested persons about standard procedures for permit approval and compliance with requirements and regulations for development. Technical Assistance is provided through guidance documents, training, and one-on-one assistance.

## XI. CRITICAL COASTAL AREAS

**FINDING:** The Virgin Islands program identifies a process for the continuing identification of critical coastal areas adjacent to impaired and threatened coastal waters.

**RATIONALE:** In the program submittal, the Virgin Islands identifies eighteen APCs that could be considered critical coastal areas. These APCs, previously designated under the authority of VICZMA, generally follow the second approach described in the program guidance whereby the Virgin Islands relies on site-specific evaluations of APCs, established on an ecosystem basis, to identify impaired or threatened coastal waters.

## XII. ADDITIONAL MANAGEMENT MEASURES

**FINDING:** The Virgin Islands program provides for implementation and continuing revision of additional management measures applicable to critical coastal areas and cases where (g) measures are fully implemented but water quality threats or impairments persist.

**RATIONALE:** The DPNR is currently developing comprehensive management plans for eighteen previously designated APCs identified in the program submittal. Upon adoption, the plans will provide a mechanism to implement additional management measures as required for each APC.

## XIII. MONITORING

**FINDING:** The Virgin Islands program does not include a plan to assess over time the success of the management measures in reducing pollution loads and improving water quality.

**CONDITION:** Within one year, the Virgin Islands will develop a plan that enables the Territory to assess over time the extent to which implementation of management measures is reducing pollution loads and improving water quality.

**RATIONALE:** In the program submittal, the Virgin Islands describes its ambient monitoring program (AMP), compliance monitoring efforts, and its section 319 storm-event monitoring program, but does not describe how they will be applied to the section 6217 program. Each of these efforts has the potential to help the Virgin Islands assess over time whether the management measures are reducing pollution loads and improving water quality. For example, the AMP could possibly be useful for measuring impacts to near-coastal waters on a "watershed" basis. The "detailed, high frequency sampling programs for specific projects" described on page 124 could possibly be suitable for assessing the effectiveness of individual management measures. The section 319 storm-event monitoring could possibly be used to assess the success of the management measures at either the watershed or site-specific scale. The Virgin Islands should consider these options in developing its plan.

The Virgin Islands should also include some tracking of management measure implementation in conjunction with water

quality monitoring, as such information is needed to assess the success of management measures in achieving water quality objectives.