

# MARYLAND DEPARTMENT OF THE ENVIRONMENT



## MANAGING MARYLAND FOR RESULTS FISCAL YEAR 2009 WORKPLAN

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# Maryland Department of the Environment

## Managing Maryland for Results

### Fiscal Year 2009 Workplan

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# MARYLAND DEPARTMENT OF THE ENVIRONMENT

## MANAGING MARYLAND FOR RESULTS

### FISCAL YEAR 2009 WORKPLAN

#### INTRODUCTION

This is the Maryland Department of the Environment's (MDE's) Fiscal Year 2009 Managing for Results (MFR) Workplan. This document reports on MDE's commitment to using results-based strategic planning and quality management approaches to achieve its public health, environmental, and management goals. Please note that although this document highlights many priority areas, it is not comprehensive and is not intended to cover all MDE activities.

#### GOALS

MDE uses the following six broad goals to organize and measure its progress in achieving its mission, vision, and goals:

- Goal 1: Promoting Land Redevelopment and Community Revitalization
- Goal 2: Ensuring Safe and Adequate Drinking Water
- Goal 3: Reducing Maryland Citizens' Exposure to Hazards
- Goal 4: Improving and Protecting Maryland's Water Quality
- Goal 5: Ensuring the Air is Safe to Breathe
- Goal 6: Providing Excellent Customer Services to Achieve Environmental Protection.

#### REPORT ORGANIZATION

Within each of the goals, this MFR workplan is organized into several objectives. The following information is presented for each objective:

1. description of the objective;
2. list of the strategies to achieve the objective;
3. chart of performance data; and
4. graphic indicator(s) of performance.

## **MISSION**

MDE's mission is to protect and restore the quality of Maryland's air, water, and land resources, while fostering economic development, safe communities, and quality environmental education for the benefit of the environment, public health, and future generations.

## **VISION**

MDE's vision is to ensure a clean environment and excellent quality of life for all Marylanders.

## **MDE CUSTOMERS AND STAKEHOLDERS**

MDE's customers include Maryland citizens who expect protection and restoration of the environment; businesses, governments, and individuals who are applying for permits and receiving technical assistance; and technical personnel including well drillers, sanitarians, waste water operators, and asbestos contractors who require certification. Other key stakeholders include environmental and public health advocacy groups, citizen groups, educators, scientists, and natural resource users.

## **FINAL NOTE**

Per state requirements, this document is prepared in September 2007, nine months prior to the beginning of the fiscal year to which it relates. Numerous factors, particularly state and federal funding, can change in those months in ways that may have significant impact on the Department's ability to meet the objectives appearing here.

## 1.1 Voluntary Cleanup Program

**Introduction:** Maryland's rich industrial history has resulted in a significant number of properties where investigation and/or cleanup of contamination is necessary to ensure protection of public health and the environment. This program eliminates threats to public health from exposure to soils, groundwater, and surface water contaminated by controlled hazardous substances or oil, while encouraging the revitalization of industrial and commercial properties. Redevelopment of these properties results in environmental cleanup, may provide economic development benefits including new jobs and increased tax revenues, and promotes wise economic growth by using existing infrastructure and reducing development in undeveloped areas or "greenfields."

**Objective 1.1:** Continue to increase the annual number of acres and properties of Brownfields/Voluntary Cleanup Program (VCP) sites remediated/completed during the previous fiscal year as resources and economic conditions allow.

**Strategy 1.1.1:** Continue to market and encourage participation in the cleanup and redevelopment of Brownfields properties through seminars, workshops, and other outreach activities for businesses, financial institutions, affected communities, environmental advocacy groups, and citizens; continue to evaluate and discuss beneficial improvements to the VCP utilizing the Maryland Chapter of the National Brownfields Association to discuss Brownfields implementation and direction; continue to evaluate applicants that withdraw from the program or potential applicants that do not proceed in the program following a pre-application meeting and assess possible program improvements based on these evaluations; and continue to implement the provisions of Brownfields Redevelopment Reform Act of 2004.

**Strategy 1.1.2:** Continue to oversee cleanups of eligible properties and provide technical assistance to private industry for assessments and cleanups of hazardous waste sites.

**Strategy 1.1.3:** Continue to implement the Brownfields Site Assessments Initiative, designed to help eligible property owners or prospective purchasers determine the extent of contamination on the property, at no cost. Owners and prospective purchasers of property that is planned for participation in the VCP may apply for Brownfields Site Assessments, which will reduce the costs associated with the VCP application process.

**Strategy 1.1.4:** As part of the EPA's Land Revitalization and One Cleanup Program Initiative, MDE will continue to partner with EPA to address, through a coordinated cleanup approach, areas where widespread contamination affects multiple jurisdictions. The purpose of the pilot is to coordinate federal and State resources on area-wide contamination problems with a focus on reuse and redevelopment. The lessons learned from the pilot will be used to guide long-term policy directions.

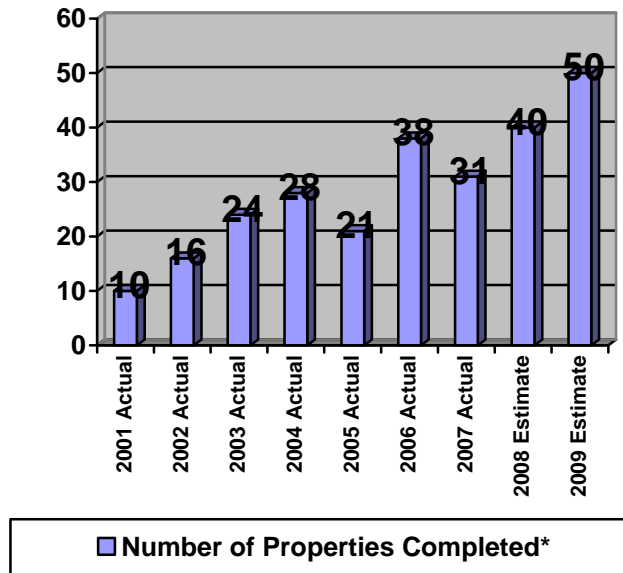
**Performance Measures:**

Performance Measures (data are annual, not cumulative, unless otherwise noted)	FY 2006 Actual	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate
Total number of acres of property in the VCP completed and a No Further Requirements Determination or a Certificate of Completion issued	440	582	640	740
Total number of properties in the VCP completed and a No Further Requirements Determination or a Certificate of Completion issued	38	31	40	50
Cumulative number of properties remediated/completed since the beginning of the program	166	197	237	287
Number of additional jobs created each year as a result of Brownfields/VCP site development*	2,765	730	3,000	3,100
Amount of capital investment in redevelopment of Brownfields/VCP sites that have been cleaned up*	\$655 million	\$203 million	\$350 million	\$500 million
Estimated increase in tax base from job creation and/or capital investment as a result of Brownfields/VCP site redevelopment as reported by VCP participants*	\$124 million	\$68 million	\$175 million	\$200 Million
Percentage of VCP properties where streamlined deadlines were met in reviewing applications and Response Action Plans	100% (73/73)	100% (60/60)	100% (75/75)	100% (40/40)

\*This information was obtained from applications or from responses to a survey of all VCP participants who had received either a No Further Requirements Determination or a Certificate of Completion during FY2007. Some participants did not complete the survey and the operations on some properties remained unchanged and were not redeveloped. MDE is not able to verify the accuracy of this third-party information.

**Performance Indicator:**

**Voluntary Cleanup Program**



\* A No Further Requirements Determination or a Certificate of Completion issued

**Progress and Challenges:**

The actual number of properties (31) completing the VCP in FY2007 was less than the estimated 48 and the total number of acres completed (582) was greater than the estimated 540 for FY2007. It is anticipated that the total number and acreage of properties completed in FY2008 and FY2009 may increase over the previous fiscal year if the current trend in the number of applications received continues to increase and there is a steady increase in the number of sites completing an approved response action plan. It is anticipated that the Program's Community Redevelopment Coordinator will continue to play an important role in marketing the program.

MDE continues to evaluate the reasons for applicant withdrawal from the VCP and the failure of some potential applicants to apply to the program following a pre-application meeting. Preliminary results have indicated that, in the majority of cases, the decision to withdraw or not apply has been mainly a business decision and not VCP-related. In addition, future stakeholder meetings to discuss the day-to-day operations of the program are expected to include current and future economic trends that will inevitably impact the level of participation in the program.

It is expected that the substantive changes to the VCP statute through the 2004 Brownfields Redevelopment Reform Act and the addition of more project managers to oversee the work of the VCP will continue to have a positive impact on the overall improvement and efficiency of the VCP process in the future.

## 1.2 Recycling

### Introduction:

Solid waste recycling and source reduction activities save energy, reduce the amount of greenhouse gases produced in the manufacturing process, conserve natural resources, and preserve landfill capacity. MDE's Recycling Program promotes recycling and source reduction across the State by providing technical assistance. The Program works to strengthen and expand recycling-promotion partnerships with other Maryland agencies including the Department of Business and Economic Development, Maryland Environmental Service, Department of General Services and the Northeast Maryland Waste Disposal Authority. Other partners include local governments, businesses, universities, and non-profit organizations.

In this workplan, MDE reports two statewide diversion rates: (1) the statewide voluntary waste diversion rate; and (2) the percentage of all solid waste diverted annually from disposal. Both of these measures build on the Maryland Recycling Act recycling rate (the MRA rate). The MRA rate measures the percentage of municipal solid waste recycled. The statewide voluntary waste diversion rate is the MRA rate plus a source reduction credit, earned by the Counties, for activities like reuse and backyard composting. The percentage of all solid waste diverted annually from disposal, includes the statewide voluntary waste diversion rate and the recycling of other, non-MRA materials, such as construction and demolition debris.

**Objective 1.2:** Maintain the statewide voluntary waste diversion rate at 40% each calendar year.

**Strategy 1.2.1:** MDE will continue to provide technical assistance to the counties and Baltimore City on recycling and source reduction opportunities. MDE will continue to maintain regular communication with local jurisdictions to identify opportunities to integrate efforts and maximize resources.

**Strategy 1.2.2:** MDE will work in conjunction with EPA Region 3 on the Resource Conservation Challenge (RCC). The RCC seeks to increase the EPA recycling rate to 35% by 2008 by targeting the major food and paper waste generators in each State.

**Strategy 1.2.3:** MDE will promote electronics recycling and continue implementation of the Statewide Electronics Recycling Program by providing technical assistance to electronics manufacturers on registration and electronics take-back program requirements; providing technical assistance to retailers, electronics recyclers, and local governments; and providing financial support through grants from the State Recycling Trust Fund for county and municipal government electronics collection and recycling activities, as funding is available. MDE will continue to promote electronics recycling through partnerships with business and industry, EPA and local and State governments, with particular emphasis on seeking additional opportunities for manufacturer "take-back" programs.

**Strategy 1.2.4:** MDE will continue to seek regional solutions for difficult-to-recycle materials, such as construction and demolition debris and mercury. To recognize the effort counties and businesses are making to recycle these types of materials, the Program is reporting an overall solid waste recycling rate and a waste diversion rate, in



addition to the Maryland Recycling Act recycling rate. Partnerships with the private sector, EPA, local governments, and other State agencies to encourage market development activities and increase recycling awareness will be identified, developed and maintained.

**Strategy 1.2.5:** MDE will continue to devote staff to assist State agency recycling coordinators in their efforts to establish successful collection and waste diversion programs. MDE will continue advising State agency coordinators on improving site-specific recycling programs, and will also continue publishing a newsletter to highlight the benefits of State government recycling and source-reduction efforts.

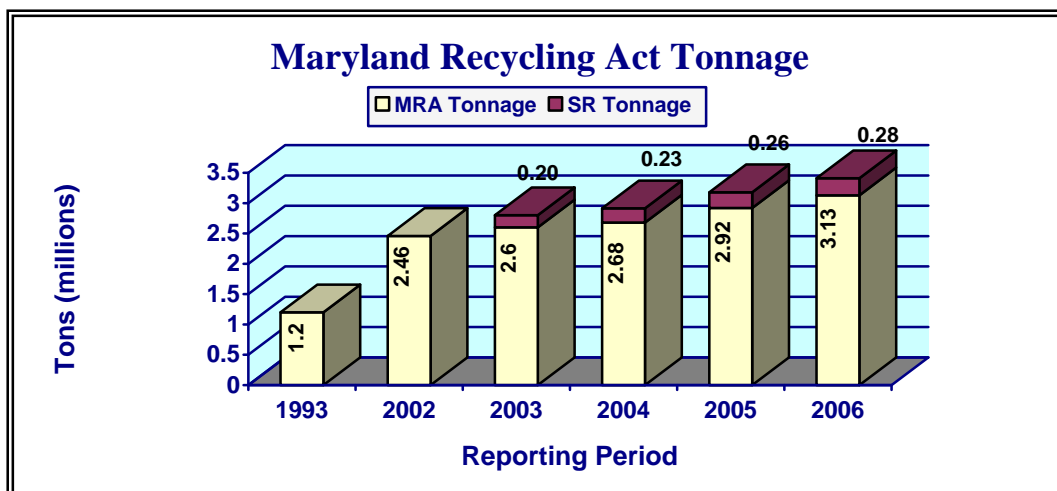
**Strategy 1.2.6:** MDE will continue to work with EPA on the Region 3 Waste Minimization Program, a voluntary national effort to reduce the quantity of hazardous waste, emphasizing 31 “priority chemicals” and assisting hazardous waste generators in minimizing or eliminating their waste at the source (includes recycling). This will reduce potential threats to human health and the environment.

**Performance Measures:**

Performance Measures (data are annual, not cumulative, unless otherwise noted)	CY 2005 Actual	CY 2006 Actual	CY 2007 Estimate	CY 2008 Estimate
Total MRA tonnage diverted annually (equal to MRA recycling tonnage + tonnage diverted via source reduction credits) from disposal	3,189,249	3,408,443	3,459,750	3,511,646
Percentage of MRA solid waste that is diverted annually (MRA materials recycled + source reduction credit = waste diversion rate) from disposal	42.6%	44.7%	45.4%	46.1%
Percentage of all solid waste (MRA and non-MRA) that is diverted annually from disposal	50.6%	51.5%	52.3%	53.1%

Note: Recycling data is collected from local governments on a calendar-year basis

## Performance Indicators:



## Progress and Challenges:

- The nearly level source reduction and recycling rate performance data reflect the national trend toward stabilization of rates.
- Source reduction (SR) activities are activities performed by local governments in Maryland and designed to reduce the amount of waste generated. In CY 2006, 15 Counties performed various SR activities that resulted in a Statewide SR credit of 3.55%. This is an increase from the 3.43% SR credit from 15 counties in CY 2005. The resulting theoretical tons of waste reduced increased from 265,366 tons in CY 2005, to 279,542 tons in CY 2006.
- Funding is a significant challenge when implementing local electronics recycling programs. The State Recycling Trust Fund will begin to receive increased initial registration fees from electronics manufacturers on January 1, 2008 (from \$5,000 to \$10,000) and it will take several years to determine how much continued funding will be available to support electronics recycling programs. The registration of electronics manufacturers will continue to be a compliance challenge. With the passage of the Statewide Electronics Recycling Program, only State Recycling Trust Fund money in excess of \$2 million reverts to Maryland's General Fund at the end of the fiscal year. This change allows MDE to better plan and utilize manufacturer registration fees for their intended purpose. MDE plans to continue to provide grants to counties and municipalities and consider a media campaign to further raise awareness of the need to recycle electronics.
- With computer registration money received in FY 2007, MDE issued \$190,000 in grants to 13 Maryland counties and 4 municipalities for varying types of computer recycling programs.
- Recycling rates at State agencies continue to be flat. Barriers to increasing recycling at State agencies include janitorial contracts that do not include recycling, lack of funding to set up recycling programs, and lack of space to store recyclables prior to pick-up. MDE will work with the Department of General Services to try to modify State leasing contracts to

require recycling services as part of real estate leases. As part of its State agency recycling improvement plan, MDE will continue to develop outreach materials that can be used by State agencies to promote their recycling programs.

- In FY 2007, the Waste Management Administration conducted the fifth annual high school student “Rethink Recycling” Sculpture Contest, held at MDE featuring student sculptures made from reused and recycled materials.

## 1.3 Scrap Tires

**Introduction:** Cleaning up stockpiles of tires protects and maintains land resources and public health, and reduces risk of fire. MDE implements the Scrap Tire Recycling Act to clean up stockpiled tires and issue licenses for scrap tire collection, hauling, recycling, and processing to ensure proper disposal and prevent illegal scrap tire stockpiles. The program actively seeks opportunities for recycling scrap tires, such as energy recovery, scrap tire playgrounds, and landfill construction. MDE implements controls through an active permitting and enforcement program.

**Objective 1.3:** Initiate the planning and cleanup process within 30 days of discovery for 100% of illegal scrap tire stockpile sites identified each year.

**Strategy 1.3.1:** Maintain inspections, compliance assistance, and enforcement actions of scrap tire licensees to discourage illegal scrap tire dumps and to reduce or eliminate the potential for the accumulation of massive new scrap tire stockpiles. Continue coordinating with the State Fire Marshal’s Office to ensure that plans for tire recycling and storage facilities meet applicable fire prevention standards and have adequate provision for fighting fires should they occur.

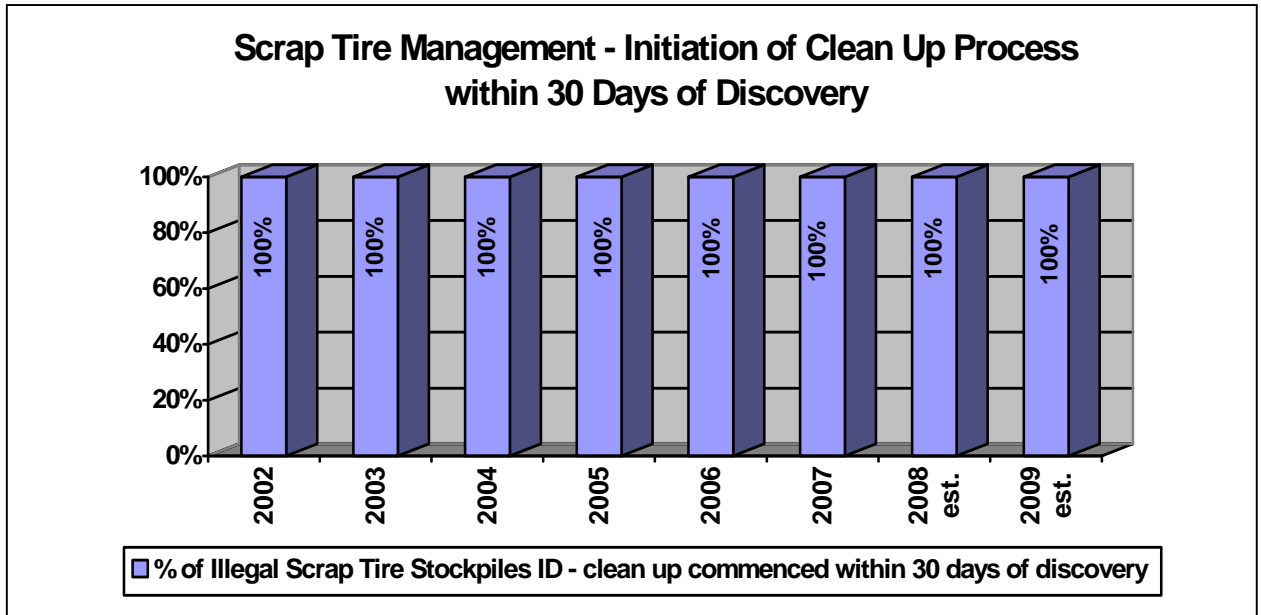
**Strategy 1.3.2:** Continue the identification and cleanup of stockpiled scrap tires.

**Strategy 1.3.3:** Encourage more recycling or reuse of scrap tires by conducting projects that reduce, recover, or recycle scrap tires. These projects may include constructing scrap tire playgrounds, sponsoring citizen scrap tire drop-off events, promoting the use of products made from recycled scrap tires such as footing material in horse stalls and equestrian arenas, and encouraging civil engineering applications for scrap tires as in landfill closure cap design and new cell closure.

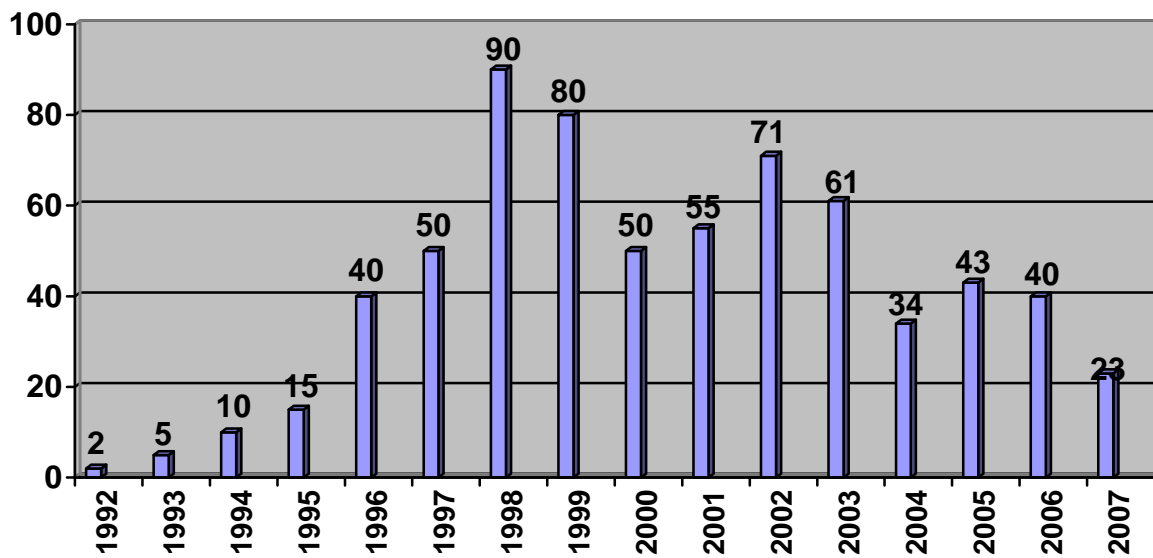
**Performance Measures:**

Performance Measures (data are annual, not cumulative, unless otherwise noted)	FY 2006 Actual	FY2007 Actual	FY 2008 Estimate	FY 2009 Estimate
Number of scrap tires removed since the inception of the program in 1992 (cumulative)	8,560,428	8,571,715	8,600,000	8,700,000
Percentage of inspected scrap tire hauling, collection, storage, and processing facilities in significant compliance	98%	99%	99%	99%
Percentage of illegal scrap tire stockpiles identified where the planning and cleanup process commenced within 30 days of discovery	100%	100%	100%	100%
Total number of scrap tires identified at the end of the fiscal year which remain to be cleaned up	1,602,711	1,584,754	1,550,000	1,500,000

Performance Indicators:



### Number of Scrap Tire Stockpile Cleanups Completed Each Fiscal Year



## **Progress and Challenges:**

This objective continues to be met through diligent effort. The Department has been successful in continuing to cleanup scrap tire dumps, as indicated by the fact that over 11,000 scrap tires were cleaned up in FY 2007. However, the Program continues to discover more scrap tire dumps, so there continues to be a large number of scrap tires that remain to be cleaned up. As the Program has progressed, the difficulty in cleaning up sites has increased.

The large, easy-to-cleanup sites were completed early in the Program and now work is being conducted on the more difficult sites, which often have steep terrain, heavy forest growth, the presence of other types of solid waste, or large numbers of buried tires. These factors make cleanups more complicated, time-consuming, and expensive. The Program is working with the Maryland Environmental Service to improve its ability to process dirty tires from buried dumps and unpaved junkyards, which will enhance the Program's ability to cleanup these types of sites.

Challenges to the Program remain. Although Program staff is still aggressively identifying scrap tire stockpiles and pursuing cleanups, difficulties in hiring compliance staff to identify sites, perform investigations, initiate enforcement actions, oversee cleanups, and support cost-recovery actions is an ongoing obstacle.

The Department is nearing completion of work with the Maryland Environmental Service and the private sector on a project to develop a "best practices" manual to encourage engineers and designers to facilitate the use of tire-derived products into civil engineering projects. The manual will be able to advise the design engineer of possible uses for engineering materials derived from scrap tires, including the use of tire chips in drainage layers. The guidance will increase the utilization of these materials and using these alternatives will help conserve natural resources, such as gravel and crushed stone.

## 2.1 Public Drinking Water Compliance

### Introduction:

The Water Supply Program's activities help to ensure that community water systems provide safe drinking water to their customers. The greatest challenges for all public water systems are managing and protecting water systems with limited resources, while complying with the ever-increasing number of State and federal regulatory requirements and standards.

Water system compliance is assured through a variety of activities, including:

- Training and guidance materials for water system owners and operators;
- Continuing to perform sanitary surveys, comprehensive performance evaluations, and technical assistance to identify compliance issues; and
- Support of operator training programs.

**Objective 2.1:** To ensure compliance of community and non-transient non-community public water systems with all federal and State drinking water regulations. At least 97% of the population served by public water systems (community and non-transient non-community) will be in compliance with the State regulations adopted as of 2004.<sup>1</sup>

**Strategy 2.1.1:** Adopt all federal drinking water regulations finalized by EPA. Implement the recent regulation changes for the Interim Enhanced Surface Water Treatment Rule, Long Term 1 Surface Water Treatment Rule, Stage 1 Disinfection Byproduct Rule, revised Public Notification Rule, Arsenic Rule, Lead and Copper Rule Minor Revisions, and Radionuclide Rule.

**Strategy 2.1.2:** Continue providing on-site technical assistance such as the Area-Wide Optimization Program and the comprehensive performance evaluations (CPEs), which are technical assistance tools used to identify areas that affect the performance of surface water filtration plants. A team of three or four staff from the Water Supply Program experienced in water filtration design and operation conducts CPEs. The final reports are used by water systems to prioritize identified improvements that will enhance drinking water quality and treatment plant reliability.

**Strategy 2.1.3:** Continue providing financial assistance to water systems under the Drinking Water Revolving Loan Fund (DWRLF) in the amount of \$32M for FY09; and \$3M in FY09 for grants programs to assist communities in upgrading their water supply systems. Capital funding will be targeted to projects with the highest public health needs. For eligible "growth-related" projects, funding will be targeted toward Priority Funding Areas consistent with the law. Funds appropriated by the Legislature for FY09 will be utilized in a timely manner by encumbering not less than 90% of funds by the end of FY09. Capital safe drinking water projects will be monitored and tracked for schedule slippage. Major schedule slippage will be flagged for management review and action.

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<sup>1</sup> New federal drinking water regulations are finalized regularly. EPA and states have adopted the management goal of bringing water supply systems into compliance within five years of the adoption of new regulations.

Opportunities to accelerate projects and/or reprogram funding to other projects ready to proceed will be routinely evaluated.

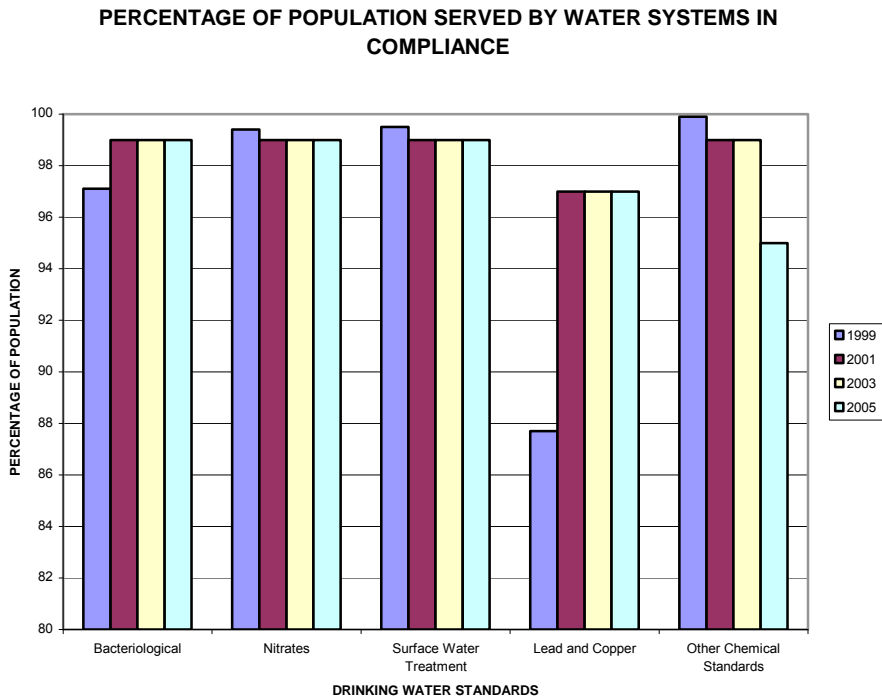
**Strategy 2.1.4:** Promote compliance assistance through frequent contact with water systems and when necessary take enforcement actions against water systems that are not in compliance with State and federal drinking water regulations.

**Performance Measures:**

Performance Measures (data are annual, not cumulative, unless otherwise noted)	FY 2006 Actual	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate
Percentage of Marylanders served by public water systems in significant compliance with all rules adopted for five years or more	97%	97%	97%	97%
Percentage of community water systems in compliance with health-based standards	93%	93%	95%	95%
Percentage of community and non-transient water systems in compliance with State regulations	82%	84%	87%	87%
Number of public water system enforcement actions initiated	384	247	250	250
Number of compliance assistance actions provided	1,101	1,247	1,100	1,100
Dollar amount of Drinking Water State Revolving Fund (DWSRF) loans	\$1.5M	\$34.5M	\$20.8M	\$32.1M
Number of DWSRF projects financed	4	7	13	13
Capital grant funds encumbered for capital improvement projects by Water Supply Financial Assistance Program	\$1.4M	\$2.2M	\$3.6M	\$3M



**Performance Indicators:**



The quality of water provided by public drinking water systems - which serve approximately 84% of Maryland residents - is very good.

Compliance rates are at >97% for all standards (see graph) except other chemical standards which has temporarily decreased to 95% while new regulations are implemented. New regulations were adopted each year from 2000 through 2005.

## **Progress and Challenges:**

The Maryland Department of the Environment accomplished many goals beyond its routine regulatory activities. MDE adopted a new drinking water regulation (Long Term 1 Surface Water Treatment Rule), began implementation of the Arsenic Rule, Radionuclide Rule, and Filter Backwash Recycle Rule, and continued early implementation of two regulations (Interim Enhanced Surface Water Treatment Rule and Disinfection Byproduct Rule) that were adopted in FY2002. The Environmental Protection Agency granted primary enforcement authority to Maryland for these regulations after determining that the State's program was no less stringent than the federal regulations.

In FY2008, MDE worked together with The Horsley Witten Group, a security services contractor, to create a statewide strategic emergency response plan, develop the materials and undertake the training of MDE staff and key water utility personnel, and co-host a statewide conference with nationally-recognized presenters to promote water security awareness and share information. Improving water system security and protection of watersheds and wells will continue to be a priority. In FY2009, MDE will continue to address challenges related to ongoing security concerns.

In FY2009, MDE will be facing additional challenges related to new federal mandates for public water systems. MDE expects to continue the review of compliance plans and to provide technical assistance for approximately 29 public water systems that have exceeded the new Arsenic standard of 10 parts per billion. State regulations will be developed in coordination with federal regulations (Groundwater Rule, Stage 2 Disinfection Byproduct Rule, and Long Term 2 Surface Water Treatment Rule) that provide additional public health protection against viruses, Cryptosporidium, and disinfection byproducts. In addition, each of these new regulations involves considerable early implementation activities in the next two years.

Based on the 2003 USEPA Drinking Water Infrastructure Needs Survey released in 2005, the total Maryland water supply facility capital improvement need for the 20-year period beginning in 2003 is \$3.96 billion. The largest category of need is for transmission and distribution projects, which is consistent with the fact that the age of many water systems is in excess of 30 years and transmission and distribution mains account for most of the infrastructure. While the capital improvement need remains very large, MDE receives approximately \$16M per year in grants and loans. We face a real challenge to allocate these limited resources in the most efficient and effective manner.

## 2.2 Source Water Protection

### Introduction:

Three related areas of the Department's Water Supply Program's work are addressed here: (1) source water assessments; (2) watershed protection programs; and (3) wellhead protection programs.

### Source Water Assessments

The Program has developed an EPA-approved Source Water Assessment Plan. The plan describes how Maryland will delineate source water assessment areas, identify potential contaminant sources, and conduct a susceptibility analysis for all sources used by public water systems in Maryland. The assessments are complete for all sources that were in use as of FY 2000. New sources continue to be assessed.

### Wellhead Protection Programs

There are distinct geographic differences among Maryland's water sources. Areas away from Maryland's major population centers are more likely to rely on groundwater, particularly in Southern Maryland and on the Eastern Shore where groundwater aquifers are very productive (see map below). In these regions of Maryland, layers of clay called confining layers generally protect groundwater supplies. Approximately 500,000 residents relying on groundwater from public systems receive their water from these deep, naturally-protected, confined aquifers.

In the central and western areas of Maryland and the Columbia aquifer on the Eastern Shore, groundwater aquifers are not protected by confining layers, and are more susceptible to contamination from activities at the land surface. Groundwater sources other than wells in deep confined aquifers are considered vulnerable to contamination. Currently about 315,000 Marylanders are supplied by vulnerable groundwater sources from community water systems. By 2009 an estimated 330,000 Marylanders will be served by vulnerable groundwater systems.

Local governments use voluntary wellhead protection programs to reduce the risk of contamination and protect the recharge area of their groundwater supply. About 37 communities are implementing wellhead protection programs, which include education and public outreach, reviewing new construction, adopting local ordinances prohibiting certain land uses that would jeopardize the water supply, and investigating potential contamination sources.

### Watershed Protection Programs

All surface water sources are considered potentially vulnerable to contamination. Currently about 3.65 million Marylanders are served by surface water sources. By 2009 this number is expected to increase to around 3.72 million Marylanders.

Public water systems use voluntary watershed protection programs to reduce the risk of contamination and to protect the recharge area of their surface water supply. Formal watershed protection programs are in place for three large public drinking water systems that receive water from vulnerable sources: Baltimore City, Cumberland, and the Washington Suburban Sanitary Commission's Patuxent Supply. Significant local participation has been key to program successes. Coordination with other agencies and states has begun for many water system

watersheds. MDE Water Supply staff provide technical assistance to inter-agency and inter-jurisdictional reservoir protection and management programs. MDE is assisting in coordination of protection efforts across jurisdictional boundaries.

**Objective 2.2:** Assist water systems and local governments in establishing source water protection programs benefiting more than 73% of Maryland residents that obtain drinking water from vulnerable community water systems.

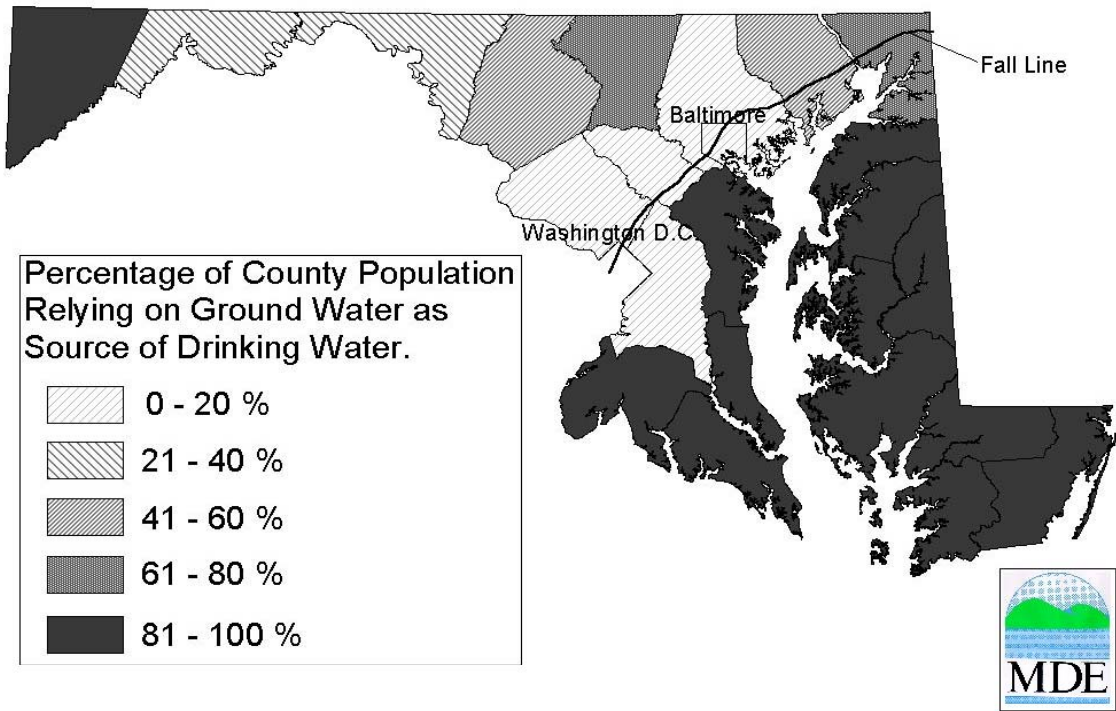
**Strategy 2.2.1:** Conduct source water assessments for any new sources.

**Strategy 2.2.2:** Provide guidance to water suppliers and local governments to develop watershed management and protection programs to protect drinking water sources. Seek sources of funding to assist these efforts.

**Strategy 2.2.3:** Utilize the DWRLF set-aside program to provide wellhead protection grants to develop practical and efficient locally-based active wellhead protection programs.

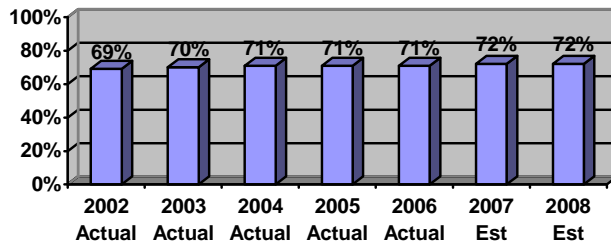
**Strategy 2.2.4:** Utilize the DWRLF loan program to make land or easement purchases as a way to control/prevent water supply pollution. The deeds for the purchased land include conditions that protect the surrounding water supply sources. Examples of deed conditions include restrictions on the storage of hazardous materials, development of wetlands, and restrictions on further construction.

Performance Measure	FY2006 Actual	FY2007 Actual	FY2008 Estimate	FY2009 Estimate
Percent of Maryland residents that obtain drinking water from vulnerable community water systems benefiting from source protection programs	71%	72%	72%	73%



**Performance Indicators:**

**Source Water Protection**



■ % of Marylanders that obtain drinking water from vulnerable community water systems benefiting from source water protection programs

**Progress and Challenges** are discussed in the introduction above.

## 2.3 Water Appropriation

### Introduction:

Maryland has a program for evaluating water use and the adequacy of water resources to meet the needs of specific users. Any person who wishes to appropriate water for agricultural, municipal, commercial, industrial, or other non-domestic uses must obtain a Water Appropriation Permit from MDE. There are currently more than 14,400 active Water Appropriation and Use Permits.

Review of the permit application involves evaluating the potential needs of the user and the probable impact of the withdrawal on neighboring users. The goal of the permit program is to maximize beneficial uses of the waters of the State, while minimizing conflicts between water users. A secondary aim is to ensure that water resources are not overused and that the environmental impacts of each water use are acceptable.

**Objective 2.3:** By 2009, ensure that 100% of community public water systems obtain water appropriation permits that allow adequate quantities of water for the system's water needs during the permit period; ensure that groundwater permits do not cause regional levels in confined aquifers to decline below the 80% water management level; and manage the State's surface water resources to ensure that future withdrawals do not exceed available supplies by requiring that 100% of surface water permits allow for adequate minimum flows for downstream users and in-stream living resources.

**Strategy 2.3.1:** Continue to regulate surface- and groundwater withdrawals through permits, and use the permit system to promote the greatest feasible use of the water resources while avoiding water use conflicts and shortages. Through permits, MDE will assure that groundwater withdrawals do not exceed the sustained yield of Maryland's aquifers, and that groundwater withdrawals from unconfined aquifers do not exceed drought-year, groundwater recharge rates within each watershed. Compliance of permittees with flow-by requirements will be addressed. Surface water withdrawals will be managed to assure adequate downstream flow for other users and environmental needs. Compliance with permitted withdrawal limits will also be enforced.

**Strategy 2.3.2:** Improve information management and data collection. By comparing existing water-related databases, MDE will identify community public water systems with inadequate or marginal supply sources, and will assist them in securing adequate supplies. MDE will also bring permittees into compliance with water use reporting requirements in order to ensure (1) the integrity of the permit system and of MDE's water-use information, and (2) MDE's ability to measure the adequacy of available water supplies. MDE will continue to work cooperatively with agencies such as the U.S. Geological Survey and Maryland Geological Survey to assure that their study efforts and monitoring programs are aligned with the information needs of MDE.

**Strategy 2.3.3:** For the Potomac River, work with Virginia to develop an agreement and a process to coordinate the review of new permit allocations. The recent studies on water supply and demand from the Potomac will also be considered in setting policy for future appropriations.

**Strategy 2.3.4:** Continue to work with interstate water commissions on water-related issues that have impacts that cross state boundaries. Provide advice and guidance to local planning agencies to ensure that their growth plans adequately consider water availability. Also, local Water Management Strategy Areas will be developed, where appropriate, to address specific groundwater supply issues. For each permit issued that allows withdrawals from a confined aquifer, MDE will assess the regional groundwater level relative to the 80% water management levels defined in state regulations.

**Performance Measures:**

Performance Measures (data are annual, not cumulative, unless otherwise noted)	FY 2006 Actual	FY2007 Actual	FY2008 Estimate	FY 2009 Estimate
Number of groundwater appropriation permits issued	1,122	680	500	500
Percentage of large groundwater appropriation permits issued for which the 80% water management level was evaluated, or a water balance analysis performed	100%	100%	100%	100%
Number of surface water appropriation permits issued	87	74	60	60
Number of surface water permits issued with a flow-by requirement	51	49	33	33
Percentage of permittees in compliance with pumpage reporting requirements	82%	86%	88%	90%
Number of renewal notices sent for expiring permits	809	393	250	250

**Progress and Challenges:**

During FY2009, water supply facilities that are exceeding 80% of their capacity are to be identified and the Water Supply Program staff will work with local governments to develop capacity management strategies.

During the 2007 legislative session, the State law regarding water appropriations was revised to exempt water users that use less than 5,000 gallons per day. Regulations for the new procedures will be adopted in FY2008. Training and outreach for these activities will take place in FY2008 and FY2009.

## 2.4 Oil Pollution Remediation

### Introduction:

Releases of petroleum that require a response and cleanup can originate from above or underground storage tank systems, all forms of transportation, and any use of petroleum products. These releases can render drinking water unfit for consumption, endanger wildlife, and create flammable and explosive conditions. The prevention of oil releases reduces the public's exposure to contaminated drinking water supplies and reduces the need for costly site cleanups. The risk of contamination of waters of the State posed by the improper management of above ground and underground petroleum storage tanks continues to drive the need for a preventive inspection program.

MDE staff oversees the investigation and cleanup of petroleum releases to ensure that water quality and public health are adequately safeguarded. The time required to clean up petroleum releases varies significantly from case to case and depends upon a variety of factors. Some sites require active removal of petroleum product from the ground for years, while minor surface spills may be resolved within hours.

Various gasoline additives in groundwater associated with releases of gasoline, as well as other petroleum products, including heating oil, have complicated the investigation and cleanup process. These additives are very soluble in water and have the potential to migrate in groundwater much farther from the site of the release than other constituents of gasoline, often beyond adjacent properties. EPA and State special funds provide funding support for these activities.

**Objective 2.4:** Complete cleanup of 94% of underground storage tank (UST) releases.

**Strategy 2.4.1:** Continue inspections, compliance assistance actions, and appropriate enforcement actions at oil pollution remediation sites to ensure protection of groundwater and reduce impacts to drinking water wells.

**Strategy 2.4.2:** Continue implementation of the clean-up reimbursement program for costs associated with cleanups of releases from commercial and residential heating fuel tanks.

**Strategy 2.4.3:** Increase MDE presence in high-risk groundwater use areas by increasing the number of UST compliance inspections by 200, with the enactment of a third-party inspection program.

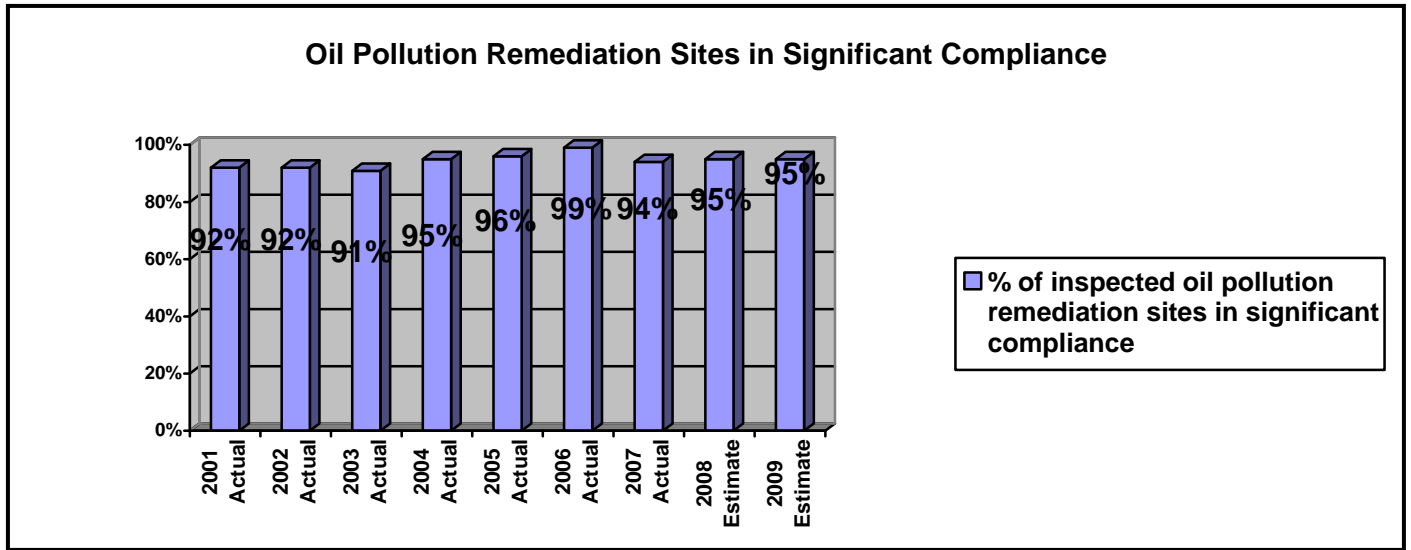
**Strategy 2.4.4:** Continue to work cooperatively with the petroleum industry and tank owners and operators to raise the awareness of the importance of the proper management of above-ground and underground storage tank systems, with specific emphasis on training of new tank owners and operators with no prior experience in the operation or maintenance of petroleum storage tank systems.

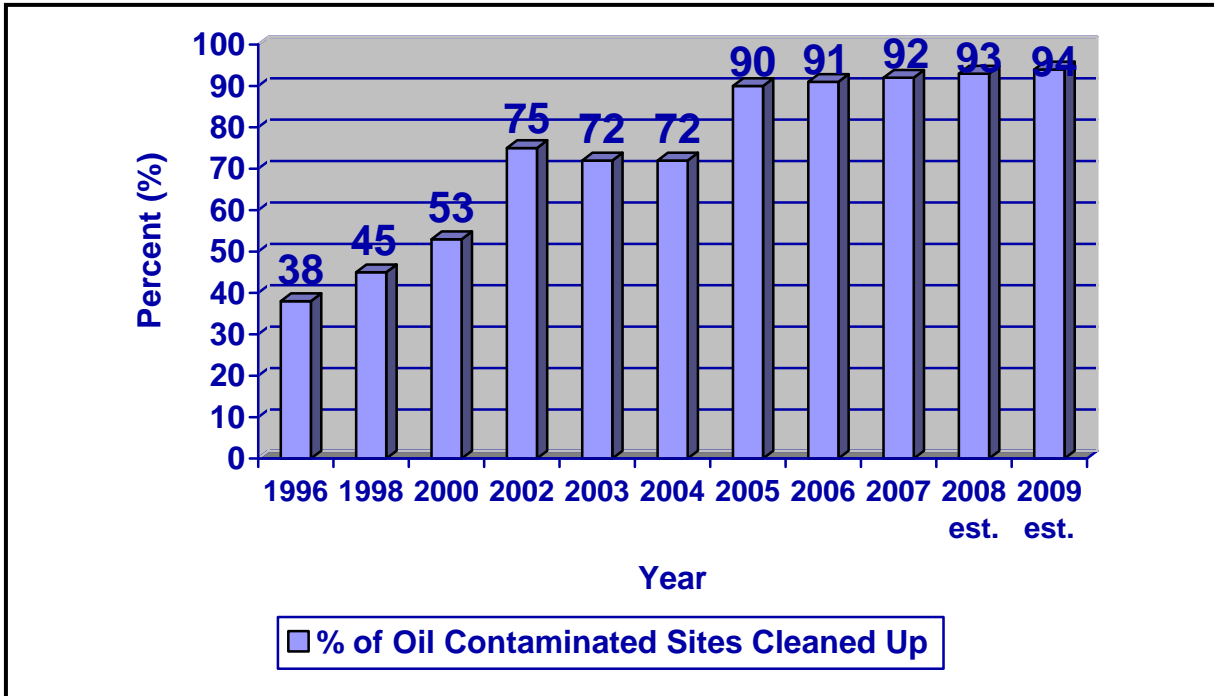


**Performance Measures:**

Performance Measures (data are annual, not cumulative, unless otherwise noted)	FY 2006 Actual	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate
Percentage of inspected oil pollution remediation sites in significant compliance	99%	94%	95%	95%
Percentage of oil-contaminated sites cleaned up	91%	92%	93%	94%
Number of oil pollution remediation site compliance assistance actions rendered	3,880	3,071	3,200	3,300

**Performance Indicators:**





**Progress and Challenges:** MDE continues to meet the MFR goal related to case closures. Challenges include the growing number of facilities, the increased discovery of gasoline additives in groundwater, and the complexity of the remaining open cases. In order to address some of these challenges, the Program continues to train staff on the latest cleanup techniques and to focus resources on priority cases. The Program has also enacted a third private party inspection process that will strive to increase compliance at existing facilities.

Compliance with a citizen notification law continues to challenge staff. The law requires MDE to provide notice of a finding by MDE that a groundwater monitoring well sample taken from a high-risk groundwater use area contains certain chemicals. The law requires notification regarding the amount of contamination at the site to each owner of property located within one-half mile of a site from which the sample was taken. To assist with the notification, MDE develops fact sheets, maintains updated information, prepares for and holds public meetings, and responds by phone and in writing to numerous constituent calls regarding each contamination finding. There have been 19 notifications under this law that have required MDE communication with approximately 150 residents per site. It is anticipated that the number of notifications will continue to increase.

## 2.5 Municipal Landfill Compliance with Groundwater Standards

### Introduction:

MDE's solid waste management activities include issuing permits for the State's 76 permitted solid waste acceptance facilities, performing approximately 750 inspections annually to ensure that solid wastes are managed properly, and ensuring that closed municipal landfills are properly capped and monitored for at least 30 years after closure. MDE's solid waste management strategies have been consistently applied over many years, and have demonstrated major improvements that are obvious when contrasting the waste disposal in Maryland in 1980, and even 1990, with the situation today.

For example, there are fewer active municipal landfills, but more active rubble landfills and other types of facilities, than there were 20 years ago. Also, modern landfills are constructed with liners, leachate collection systems, and other systems designed to contain pollutants and protect groundwater. However, the older, inactive facilities still exist, and require monitoring and inspection to ensure the State's drinking water supplies are protected. As communities expand to include areas that were previously largely undeveloped, homes and businesses are being sited much nearer to these older landfills. Program responsibility for monitoring and ensuring proper groundwater remediation at these facilities will continue for many years.

**Objective 2.5:** Maintain 80% significant compliance with groundwater standards for all active municipal solid waste landfills each year.

**Strategy 2.5.1:** Require that permitted solid waste facilities are designed and operated in compliance with all applicable water pollution control requirements and have at least the minimum requirements for pollution prevention and control. Ensure that closed municipal landfills, active from 1991 to closure and regulated under the Code of Federal Regulations, are properly capped and monitored for a minimum 30-year post-closure period.

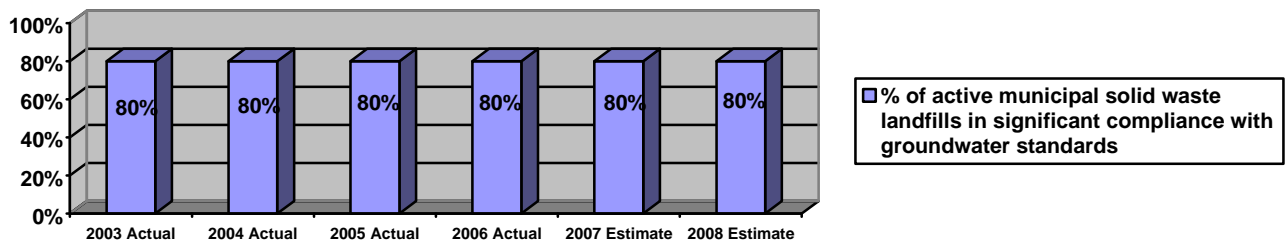
**Strategy 2.5.2:** Act to prevent and control the release of pollutants through the review of proposed disposal site locations, preventive engineering, pollution control technologies, and review of construction, and remedial activities.

### Performance Measures:

Performance Measures (data are annual, not cumulative, unless otherwise noted)	FY 2006 Actual	FY2007 Actual	FY 2008 Estimate	FY 2009 Estimate
Percentage of inspected refuse disposal facilities (includes other solid waste facilities) in significant compliance	95%	91%	90%	90%
Percentage of active municipal solid waste landfills in significant compliance with groundwater standards	80%	80%	80%	80%
Percentage of all Landfill (active and closed) Water Quality Reports reviewed.	43%	48%	50%	50%

## Performance Indicators:

**Municipal Solid Waste Landfill Groundwater Standards Compliance**



## Progress and Challenges:

The biggest challenge facing the program in protecting the public health from the potential impacts created by landfills is the fact that the workload is increasing but the scientific staff available to review groundwater reports has dwindled. The Program has consistently moved to support this vital activity but needs additional staff to meet the increasing number of reports that must be reviewed. The Department's efforts to meet this responsibility, through streamlining and reassignment of other work, is reflected in the variability of the percentage of reports submitted each year that are actually reviewed during that fiscal year. This indicates that there is a significant backlog of reports for review that current staff cannot complete.

At this time, the backlog for the review of landfill groundwater monitoring reports is around four months, with some lower-priority sites having a longer backlog. In FY 2006, only 43% of landfill groundwater monitoring reports that were received were able to be reviewed, and this number is expected to drop further due to staff shortages. Review of reports is prioritized to ensure that sites considered to be at risk of offsite water quality impact are given first priority and rapidly reviewed, and attempts are made to review each site at least once per year. Until all incoming reports are reviewed in a timely manner, there is a risk that a significant change in groundwater quality at a site may go unnoticed for several months. This could potentially lead to contamination of offsite drinking water wells and health impacts to groundwater users. These risks could be reduced if the Program had sufficient staff to review the reports.

Also due to staff shortages, prioritized inspections of poor performers, and increased enforcement actions, rates of significant compliance have been decreasing in recent years. The Program anticipates that with increased attention, the poor performers will come into compliance.

### 3.1 Lead Poisoning Prevention

**Introduction:** Childhood lead poisoning is a critical environmental challenge in Maryland. There are major initiatives at both the State and federal levels to reduce the incidence of lead poisoning in children. Since 1984, Maryland has developed a strong, diverse infrastructure to respond to this complex issue. MDE's components focus on activities involving accreditation and oversight of lead abatement services contractors, maintaining a registry of rental properties, maintaining a registry of lead-poisoned children, and inspection and enforcement.

**Objective 3.1:** Reduce the percentage of occurrences of lead poisoning statewide (with an emphasis in Baltimore City) to 0.5% by 2009.

**Strategy 3.1.1:** Continue to increase awareness and prevention efforts through enhancing MDE outreach activities and meetings, negotiating memoranda of understanding (MOUs) with local jurisdictions to enhance lead education/outreach work, and adding registration and inspection information to the MDE website.

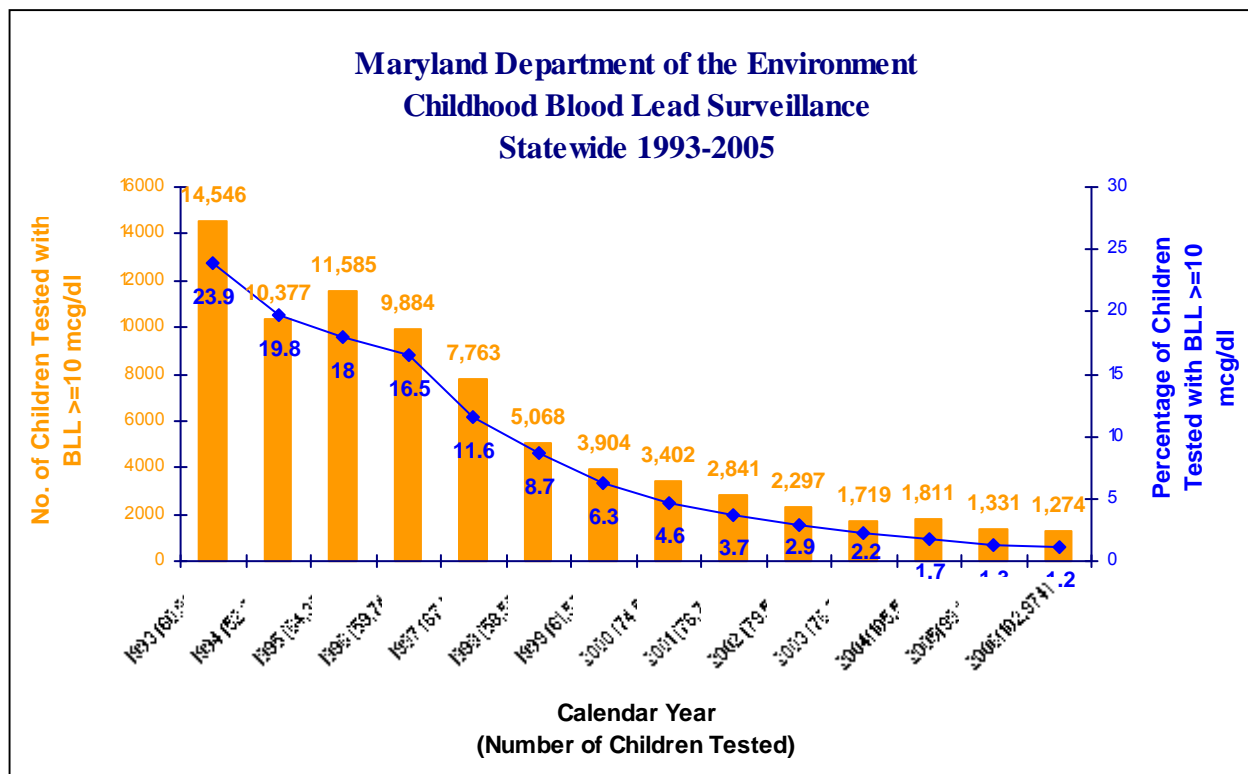
**Strategy 3.1.2:** Continue to maintain the level of inspection and compliance activities related to lead paint violations through the use of the Lead Rental Property Registry; inspections conducted by MDE and certified abatement inspectors; oversight of accredited lead paint abatement contractors, supervisors, and inspectors; and accreditation issuance within the 30-day standard time. Initiate 550 enforcement actions (filed or settled) annually. Partner with local governments and utilize enforcement options as necessary to ensure compliance.

**Strategy 3.1.3:** Continue to increase the number of registered properties/dwelling units by working with local governments to identify additional properties and to ensure compliance and increasing enforcement actions.

**Performance Measures:**

Performance Measures (data are annual, not cumulative, unless otherwise noted)	FY 2006 Actual	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate
Number of children tested for blood lead*	99,148	102,974	105,000	108,000
Number of MDE inspections of residential properties with lead paint	2,076	2,625	2,500	2,500
Percentage of children tested for blood lead with the result of 10 micrograms per deciliter or more (elevated blood lead)*	1.3%	1.2%	0.7%	0.5%
Number of reported exceedances of elevated blood lead standard (10 micrograms per deciliter or more)*	1,331	1,274	700	464

\* Blood lead information is collected on a calendar-year basis, so FY2007 entry reflects CY2006 data.



**Progress and Challenges:**

Registration data management is being enhanced. A bar coding system on the registration renewal forms will be implemented to allow information to be more efficiently entered into the registration database. The existing database will be “cleaned” of non-affected properties and an effort will be made to identify property owners who are not renewing their registrations.

The US Department of Housing and Urban Development Section 8 Program, which requires rental property owners to comply with the federal Housing Quality Standards and provides federal funding assistance to these property owners, is included in the effort to increase registration. Federal Housing Quality Standards require compliance with State and local housing standards. In order to receive Section 8 housing assistance, property owners must comply with the State’s lead law.

MDE continues to enhance registration and risk reduction performance. Property owners must show compliance with registration and risk reduction requirements before entering rent court and renting property in local jurisdictions having a rental registry.

The Program has changed the way it tracks blood lead levels in children as a result of changes to the lead law. 2005 House Bill 251 reduced the blood lead level that triggers lead hazard reduction for a rental property from 15 to 10 micrograms per deciliter (µg/dL) and changed the initiation of medical care and safe housing for children pursuant to a qualified offer from 20 to 15 µg/dL. This legislation also strengthens MDE’s enforcement authority against noncompliant landlords by eliminating the 20-day grace period for outstanding violations and authorizes MDE to seek immediate administrative penalties. 2006 House Bill 1676 changes the definition for elevated blood lead by eliminating the requirement that the blood lead test be performed by a

whole venous test. This will allow children who are blood lead tested by the capillary test to be considered as having elevated blood lead levels if the blood lead level is 10 ug/dl or higher on two tests performed within 12 weeks of each other.

## 3.2 Environmental Emergency Response and Preparedness

### Introduction:

MDE, in cooperation with local hazardous materials units, has the unique capacity to respond to emergencies to minimize risks to human health and the environment resulting from accidents and/or deliberate actions causing the release of hazardous substances to the air, water, or land from fixed facilities, rail, waterway, and truck transportation routes.

An important part of MDE's effort is providing training to "first responders," enabling those responsible for acting at the local level during emergencies to increase their response capability and remain abreast of changes to relevant federal and state requirements, policies, and procedures.

**Objective 3.2:** Enhance Maryland's capability for emergency response by providing 200 hours of training to local responders.

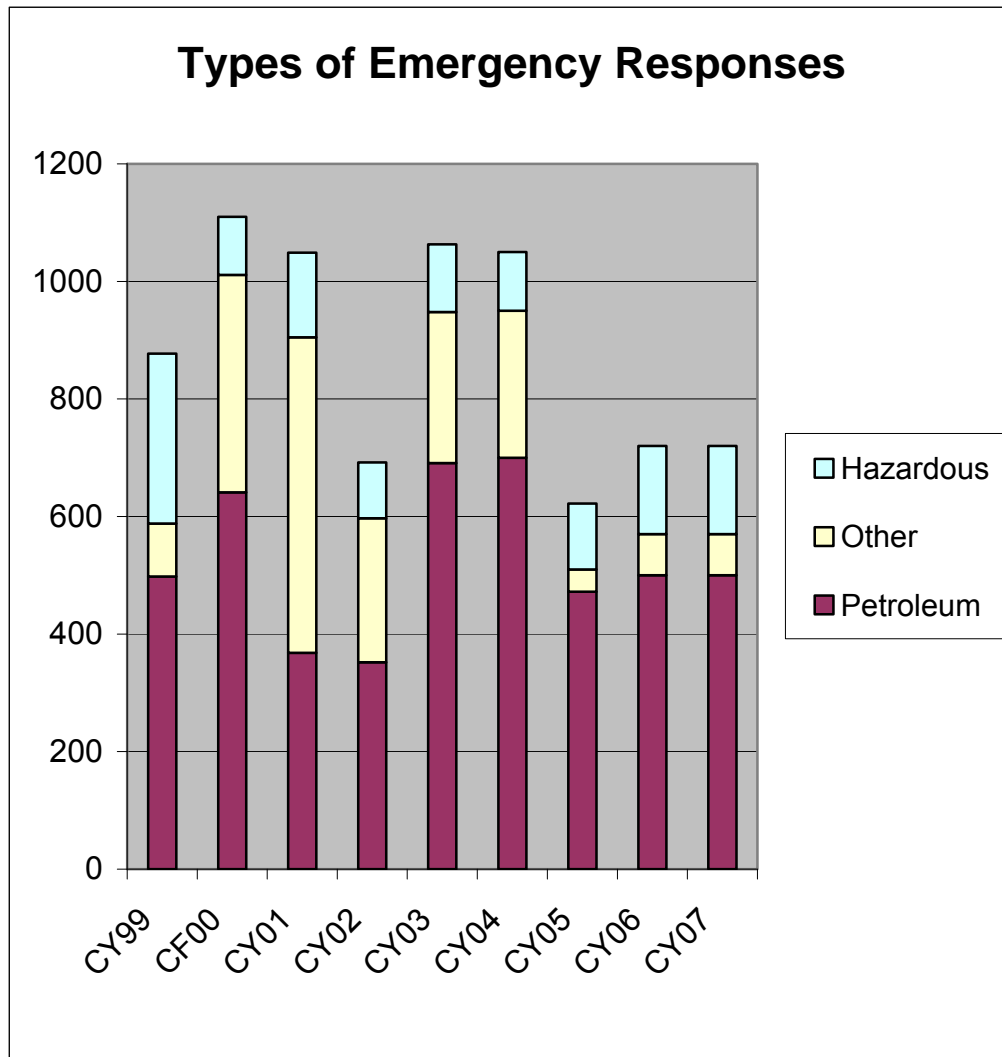
**Strategy 3.2.1:** Lead or otherwise participate in emergency exercises with local governments, allied state agencies, federal agencies and industry (including chemical industry and fixed nuclear power plants). Emergency exercises provide invaluable opportunities to validate response protocols, ensure equipment effectiveness and facilitate pre-event coordination among different layers of government and the private sector.

### Performance Measures:

Performance Measures (Data are annual based on fiscal year)	FY 2006 Actual	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate
Number of staff hours providing training in emergency response	393	102	100	100
Number of hazardous material emergency responses	146	170	160	180
Number of petroleum emergency responses	497	598	580	600
Number of other multi-media emergency responses, which includes bio-terrorism (actual and alleged) and radiation	18	67	60	70
Total for hazardous, petroleum and other responses (above)	661	835	800	850



**Performance Indicators:**



**Progress and Challenges:**

The Emergency Response and Planning Program (ERPP) continues to fulfill the training portion of its mission, but has been limited by resource constraints that affect overtime hours allowed. Most volunteer fire departments need training on evenings and weekends. With increasing limitations on overtime hours, ERPP has been less able to provide training. These limitations have recently eased somewhat, but it may take several years for our training hours to return to pre-moratorium levels. Other aspects of the ERPP focus on increasing radio communication interoperability with local jurisdictions, planning and preparedness such as guiding MDE in development and implementation of its Continuity of Operations Plan, and fulfilling federally-mandated requirements related to the National Incident Management System. The Program also plays a role in State nuclear incident planning and associated drills.

## 3.3 Radiological Health Program

### Introduction:

Under both federal and state law, Maryland is charged with ensuring that the public is protected from unnecessary exposure to radiation. The Department of the Environment works toward this goal by controlling sources and users of ionizing radiation through licensing, registration, and inspection activities.

The majority of uses of radiation are beneficial. Radiation, however, is a carcinogen that may also cause other adverse health effects. The more radiation a person receives, the greater the chance of developing cancer and of other ill effects. Since there is no definitive threshold for the onset of adverse effects, regulators must ensure that users of radiation limit occupational and public exposure to as low as reasonably achievable (ALARA). Since the long-term effects of exposure to radiation even at low levels is not conclusively known, minimizing exposure is the most prudent approach. Two key ways that MDE's Radiological Health Program (RHP) pursues this objective are through regulating radiation machines and through licensing and inspecting activities dealing with radioactive materials.

### Radiation Machines (Such as X-Ray Machines)

Minimizing exposure to x-ray equipment is accomplished through several means. X-ray equipment is required to be registered and inspected. The radiation machine regulated community consists of industrial companies, veterinary and dental clinics, mammography facilities, hospitals, and other medical establishments. The dental community comprises approximately 65% of the regulated community and has had the poorest historical compliance performance of any specific area.

Dental, veterinary, and mammography facilities are inspected by MDE. Privately licensed inspectors inspect all other facilities, which are then certified by MDE.

### Radioactive Materials Licences

As an Agreement State under the Atomic Energy Act, MDE must license and inspect any person who uses, possesses, or stores radioactive materials or devices containing such materials. During inspections, devices containing radioactive materials and their qualified users are checked against specifications and requirements readily available to the regulated community. Operator practices are also checked to ensure that safe operating procedures are being followed to ensure worker safety and to prevent the public from being exposed to any radiation. MDE conducts pre-licensing visits to ensure that new licensees understand compliance requirements before they receive radioactive material.

**Objective 3.3:** Improve the initial compliance rate at radiation machine facilities to 75% and the after-45-days rate to 96% by 2010. Also, minimize licensing and inspection backlogs at radioactive materials facilities and meet standard review times on all new license applications.

**Strategy 3.3.1:** Conduct education seminars, speak at exhibitions, and meet with representatives of the dental/radiological health community to increase awareness of the potential danger of radiation and to inform the regulated community of their obligations under the regulations so that compliance rates can improve.

**Strategy 3.3.2:** Provide compliance assistance to individual members of the regulated community in cases where such assistance is warranted. Take timely and appropriate enforcement action when egregious violations of regulatory requirements are encountered.

**Performance Measures:**

Performance Measure (data are annual, not cumulative, unless otherwise noted)	FY2006 Actual	FY2007 Actual	FY 2008 Estimate	FY2009 Estimate
Percentage of inspected radiation machines facilities in significant compliance upon inspection	51%	49%	50%	52%
Percentage of inspected radiation machines facilities in significant compliance after 45 days	84%	86%	86%	87%
Number of inspections of radiation machine tubes	4,284	4,910	5,032	5,158
Number of inspections of medical, industrial and academic x-ray machines facilities performed by state-licensed inspectors	1,935	1,606	1,700	1,700
Number of enforcement actions initiated for radiation machines facilities	8	7	10	10
Number of compliance assistance actions taken for radiation machines facilities	766	237	500	500
Number of presentations, seminars, etc.	10	7	10	10
Percentage of inspected radioactive materials facilities in significant compliance	81%	73%	77%	77%
Number of inspections of radioactive materials facilities	280	216	248	248
Number of licenses issued for radioactive materials, including reciprocity sites.	576	439	500	500
Number of enforcement actions initiated for radioactive materials	4	6	6	6
Number of radioactive materials facilities	656	676	700	725
Percentage of new facilities that receive a pre-licensing visit	100%	100%	100%	100%

**Progress and Challenges:** The low initial compliance rate for radiation machine facilities is an ongoing challenge. MDE and the Maryland State Dental Association have been working together to increase awareness through educational presentations, development and distribution of a booklet, "Regulatory Guidelines for Dental Radiation Machine Facilities", and two educational flyers. These items have also been posted on the RHP website.

### 3.4 Environmental Restoration (Superfund)

*(This applies to NPL and State Superfund sites. Voluntary Cleanup Program sites are covered in Objective 1.1.)*

#### **Introduction:**

As discussed in Objective 1.1, Maryland's rich industrial history has resulted in a significant number of properties where investigation and/or cleanup of contamination is necessary to ensure that public health is protected. The Land Restoration Program seeks to eliminate threats to public health from exposure to soils, groundwater, and surface waters contaminated by hazardous waste and other controlled hazardous substances.

Consistent with federal guidelines under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the State Environment Article, MDE initiates and oversees the assessment and cleanup of hazardous waste sites where releases have occurred. MDE participates as a partner with EPA in decision-making at all phases of environmental investigations and in overseeing hazardous waste cleanups at National Priorities List (NPL) sites. MDE also oversees cleanups at State Superfund sites.

**Objective 3.4:** Maintain the annual number of completed State Superfund site cleanups and/or "No Further Action Required" site letters issued at 15 as resources allow.

**Strategy 3.4.1:** Continue to conduct environmental site investigations to identify sites as limited funding allows.

**Strategy 3.4.2:** Participate in decision-making with EPA and responsible parties at all phases of environmental investigations and overseeing cleanups at NPL sites.

**Strategy 3.4.3:** Continue to use capital funds for the planned remediation at sites where no viable responsible party has been identified.

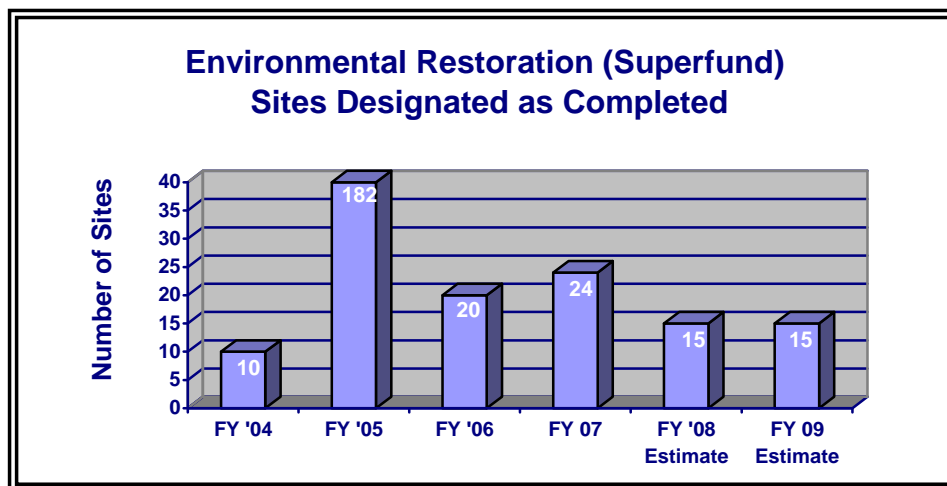
**Strategy 3.4.4:** Continue to review outstanding cases on the State Master and Non-Master List using current staff.

**Strategy 3.4.5:** Continue to address at least 50 sites on the Master and Non-Master Lists through a multi-year initiative by reviewing and de-listing sites, encouraging participation in the VCP, or pursuing enforcement and cost recovery.

**Performance Measures:**

Performance Measures (data are annual, not cumulative)	FY 2006 Actual	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate
Total number of sites on the Master List and Non-Master List during the fiscal year	455	425	415	395
Number of active State Superfund investigations	79	73	65	60
Total number of remedial actions at all State Superfund sites that are designated as completed	20	24	15	15
Percentage of sites under investigation during the fiscal year (including sites from the State and Non-State Master Lists) where cleanups were designated as completed	25%	30%	25%	25%

**Performance Indicator:**



**Progress and Challenges:**

The Program has continued to work through the inventory of sites on the State Master and Non-Master List. The number of sites on the Master List has continued to decline as many long term projects are coming to completion. The Program has been addressing older sites on the Non-Master List, while continuing to add new sites as they are identified. The Program has increased the number of enforcement actions to improve the timely assessment and/or remediation of contaminated sites. The potential for enforcement action has resulted in an increased number of sites entering the Voluntary Cleanup Program and pursuing a Certificate of Completion or approved Remedial Action Plan, which provides a sure path to closure. The Program has lowered its estimate of sites to be completed in the coming year due to recent staff losses and uncertainties about future staffing.

The Program has continued to address orphan sites using capital funds and expects to continue with the identification, investigation and remediation of these sites as long as funding is available.

## 4.1 Shellfish and Aquaculture Safety

### Introduction:

Maryland's seafood industry depends on public confidence that the State's shellfish are safe for human consumption. This objective covers three activities relating to shellfish safety: shoreline surveys, water sampling, and evaluating and approving areas for harvesting. In addition, it notes a new challenge: the need for additional resources and new procedures to address the needs of the State's emerging aquaculture industry.

MDE classifies shellfish harvesting waters based on a sanitary survey that includes evaluating sewage treatment plant performance, shoreline surveys to identify actual and potential pollution sources, and monitoring bacteriological water quality.

Shoreline surveys are conducted in 183 areas by walking the shoreline, testing septic systems and evaluating agricultural operations to identify actual and potential pollution sources to shellfish waters. Our goal is to survey each region every five years, but due to the decline in staff, the five-year cycle has become a five to seven-year cycle. The number of surveys completed has also declined over time due to the expanding human population along the shores of the Chesapeake Bay and tributaries, making access difficult. MDE is investigating alternative strategies and techniques for accomplishing the needed work in view of these challenges.

MDE has over 700 water quality monitoring stations, and the goal is to collect samples from each station twice per month, which is the minimum required under State statute. However, due to resource constraints, MDE has not been able to meet that goal. Taking a practical approach, MDE has concentrated on monitoring those areas where active harvesting is occurring to ensure that Maryland's shellfish (oysters and clams) continue to maintain high quality, a reputation for safety, and higher value in the marketplace. In addition, MDE has added new monitoring stations, conducted sanitary surveys, and done special studies to assist the emerging off-bottom aquaculture industry in furthering its goals in a way that is protective of human health.

Finally, based on monitoring information and other factors, MDE determines the appropriate harvesting classification: approved; conditionally approved; restricted; and prohibited. "Approved" means that oysters and clams can be harvested directly for human consumption. "Conditionally approved" means harvest is not allowed the three days following a rain event of one inch or more in 24 hours. "Restricted" means no direct harvest is allowed, but shellfish may be moved, or "relayed", to approved areas for natural cleansing and then harvested. "Prohibited" means that no harvesting is permitted. MDE's policy has been to approve waters for harvest whenever possible. This program has been in place for decades and most of Maryland's shellfish harvesting waters are approved for harvesting.

**Objective 4.1:** Ensure that Maryland shellfish are harvested from waters that are clean enough to meet federal National Shellfish Sanitation Program (NSSP) requirements.

**Strategy 4.1.1:** Perform required water sampling and sanitary survey inspections to identify and mitigate pollution sources to protect the shellfish harvesting waters. Meet increased sampling requirements and shoreline survey needs to support the emerging aquaculture industry.

**Strategy 4.1.2:** Secure sufficient resources to meet deficiency in monitoring coverage.

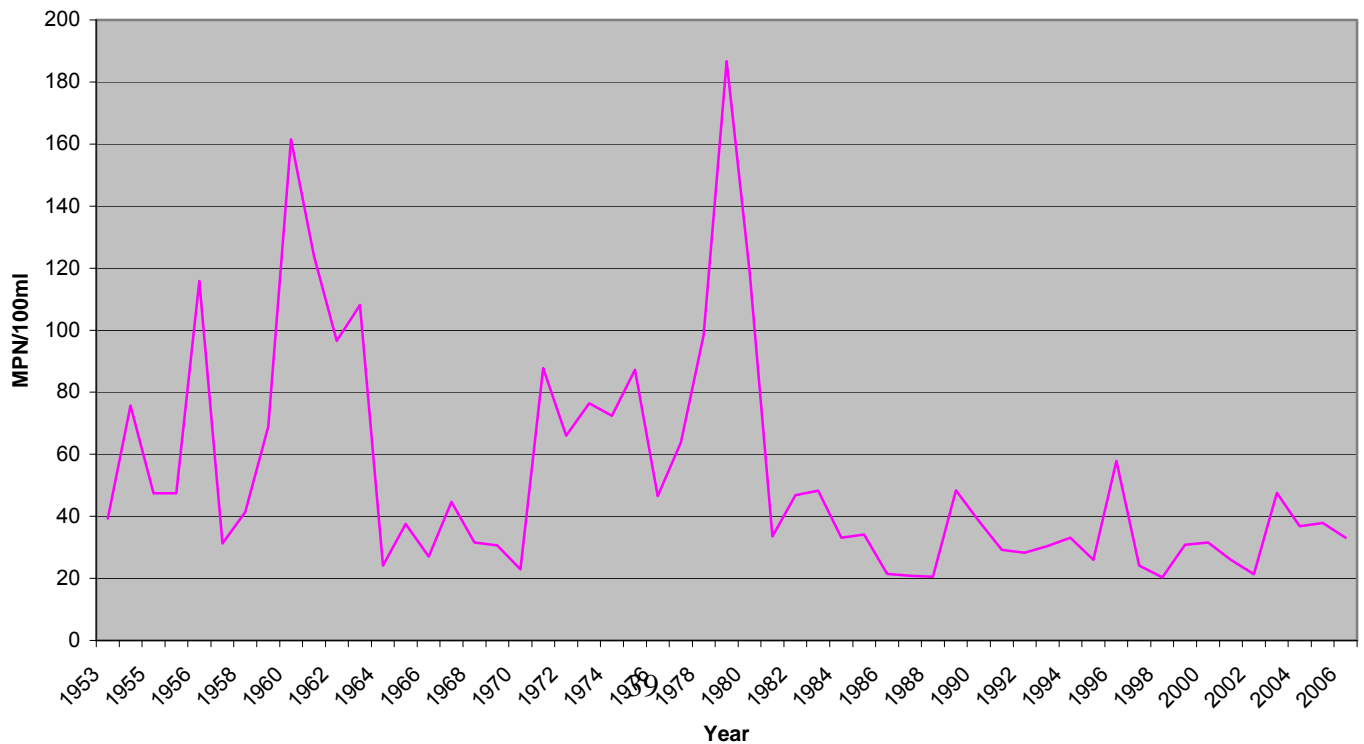
**Strategy 4.1.3:** Provide outreach to the emerging aquaculture industry so that those so engaged are able to readily stay abreast of new scientific and technical information that can aid them in making appropriate business decisions geared toward “growing” a sound, healthful industry in Maryland.

**Performance Measures:**

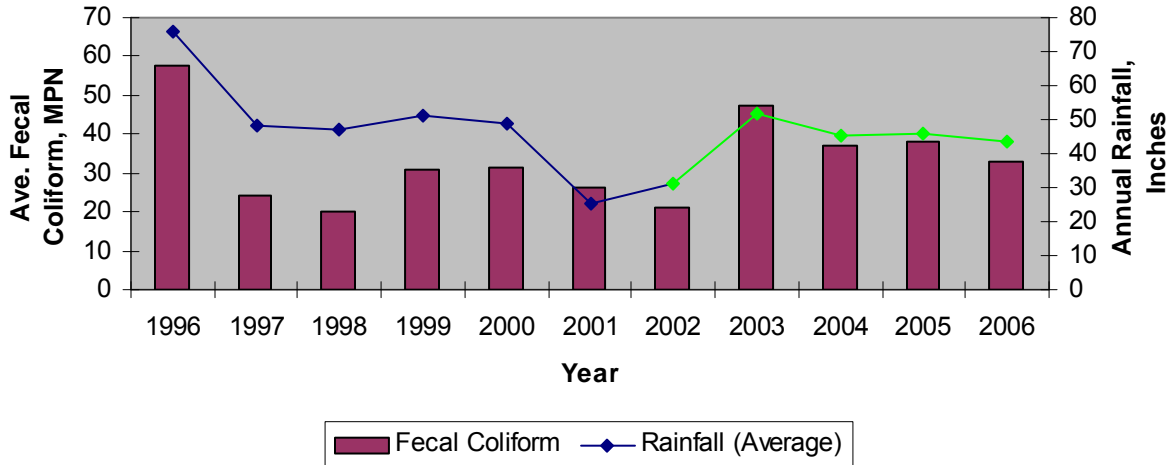
Performance Measure (Data are annual, not cumulative, and are rounded up to the nearest whole number)	CY 2006 Actual	CY 2007 Actual	CY 2008 Estimate	CY 2009 Estimate
Percent of required sampling achieved	81%	81%	81%	81%
Number of new monitoring stations established for the aquaculture industry	8	21	30	40
Mean bacteria concentration by year of all shellfish monitoring stations sampled (standard is 14)	33	33	33	33
Percentage of total harvesting acres that are approved or conditionally approved	94%	94%	94%	94%

**Performance Indicators:**

**Figure A. Mean Bacterial Concentrations by Year of All Shellfish Monitoring Stations Sampled**



**Figure B. Mean Fecal Coliform Concentrations vs. Annual Rainfall**



\*Rainfall data in green was obtained via MARFC system, data in blue was obtained using NOAA system

Bacteria concentrations are affected by both rainfall and management actions, as demonstrated by the comparison to Figure A, showing the annual rainfall matching the pattern of bacterial concentrations.

**Progress and Challenges:**

Under the continuing challenge of a growing human population in the Chesapeake Bay watershed, the majority of shellfish harvesting waters are approved for harvest.

In the spring of 2007, the shellfish program began using a new and improved shoreline survey technique that involves using field computers that integrate GIS technology, capturing data electronically and ground-truthing field observations with GIS coverages. This streamlines shoreline survey activities. Overtime, as each of the 183 surveys are completed, they will all be captured electronically. In addition to providing better information to address actual and potential pollution sources, this will allow other programs to readily utilize shoreline survey data, for other water quality goals.

Since January 2005, the Maryland Department of the Environment has been using Multisensor Precipitation Estimator (MPE) rainfall data provided by the Middle Atlantic River Forecast Center (MARFC), an office of the National Oceanic and Atmospheric Administration's National Weather Service. The result is more accurate, reliable, and specific to each conditionally-approved area than using the closest rain gauge data as provided by volunteers in the past.

MDE is a participant in the Maryland Aquaculture Coordinating Council and the Aquaculture Review Board. Both groups were formed to support Maryland's aquaculture industry. The Council has specific areas they must address in reports to the Legislature. The Review Board



assists the aquaculture industry by providing guidance and information to potential aquaculture businesses to simplify the permitting process. MDE is also a member of, and participates in, the Interstate Shellfish Sanitation Conference and works closely with the FDA to maintain certification for Maryland shellfish product in the interstate market.

Meeting program goals and all the requirements of the NSSP continues to be a challenge due to the emergence of the off-bottom aquaculture industry. MDE has had to evaluate aquaculture sites, add additional monitoring sites, assist in relaying product to approved areas, and work closely with aquaculture operators to assure acceptance and understanding of shellfish sanitation. FDA, the federal agency that has oversight of the NSSP, has raised concerns with Maryland's shellfish program in response to oyster floats and gardening near shore where water quality is marginal.

Two changes to the NSSP occurred in August 2007 that may impact the oyster industry in Maryland: First, MDE will be required to conduct an annual *Vibrio parahaemolyticus* risk evaluation for all of Maryland's shellfish growing areas. *Vibrio parahaemolyticus* is a naturally-occurring bacteria that poses a health risk when water temperatures are above 50-60 degrees. Depending on the outcome of the risk assessment, there may be additional requirements for harvesters, Department of Natural Resources or Department of Health and Mental Hygiene to place control measures to reduce health risk. Impact to Maryland's industry is minimal if it is shown that summer harvest levels are low and that product reaches temperature controls quickly after harvesting.

Second, oyster gardeners will be required to register and to keep certain records regarding the fate of the oysters produced by gardeners, and the Maryland agencies responsible for NSSP requirements will be required to establish a program for oyster gardeners in order to remain in compliance with the NSSP.

The potential introduction of the Asian oyster, *C. ariakensis*, to Maryland waters remains a future challenge to this program. This could involve increased resources to protect public health if the oyster is introduced as an aquaculture product that can be harvested year-round. The risk of *Vibrio* illnesses (*Vibriosis* are a naturally occurring bacteria more prevalent in the summer) may increase, and may require additional monitoring and new testing methods. A report is due in Spring 2008 to address the possibility of an introduction.

## 4.2 Fish Kills

**Introduction:** § 4-405 in the Environment Article requires the Department to investigate the occurrence of damage to aquatic resources, including mortality of fish and other aquatic life. Fish and other aquatic organisms are indicators of potential pollution impairment to the States' waterways. The presence of dead fish may indicate that a toxic substance has entered the waterway. MDE manages and coordinates Maryland's interagency program to investigate fish kills in all waters of the State. MDE works with the Department of Natural Resources Police who are responsible for posting areas closed to harvesting, and for patrolling these areas to prevent illegal harvesting. The Department also receives, responds to, and interprets all reports of damaged fish. The investigative findings are acted on to enforce the water pollution laws of Maryland, protect public health, aid in resource management, and contribute to public outreach.

**Objective 4.2:** Determine the cause of 90% of all reported fish kills in a timely manner.

**Strategy 4.2.1:** Continue to improve performance by streamlining the fish kill investigation process, which includes improving working relationships with sister agencies, qualified volunteers, and technical and laboratory support.

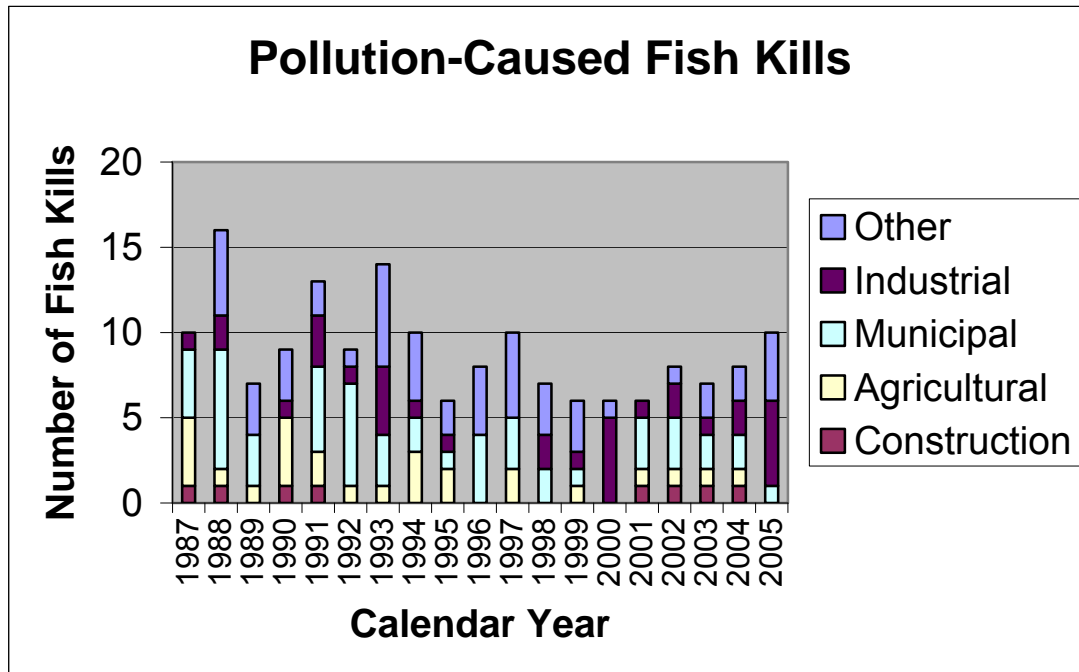
**Strategy 4.2.2:** Ensure that 100% of all pollution-related fish kills are referred to the appropriate agency for enforcement or corrective action, whether that be county officials, DNR's Natural Resource Police, MDE's Water Management's Industrial Compliance Group, MDE's Emergency Response/Hazmat group, or MDA's Pesticide Regulation Section.

**Performance Measures:**

Performance Measures* (data are annual based on calendar year)	CY 2006 Actual	CY 2007 Estimate	CY 2008 Estimate	CY 2009 Estimate
Number of fish kill investigations performed	68	95	95	95
Percentage of fish kill reports investigated for which a causal factor can be identified	94%	90%	90%	90%
Number of investigated fish kills where the cause is pollution	10	10	10	10
Percent of investigated fish kills where the cause is pollution	15%	6%	7%	7%

\*Note: Due to the seasonal nature of this program, the basis for reporting is by calendar year.

**Performance Indicator:**



**Progress and Challenges:**

This program has three experienced biologists able to investigate fish kills, which provides excellent coverage during most times of the year. The staff address citizen concerns quickly, answering questions, investigating fish kills and other ecological anomalies, and consulting with other invested agencies/authorities as necessary. However, summer can be extremely busy, with fifty or more fish kills reported in one busy month.

## 4.3 Discharge Permits

**Introduction:** MDE works to protect water quality by issuing discharge permits and inspecting permitted facilities.

**Objective:** Achieve 99% significant compliance with discharge permit effluent limitations for all inspected surface water state- and NPDES-permitted sites/facilities. Implement watershed-based permitting to provide coordinated watershed protection.

**Strategy 4.3.1:** Inspect all major permitted industrial and municipal wastewater treatment plants, and targeted minors identified in the Section 106 Water Pollution Control Grant, every year. Emphasis will be given this year to inspection of concentrated animal feeding operations (CAFOs) permittees, combined sewer overflow (CSO) permittees, and all active construction sites five acres or greater in Calvert, Cecil, St. Mary's, Wicomico and Worcester Counties.

**Strategy 4.3.2:** Continue to provide on-site compliance assistance to groundwater discharge permittees to help resolve minor compliance issues.

**Strategy 4.3.3:** Continue to provide on-site compliance assistance to surface water discharge permittees to help resolve minor compliance issues.

**Strategy 4.3.4:** Take appropriate enforcement action against those facilities that fail to comply with permit requirements.

### Performance Measures:

Performance Measures (data are annual, not cumulative, unless otherwise noted)	FY2006 Actual	FY2007 Actual	FY 2008 Estimate	FY 2008 Estimate
Number of surface water sites/facilities (state and NPDES) in effect at the end of the fiscal year	3,100	3,157	3,200	3,200
Number of surface water (state and NPDES) inspections conducted	9,256	9,521	9,200	9,200
Number of surface water sites inspected	2,664	2,405	2,300	2,300
Percentage of inspected surface water sites/facilities (state and NPDES) in significant compliance	99%	98%	99%	99%
Total number of surface water compliance assistance actions rendered	64	49	50	50

### Progress and Challenges:

In FY 2007 a total of 63 enforcement actions were issued for surface water discharge violations against municipal wastewater treatment plants including 8 orders and 63 penalty actions. Included in these actions was a civil consent decree with Carroll County for the Hampstead WWTP to address temperature effluent violations resulting from discharges from the plant. Among the penalty actions were 20 separate stipulated penalties assessed under the provisions

of issued consent orders/decrees for sanitary sewer overflows. Also in FY 2007 a total of 20 enforcement actions were issued for surface water discharge violations against industrial dischargers including 6 orders and 20 penalty actions. Among these actions, two judicial orders with penalty assessments were issued for water pollution violations at the former New Earth Services composting site and JCR, Inc. both in Dorchester County.

WMA's Compliance Program is setting priorities for inspections of different media with a greater emphasis on sediment and erosion control. This is reflected in the table above, in the minor reduction in the number of surface water inspections expected in FY08 and FY09.

## 4.4 Sewage Overflows

### Introduction:

This section relates to two types of sewage overflows: sanitary sewer overflows and combined sewer overflows.

### Sanitary Sewer Overflows

Sanitary sewer overflows (SSOs) are releases of untreated sewage into the environment. They occur when there is an overflow, spill, or release of raw or partially-treated sewage from a sanitary sewer collection system before it reaches a sewage treatment plant. Such releases can degrade water quality and expose people to viruses and other pathogens that can cause serious illness. In addition, these discharges can occur as basement backups, causing property damage and further threatening public health.

Generally, discharges of untreated sewage from SSOs can be caused by root, grease, and debris blockages; structural, mechanical and electrical failures; and extraneous flows that enter separate sanitary sewer systems due, in large part, to inadequate maintenance. An aging sewer infrastructure also increases the occurrence and severity of overflows.

### Combined Sewer Overflows

Combined sewer systems are sewers that are designed to collect rainwater runoff, domestic sewage, and industrial wastewater in the same pipe. Most of the time, combined sewer systems transport all of their wastewater to a sewage treatment plant, where it is treated and then discharged to a water body. During periods of heavy rainfall or snowmelt, however, the wastewater volume in a combined sewer system can exceed the capacity of the sewer system or treatment plant. For this reason, combined sewer systems are designed to overflow occasionally and discharge excess wastewater directly to nearby streams, rivers, or other water bodies.

These overflows, called combined sewer overflows (CSOs), contain not only stormwater but also untreated human and industrial waste, toxic materials, and debris. They can create serious water pollution concerns for the Maryland cities, generally older ones, that have combined sewer systems.

**Objective 4.4:** Reduce sewage overflows by 50% by 2010<sup>2</sup> through implementation of EPA's minimum control strategies, long-term control plans (LTCPs), and collection system improvements in capacity, inflow and infiltration reduction, operation and maintenance.

**Strategy 4.4.1:** Actively enforce requirements regarding reporting overflows or treatment plant bypasses and public notification of certain sewage overflows. MDE will make information about sewage overflows available to the general public by continuing to place it on MDE's website.

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<sup>2</sup> This refers to the total for combined sewer system overflows (CSOs) and separate sewer system overflows (SSOs). The objective target is a 50% reduction of the three-year (FY03, 04 and 05) average amount, which was 521,761,000 gallons.

**Strategy 4.4.2:** Inspect and take enforcement actions against those CSO jurisdictions that fail to implement approved long-term control plans by dates set within current judicial orders. All CSO systems in MD are under judicial orders.

**Strategy 4.4.3:** Take enforcement actions to require that jurisdictions experiencing significant or repeated SSOs take appropriate steps to eliminate overflows.

**Strategy 4.4.4:** Fulfill the federal grant commitment to ensure that the State SSO inventory is up to date.

**Performance Measures:**

Performance Measure (data are annual, not cumulative, unless otherwise noted)	FY 2006 Actual	FY 2007 Actual	FY 2008 Estimate	FY 2008 Estimate
Number of collection systems with significant SSOs	31	16	10	10
Number of collection systems with CSOs	8	6	7	7
Total number of overflows (SSOs +CSOs)	1,518	1,380	1,000	1,000
Total number of gallons (SSOs + CSOs)	372,550,306	300,191,479	300,000,000	300,000,000
Number of CSOs meeting 9 minimum controls	8	8	8	8
Number of CSOs with LTCP with completion dates	7	8	8	8
Number of CSO formal enforcement actions completed this year	1	0	0	0
Number of SSO formal enforcement actions completed this year	3	1	1	1
Net change in the number of gallons of sewage overflows (+/-) compared to 03-05 average baseline of 521.7M gallons	(149.2)	(221.5)	(221.7)	(221.7)
Percentage reduction in gallons of sewage overflow from 2001 level (See above change)	29% decrease	42% decrease	42% decrease	42% decrease

**Progress and Challenges:**

CSOs

MDE has approved the LTCPs submitted by Cumberland, Frostburg, Allegany County and LaVale. MDE is currently reviewing a revised LTCP for Westernport. Cambridge is continuing to work to eliminate its CSOs under a judicial consent decree. Salisbury eliminated its remaining CSO.

SSOs

EPA and MDE are tracking compliance with two separate federal/state judicial consent decrees with Washington Suburban Sanitary Commission and Baltimore County to address the elimination of SSOs from the sewer collection systems in these jurisdictions. Under the terms of

both consent decrees, Baltimore County and WSSC are required to implement, over the next 14 years numerous reporting, monitoring, inspection, maintenance, repair, and replacement remedial measures for their respective sewer collection systems to eliminate SSOs. In addition, both jurisdictions are paying stipulated penalties for SSOs that occur during the pendency of the consent decree. MDE continues to track compliance with the judicial consent decree regarding SSO elimination issued to Baltimore City, as well as the administrative consent order issued to Anne Arundel County, and to assess stipulated penalties for SSOs from their collection systems as appropriate.



## 4.5 Financial Assistance for Capital Programs

### Introduction:

Maryland is in critical need of capital investment in water and wastewater (including nonpoint source) infrastructure: current estimates are \$6.1 billion in wastewater and \$3.96 billion in water supply systems. The Nutrient Reduction Cost-Share Program, first funded by the Maryland General Assembly during the 1984 legislative session, is a state/local cost-share grant program that provides financial assistance to local governments to implement nutrient-removal technology at the largest publicly-owned sewage treatment plants in Maryland. Specifically, the program is geared towards 66 significant wastewater treatment plants (WWTPs) that are designed to treat 500,000 gallons per day or greater.

The rationale for targeting these major facilities is that their combined flow comprises more than 95% of the total sewage flow generated in Maryland; also, nutrient-removal technology is more cost-effective at larger plants. The goal of the program is to fulfill Maryland's commitments under the multi-state Chesapeake Bay Agreement for major reductions of nutrients – nitrogen and phosphorus – discharged from sewage treatment plants into the Chesapeake Bay. Reducing nutrients discharged from sewage treatment plants into the Chesapeake Bay is essential to meeting the overall goals of the federal Clean Water Act and for improving and protecting water quality, aquatic life and habitat, and the lifestyle and economic activities associated with a healthy Bay.

To meet nutrient reduction goals set forth in the Chesapeake Bay Agreement, Maryland's 1994 Chesapeake Bay Tributary Strategies outlined specific nutrient reductions required from all sources. Full implementation of the Tributary Strategies requires the retrofit of the 66 major sewage treatment plants in Maryland by installing the first level of nutrient removal, commonly referred to as biological nutrient removal (BNR). The 2000 Chesapeake Bay (C2K) Agreement called for Maryland to reaffirm the 1994 Tributary Strategies as a minimum commitment, and further commits all bay states to remove all nutrient impairments to the Bay by 2010. To meet these new commitments, additional reductions of nutrient pollutants from all sources including sewage treatment plants are necessary.

Nutrient removal goals for significant sewage treatment plants have been established at 3 mg/l for nitrogen and 0.3mg/l for phosphorus. To meet these nutrient performance goals necessary for the Chesapeake Bay cleanup, significant sewage treatments will have to provide a highly advanced level of nutrient removal, called enhanced nutrient removal (ENR). During the 2004 legislative session, the Bay Restoration Fund was established. Through this law, revenue is generated to provide up to 100% financial assistance to the state's wastewater treatment plants (WWTPs) to achieve ENR, as well as for upgrades to onsite sewage disposal systems, often called septic systems.

**Objective 4.5:** By 2010, correct the point-source nutrient-related problems in the Chesapeake Bay and its tidal tributaries in order to achieve the Chesapeake 2000 Agreement goal.

**Strategy 4.5.1:** Secure \$268.5M in capital funding for Water Quality Improvement Projects for FY 2009. The water quality budget includes \$149M in projects funded through the new Bay Restoration Fund (BRF). Capital funding will be targeted to projects with the greatest water quality improvement benefit and, for eligible "growth-related" projects, toward Priority

Funding Areas consistent with the law. Funds appropriated by the Legislature for FY2009 will be utilized in a timely manner by encumbering not less than 90% of funds by the end of FY09.

**Strategy 4.5.2:** Capital funding for eligible “growth-related” projects will be targeted towards Priority Funding Areas consistent with the law.

**Strategy 4.5.3:** Develop options for implementing ENR removal technology in existing wastewater treatment plants that have or will have BNR technology in place consistent with C2K commitments.

**Strategy 4.5.4:** Take necessary steps, in conjunction with the Maryland Department of Planning, to identify and obtain increased federal funding to help support BNR and ENR upgrades at wastewater treatment plants.

**Strategy 4.5.5:** Take necessary steps to implement the Bay Restoration Fund including hiring staff, prioritizing ENR projects and septic upgrades, performing engineering and construction management for ENR projects, working with selected vendors to install nitrogen reduction technologies, etc.

**Performance Measures:**

Performance Measures (data are annual, not cumulative, unless otherwise noted)	FY 2006 Actual	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate
Amount of state grant funds encumbered for Biological Nutrient Removal (BNR)	\$15.2M	\$18.5M	\$10.2M	\$22.96
Number of BNR projects financed	10	7	10	8
Annual amount of Bay Restoration Funds for Enhanced Nutrient Removal (ENR)	\$30M	\$43M	\$107M	\$138M
Number of ENR projects financed	17	13	36	31
Dollar amount of sewer rehab grants	\$2.7M	\$3.2M	\$9.1M	\$5.0M
Number of sewer rehab grants financed	3	5	14	8
Dollar amount of septic grants	0	\$24,436	\$7.2M	\$8.4M
Number of septic projects financed	0	2	600	700
Dollar amount of Water Quality State Revolving Fund (WQSRF) loans	\$149M	\$83M	\$110M	\$90M
Number of WQSRF projects financed	21	17	17	19
Total amount of state dollars encumbered for other water quality capital improvement projects (SCERP, Supp Assist, and SWM Rehabilitation) (1)	\$5.0M	\$6.7M	\$6.8M	\$6.5M
Percent reduction in point-source nitrogen loading since 1985 (calendar year reduction) (2)	49%	51%	51%	52%
Total million pounds of point source nitrogen reduced since 1985 (calendar year reduction) (2)	16.02	16.6	16.7	17.1

Notes about performance measures:

- (1) The Septic System Upgrade and Sewer Rehabilitation Programs are funding sources that came into existence in FY06. The Sewer Rehabilitation Program will exist only through FY09.
- (2) “Actual” numbers must be calculated from calendar data that is two years old and are based on 1985 baseline data provided by EPA. For example, the numbers reported for FY2007 were calculated from the CY2005 data provided by EPA; the delay is due to the lengthy QA/QC process conducted by both the EPA and MDE. Estimated numbers reported for FY08 and FY09 are calculated based upon CY2005 loads and anticipated reductions resulting from upgrades to facilities scheduled to be completed during calendar 08

and 09. The data presented is based on reductions in point sources only and does not include reductions in non-point sources (non-point source data is distributed among MDE, DNR and MDA).

### **Progress and Challenges:**

All 66 major wastewater treatment facilities with large flows have been upgraded or have signed cost-share agreements. 47 of the 66 are operating in BNR. ENR upgrades are also underway: 6 are in operation; 8 are in construction; 13 are in design; 30 in planning; and 9 are in preplanning. Nutrient removal efforts by WWTPs have already reduced nitrogen loads by 16.6 million pounds per year. Full ENR implementation will achieve a 7.5 million pounds per year reduction to meet the Chesapeake Bay goals. Federal funding is needed to complete BNR/ENR at Maryland's three largest plants serving the DC area and Baltimore: Back River, Patapsco and Blue Plains.

## 4.6 Total Maximum Daily Loads

**Introduction:**

MDE develops Total Maximum Daily Loads (TMDLs) in accordance with Section 303(d) of the federal Clean Water Act (CWA). A TMDL is an estimate of the maximum amount of an impairing substance or stressor that a water body can assimilate without violating water quality standards. TMDLs are required for each water body and associated impairment(s) listed on the State's "303(d) list" of impaired waters. The estimated loads are allocated to point sources (e.g., industries, sewage treatment plants, stormwater runoff), and nonpoint sources (e.g., agriculture runoff) within the watershed, as well as a margin of safety. Each year, MDE strives to achieve ambitious submittal goals based upon a Memorandum of Understanding (MOU) between MDE and the U.S. Environmental Protection Agency.

**Objective 4.6:** Complete the number of TMDLs agreed to in the federal MOU submission schedule, and incorporate approved TMDLs into permits in impaired watersheds.

**Strategy 4.6.1:** Conduct monitoring to verify the impairment or confirm that water quality standards are being met, and to support the development of a computer model that simulates the water body to estimate the allowable loads.

**Strategy 4.6.2:** Use a quantitative model to estimate the allowable loads. Make provision for public participation and address comments in a formal Comment Response Document. Revise the TMDL accordingly.

**Strategy 4.6.3:** Once EPA approves the TMDLs, they are incorporated into NPDES discharge permits by the Water Management Administration. Permits are renewed every five years; approximately 142 permits are affected. Adjustments are made in accordance with the permit renewal cycle.

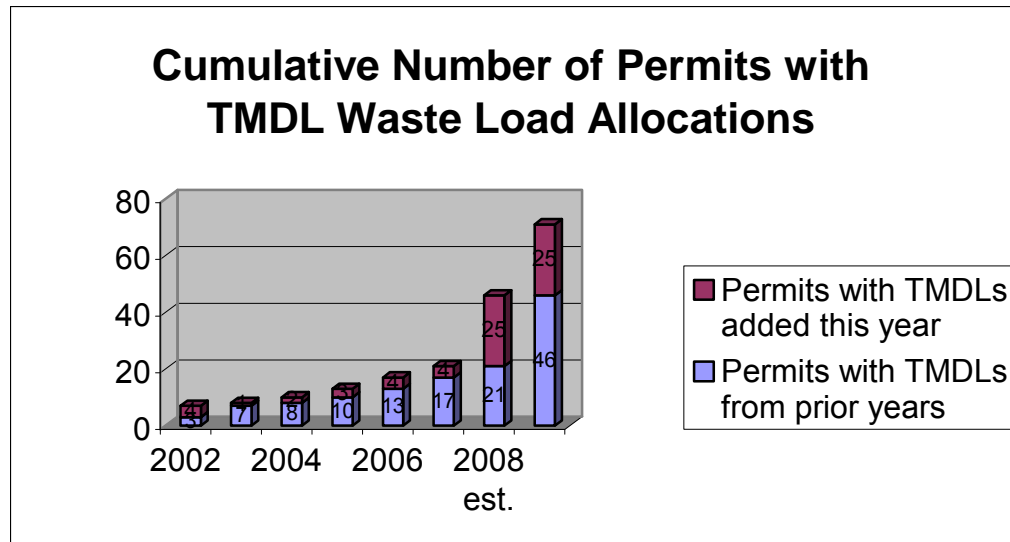
**Performance Measures (data are annual based on federal fiscal year, unless otherwise noted):**

Performance Measures	FY 2006 Actual	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate
Percent of TMDLs and Water Quality Analyses <sup>a,b</sup> (WQAs) submitted in accordance with agreed-upon TMDL submittal schedule	115%	100%	100%	100%
Number of TMDLs and WQAs submitted in accordance with agreed-upon TMDL submittal schedule <sup>a</sup>	53	39	30	30
Number of new or renewed NPDES permits issued that incorporate approved TMDL wasteload allocations (previous calendar year data)	4	4	25	25
Percent of total required TMDLs completed <sup>a</sup>	44%	49%	54%	57%

<sup>a</sup> Calculation changed from calendar year to federal fiscal year i.e. FY 2007 is based on federal fiscal year 2007, etc. The MOU with EPA calls for a production schedule on a federal fiscal year (FFY) basis running from Oct. 1 through Sept. 30 each year.

<sup>b</sup> A Water Quality Analysis determines if water quality standards are currently being met. If they are, the waterbody may be removed from the impaired waters list and a TMDL is unnecessary. If water quality standards are not met, TMDL development proceeds unless a remedy has been identified for immediate implementation.

## Performance Indicators:



## Progress and Challenges:

Using its five-year watershed cycling strategy, Maryland has completed all monitoring for eutrophication throughout the State. A major portion of the toxic monitoring has also been completed. In calendar years 2006-2007, polychlorinated biphenyl (PCB) monitoring was completed in support of the development of a multi-jurisdictional PCB TMDL for the Potomac River as well as PCB TMDLs for the upper Chesapeake Bay. From 2004 through 2008, Maryland is revisiting its watershed cycling strategy, with monitoring being conducted throughout the State. Finally, the Department is partnering with other Chesapeake Bay partners to develop a sediment transport model for the Chesapeake Bay and Potomac River Basin. The results from this effort can potentially address over 100 nutrient and sediment listings.

The immediate challenges facing the TMDL Development Program are the completion of TMDLs for the Anacostia River watershed, the Baltimore Harbor, and Maryland Coastal Bays within the next 24 months. The Anacostia effort is a watershed-based TMDL between a number of jurisdictions (Washington, D.C., Montgomery County, Prince George's County and MDE). Extensive policy and technical coordination will be required among EPA Region 3, EPA Headquarters, Washington, D.C. and MDE. The major long-term challenge facing the TMDL Development Program is addressing over 100 impairments (sediments and nutrients) through the Chesapeake Bay Program efforts. This will involve active participation (policy and technical) in the Program to develop a Bay TMDL. Other challenges include the need for consistency with the on-going activities of the Program; the technical complexity of some TMDLs, including the need to develop new methodologies; and the displacement and loss of staff resources.



## 4.7 Water Quality

### Introduction:

MDE does a significant amount of water quality monitoring and utilizes data from other agencies to assess outcome-based results for the combined contributions of many water quality programs including the following:

- Total Maximum Daily Loads;
- National Pollution Discharge Elimination System (NPDES) permits for municipal, industrial and stormwater discharges;
- Sediment and erosion control;
- Inspection and compliance assistance;
- Agricultural best management practices; and
- Special protection of high quality (Tier II) waters

MDE characterizes water quality across the State on a five-year cycle. Although the same locations are not necessarily monitored in each round, a sufficient number of samples (between 1,900 and 7,000 depending on the year) are taken from a sufficient number of locations to be representative of water quality. However, it is important to note that water quality may be significantly affected by rainfall and differences between years may reflect weather as much as our management activities. To minimize the impact of natural conditions on our evaluation tool, the water quality metric uses a five-year average ending with year indicated. For example, the water quality shown for 2006 is the average of the five years from 2002 through 2006 inclusive.

**Objective 4.7:** To improve water quality by reducing nitrogen and phosphorus concentrations because these pollutants cause numerous problems in the Chesapeake Bay.

**Strategy 4.7.1:** Effectively implement the programs indicated above in combination with incentive-based programs run through the Maryland Department of Agriculture and cooperative programs coordinated through the Maryland Department of Natural Resources as part of the Tributary Strategies and the non-point source control programs implemented under Section 319 of the Clean Water Act.

### Performance Measures:

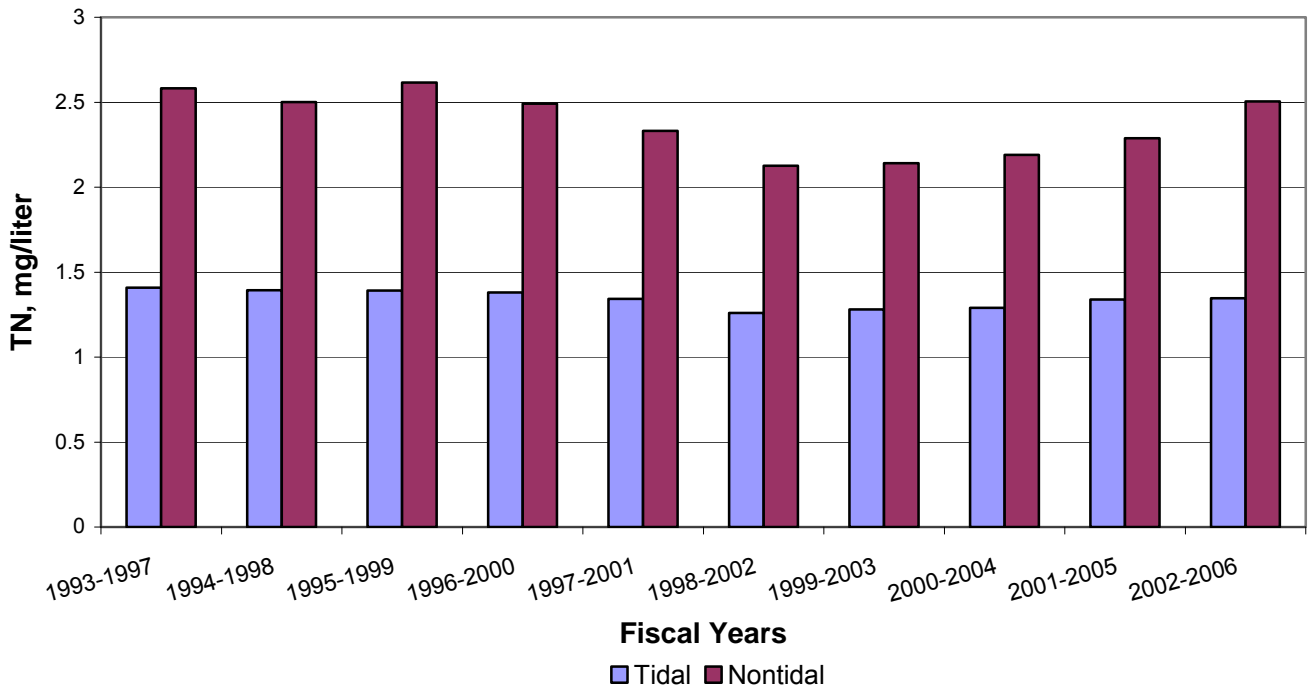
Performance Measure	FY 2006 Estimate <sup>1, 2</sup>	FY 2007 Estimate <sup>2</sup>	FY 2008 Estimate <sup>2</sup>	FY 2009 Estimate <sup>2</sup>
(Five-year running average of) Total nitrogen concentrations monitored in tidal waters mg/l	1.33	1.34	1.34	1.33
(Five-year running average of) Total nitrogen concentrations monitored in nontidal waters mg/l	2.34	2.62	2.70	2.75
(Five-year running average of) Total phosphorus concentrations monitored in tidal waters mg/l	0.074	0.075	0.074	0.74
(Five-year running average of) Total phosphorus concentrations monitored in nontidal waters mg/l	0.110	0.111	0.112	0.113

<sup>1</sup> These numbers can only be estimated using currently available information, as not all samples collected in FY06 have been analyzed. Samples are processed and analyzed by DNR. Final FY06 results are expected by December 2007.

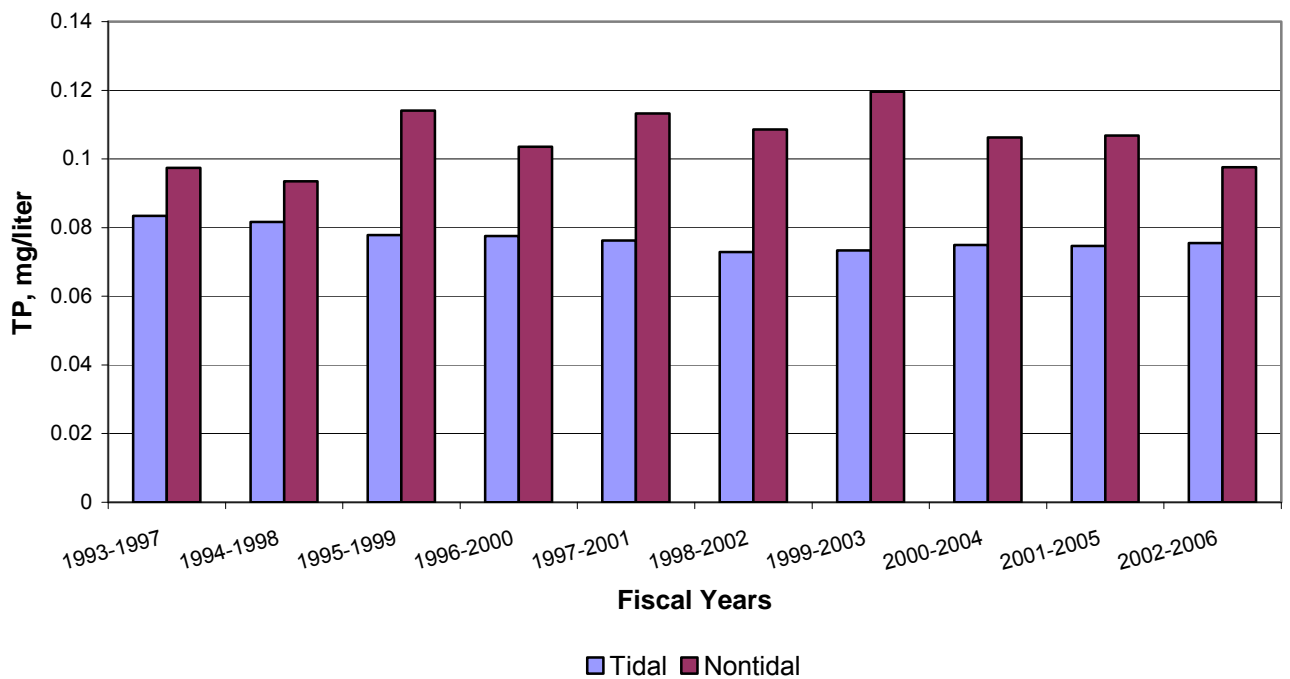
<sup>2</sup> These numbers were projected using a time-series prediction model based upon data from previous years

**Performance Indicator:**

**Total Nitrogen**



**Total Phosphorus**





## **Progress and Challenges:**

Maryland took a major step forward in the reduction of nutrient pollutants through the passage of the Chesapeake Bay Restoration Fund during the 2004 session of the Legislature. This bill provides funds for significantly reducing pollutants that are a primary cause of the decline in the Bay's health.

Continuing efforts to encourage other reductions through voluntary and regulatory programs will further enhance this goal. Promulgation of new and revised water quality standards will also provide the basis for further and more appropriate limitations on many pollutants, including nutrients.

Additionally, Maryland is in the process of updating its statewide water quality monitoring strategy to integrate monitoring efforts from smaller watersheds and efforts addressing biological and physical habitat impacts into a more all-encompassing framework.

Sustained state and federal funding of monitoring initiatives is one critical challenge. Delays in development of living-resource-based regulations in the Chesapeake Bay and tidal tributaries is another. Additionally, improved Chesapeake Bay water quality is not within Maryland's control alone. Nutrient-reduction initiatives must be implemented by upstream states as well.

During FY08, special emphasis is being placed on outreach to local governments in support of Maryland's new local planning requirement for inclusion of a Water Resources Element (WRE) in each jurisdiction's comprehensive plan. Approximately 134 local sub-divisions must comply by October 1, 2009. Local WREs must address a range of water resource issues; among these are TMDLs and protection of designated high-quality waters. WREs are expected to play an increasingly important role in helping achieve State water quality goals.

## 4.8 Wetlands

### Introduction:

Wetlands play important roles in the preservation and protection of the Chesapeake Bay, the Coastal Bays, and other waters of the State. The roles cover a wide range of functions. Wetlands reduce pollutant loadings including excess nutrients, sediment and toxics. They attenuate floodwaters and storm waters. They stabilize shorelines and control erosion. They provide habitat for many species.

The Wetlands and Waterways Program is responsible for protecting and managing the State's tidal and nontidal wetlands and waterways. The Program regulates activities in tidal wetlands, nontidal wetlands and their associated buffers, and nontidal waterways, including the 100-year floodplain. Additional responsibilities include issuing water quality certifications pursuant to Section 401 of the Clean Water Act and reviewing proposed federal activities for consistency with the State's Coastal Zone Management Program. In addition to regulatory responsibilities, the Program creates, restores, and enhances tidal and nontidal wetlands and streams, provides training and technical assistance, and assists in the development of watershed management plans.

Program responsibilities include permitting, inspection and compliance under the Tidal Wetland Act and Nontidal Wetland Protection Act, Water Quality Certification as required by Section 401 of the federal Clean Water Act, and Coastal Zone Consistency as required by Section 307 of the federal Coastal Zone Management Act.

**Objective 4.8:** Achieve 99% significant compliance with all inspected permitted wetland projects. Continue voluntary wetland restoration programs to meet a revised goal of restoring 15,000 acres of wetlands by 2010 and enhancing 35,000 acres of wetlands.

**Strategy 4.8.1:** Conduct interagency reviews with federal and local governments.

**Strategy 4.8.2:** Conduct outreach and support volunteer initiatives to create and restore 15,000 acres of wetlands and enhance 35,000 acres of wetlands. Conduct meetings with partners in voluntary wetland restoration to exchange information on funding opportunities and technical practices.

**Strategy 4.8.3:** Maintain the number of compliance inspections for tidal and nontidal wetlands at FY03 levels.

**Strategy 4.8.4:** Assess effectiveness of the mitigation program and update existing guidance for management and mitigation of waterways and nontidal wetlands.

**Strategy 4.8.5:** Complete update of databases for tracking voluntary wetland restoration and regulatory gains and losses, and continue development of an improved screening database for preliminary review of applications.

**Strategy 4.8.6:** Develop comprehensive strategy to monitor wetlands for regulatory, mitigation, planning, restoration, and protection purposes.

**Strategy 4.8.7:** Update existing regulations for tidal and nontidal wetlands and waterways.

**Strategy 4.8.8:** Promote and assist in the development of watershed and special area plans with local governments and stakeholders to improve wetland management.

**Strategy 4.8.9:** Develop two projects that achieve the restoration goals of other partners using the Nontidal Wetland Compensation Fund or the Tidal Wetland Compensation Fund, while providing appropriate mitigation and maintaining the integrity of the fund.

**Strategy 4.8.10:** Promote wetland restoration and mitigation in the Coastal Bays.

**Strategy 4.8.11:** Continue to implement recommendations in the Maryland Wetland Conservation Plan to improve comprehensive, effective, and efficient wetland management.

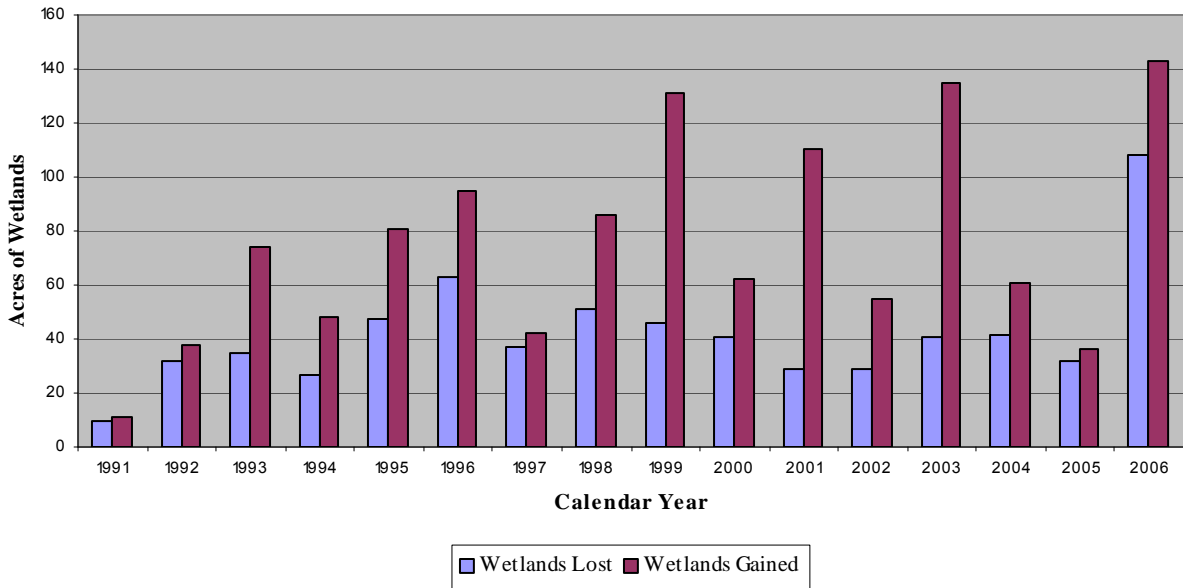
**Strategy 4.8.12:** Continue to meet with other agency, technical, and stakeholder representatives to develop Maryland’s wetland monitoring strategy.

**Strategy 4.8.13:** Evaluate and track wetland preservation in Chesapeake Bay watershed and establish preservation acreage goals.

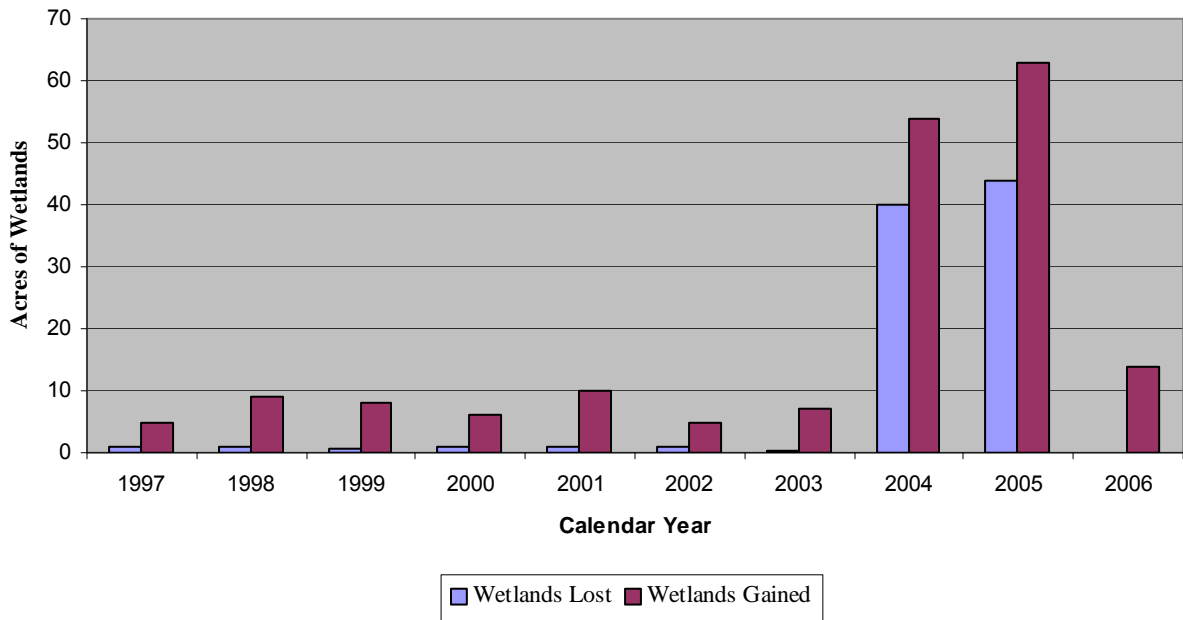
**Performance Measures:**

Performance Measure (data are annual, not cumulative, unless otherwise noted)	FY 2006 Actual	FY2007 Actual	FY2008 Estimate	FY2009 Estimate
Number of tidal wetland sites/facilities	7,458	7,846	7,500	7,500
Number of non-tidal wetland sites/facilities	4,277	4,545	4,000	4,500
Number of tidal wetland inspections conducted	1,057	1,050	1,000	1,000
Number of non-tidal wetland & floodplain inspections conducted	3,101	3,043	3,000	3,000
Number of tidal wetland sites/facilities with significant violations	42	3	NA	NA
Number of tidal wetland enforcement actions initiated	4	3	NA	NA
Number off non-tidal wetland sites/facilities with significant violations	22	10	NA	NA
Number of non-tidal wetland & floodplain enforcement actions initiated	20	22	NA	NA
Percent of inspected tidal sites/facilities in significant compliance	92%	100%	NA	NA
Percent of inspected non-tidal & floodplain sites/facilities in significant compliance	99%	100%	NA	NA
Wetland acreage established through mitigation required by regulatory program	175.0894	42.5488	50	50
Wetland acreage lost through activities authorized by regulatory program (volume of permits)	123.1043	28.2178	30	30
Acres of Maryland’s total wetland resource base (tidal and non-tidal) gained/lost through regulatory program	51.9852	14.3310	20	20
Cumulative acres of wetlands voluntarily created, restored, or enhanced in Maryland’s Chesapeake Bay watershed since 1998 (calendar year)	72,673	92,908	105,000	115,000
Cumulative statewide acreage of wetlands voluntarily created, restored, or enhanced (calendar year)	74,718	94,944	107,000	117,000

### Nontidal Wetland Gains and Losses



### Tidal Wetlands Gains and Losses



**Progress and Challenges:** Many wetlands have already been lost or degraded due to the combined effects of population growth and land use. Further degradation and loss of wetlands will contribute to the decline of the Chesapeake Bay, the Coastal Bays, and other waters of the State. The challenge now is to improve both regulatory and non-regulatory management of wetlands through partnerships with local, federal, and other State agencies, and to continue to pursue a net gain in wetland resources by applying the “no net loss” statutory criteria to project approval in combination with voluntary wetland restoration.

## 4.9 Fish Tissue Sampling

### Introduction:

Maryland's commercial and recreational fishing industries both depend on public confidence that the State's fish and shellfish are safe for human consumption. Maryland's Fish Tissue Monitoring and Assessment Program emphasizes a comprehensive sampling approach to evaluate the safety of recreationally-caught fish for consumption. Chemical contaminants from various sources make their way into water and sediments, which may then accumulate in fish tissues, including the edible portion. The contaminant levels of some fish species may become sufficiently elevated that when consumed regularly over long time periods, consumer risk of adverse health impacts may increase.

MDE is responsible for monitoring contaminant levels in fish tissue, and issues consumption guidelines when there are unacceptable levels of contamination. Currently, fish consumption advisories in Maryland are issued only for polychlorinated biphenyls (PCBs) and mercury, because only those contaminants have been found at unacceptable levels. PCBs, which are now banned, are a legacy contaminant in some of the Bay tributaries' sediments and also continue to come off the land. The Department has chosen white perch as an indicator species for PCB levels, because it is an important recreational sport fish that is widely available in the Bay and its tributaries. Mercury, a natural substance, is transported to Maryland's waterways through air deposition from coal-fired power plants nationwide and from waste incineration plants locally. The Department has chosen black bass (i.e., largemouth bass) as an indicator species for mercury sampling, because it is an important recreational sport fish that is widely available in freshwater systems.

In 2000, the EPA changed the national standard for fish consumption from one based on one meal per month to one based on two meals per month. This reduced the allowable contamination in fish by assuming people eat more fish per month (two meals rather than one). This resulted in numerous advisories issued for freshwater and tidal systems in Maryland in 2001. The Department now uses the two-meals-per-month standard as a benchmark to measure trends in contaminant levels statewide.

**Objective 4.1:** By 2012, the fish tissue concentrations of PCBs and mercury in all sampled areas will allow at least two meals per month to be safely eaten at all locations.

**Strategy 4.1.1:** Conduct the environmental sampling and scientific analyses necessary to characterize the toxic organic and inorganic contaminants affecting water quality and harvestable fish, shellfish and crabs in at least one third of the State's waters each year.

**Strategy 4.1.2:** Identify methods to reduce contaminants and implement where possible.

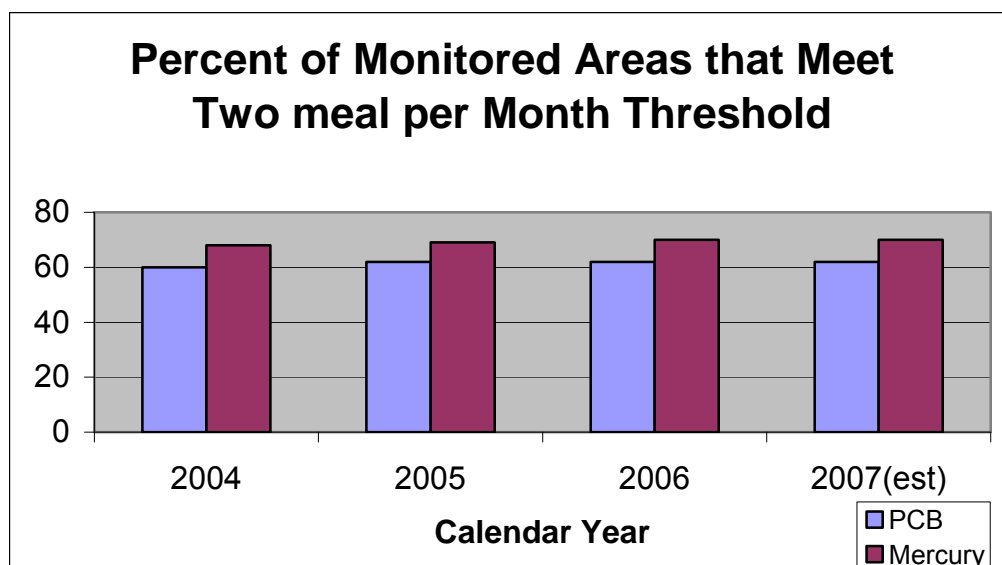
**Strategy 4.1.3:** Provide outreach and information to sensitive populations and urban areas to enhance awareness of fish consumption guidelines.

### Performance Measures:

Performance Measures* (data are annual, not cumulative, unless otherwise noted)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
Percent of sampled areas that meet two-meal-per-month standard for PCB	64%	62%	62%	62%
Percent deviation from allowable PCB concentration found in sampled recreational fish (white perch)	-13%	-13%	-13%	-13%
Percent of sampled areas that meet two-meal-per-month standard for mercury	69%	70%	70%	69%
Percent deviation from allowable mercury concentration found in sampled recreational fish (black bass)	-2%	-2%	-2%	-2%

\*This program is seasonal in nature and tracks its activities by calendar year.

**Performance Indicator:**



**Progress and Challenges:**

Since 2000, this program has had sufficient funding to look at most major waterbodies (at least at the screening level), which has led to the development of numerous risk-based consumption guidelines for recreational fish species and crabs. Continued funding is essential to increase sample size in areas where screening level analyses were done previously. Also, there are still gaps for locations, species and/or analytes in the monitoring network that will require sustained funding.

Current focus is on intensive monitoring in Bay tributaries to support TMDL development, and monitoring to develop a baseline for assessing the beneficial effects of the Clean Power Rule on fish tissue mercury levels in Maryland. Finally, funding must continue for outreach initiatives to consumer populations in Maryland to ensure that safe fish consumption information is received and understood. This will take a sustained effort over the long term.

Currently, both the average sampled concentration for mercury and PCBs are slightly below the benchmark.

Previously the average PCB concentration was well above the benchmark; however, this elevated PCB level reflected only limited sampling that targeted problem areas. More extensive data including cleaner areas is now available and provides a more representative analysis. Note that although average concentrations may be within acceptable limits, areas with elevated PCB concentrations will still now allow safe consumption of two meals per month, while other areas may be well below threshold levels, allowing consumption of up to eight meals per month. The average concentrations of both contaminants will remain relatively stable for years to come, and then decrease slowly as regulatory programs and natural attenuation of contaminants translate into a reduction in fish tissue concentrations.



## 4.10 Section 319 Nonpoint Source Management Program

### Introduction:

MDE administers Maryland's Nonpoint Source (NPS) Management Program in accordance with Section 319 of the federal Clean Water Act (CWA) including periodic updating of the State's NPS Management Plan and administration of a federal grant authorized by Section 319(h). Much of the grant funds are used for on-the-ground implementation of NPS control measures. MDE maintains the federally-required Grants Reporting and Tracking System, which includes estimates of load reductions associated with control measures funded by the 319(h) grant. Each year, MDE strives to achieve measurable sediment and nutrient reductions by appropriate targeting of grant resources.

**Objective 4.10:** Restore water quality to regulatory standards by implementing control of nonpoint source nutrient and sediment pollutant loads, targeting locations and best management practices that effectively complement other State programs.

**Strategy 4.10.1:** Award approximately twenty grants per year to soil conservation districts, local governments, and others. These grants support water quality restoration projects, e.g., implementation of agricultural best management practices, stream restoration, wetlands restoration, and abandoned mine discharge mitigation.

**Strategy 4.10.2:** Increase the efficiency of the grant process by increasing the reductions achieved per grant dollar spent each year.

**Strategy 4.10.3:** Track water quality improvements in watersheds where 319(h) funded grants have been implemented (beginning SFY 2009).

**Performance Measures:**

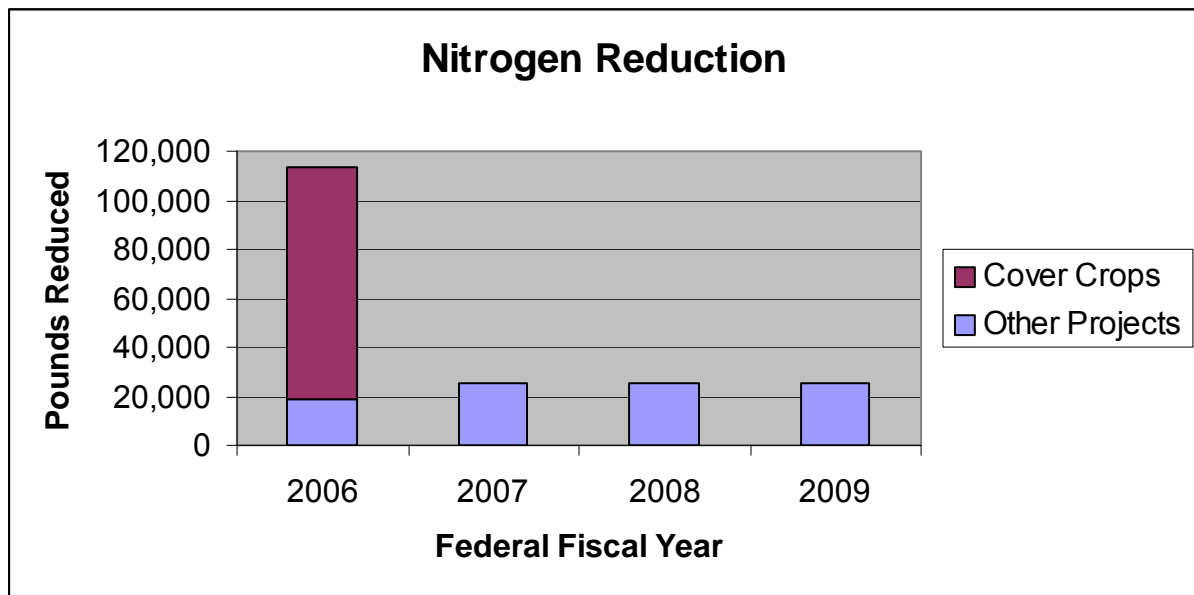
All data are annual based on federal fiscal year, not cumulative. All pollution reductions are estimated based on accepted efficiencies of various pollution control practices that assume proper implementation and maintenance, and are not measured. The reported values are based on accepted per-acre or per-facility efficiencies for nutrient reduction from the best management practices multiplied by the number of acres or facilities as appropriate. Performance results represent the outcome of control practices funded by multiple grants over a federal fiscal year, because the 319 program has multiple overlapping grants active at any given time. The following graph represents reductions achieved by 319 grants only.

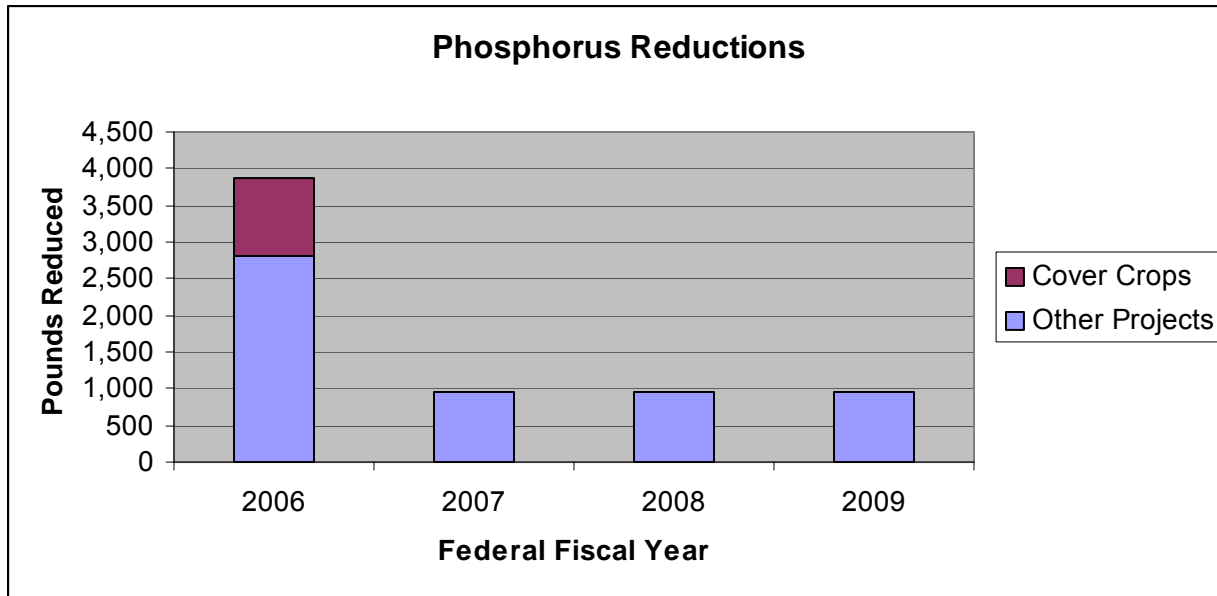
	FFY2006 Actual	FFY2007 Estimated <sup>a</sup>	FFY2008 Estimated	FFY2009 Estimated
nitrogen reduction (pounds/year)	113,688	25,500	25,500	25,500
nitrogen reduction cost (dollars/pound/year)	\$7.26	\$57	\$57	\$57
phosphorus reduction (pounds/year)	3,867	950	950	950
sediment reduction (tons/year)	984	42,900	42,900	42,900
sediment reduction cost (dollars/ton/year) <sup>b</sup>	\$914.85	\$34	\$34	\$34

Notes:

- a. The difference in nitrogen and phosphorus loads between '06 and '07 is due to anticipated reduction in use of 319(h) funding for cover crops as previously initiated 319(h) projects are completed. Presently, dedicated funds from the Bay Restoration Fund are used to implement cover crops.
- b. The cost per unit of phosphorus is reflected in the sediment reduction efficiency measure because phosphorus is tightly bound to sediment.

**Performance Indicators:** Because of changes in funding sources for certain practices, FFY 06 will be established as the baseline for progress evaluation.





Reminder: FFY2006 includes results from cover crop projects that account for reductions of approximately 95,000 pounds nitrogen and 1,000 pounds phosphorus. Future years do not include cover crops because cover crop funding by 319(h) grants is phasing out. Cover crop funding in future years will come from the Bay Restoration Fund.

**Progress and Challenges:**

Additional 319 Management Measures Are Being Considered: The 319 grant is one of the only available funding sources that may be used to demonstrate experimental NPS control methods. In addition, 319 funds are often used for stream restoration, which restores aquatic life uses, but does not have a high nutrient reduction efficiency (lbs reduced per dollar expended). The 319 Program is investigating other management measures, such as linear feet of stream restored, for potential future use in the MFR program.

319 Grant Does Not Fund the Most Cost-Effective BMPs: By design, the 319 funds are not used to implement cover crops, one of the more cost-effective BMPs. This is because other dedicated funds are used to fund cover crops, which must be planted every year. In addition, 319 is designed, in part, to fund higher-risk NPS “demonstration” research projects, which are not guaranteed to be cost-effective. Recognizing this, the 319 Program is considering alternative measures that reflect the true management intent of the 319 Grant (see note above).

Practical Impediments: Although MDE selects recipients and disburses the grant funding; much of the implementation is conducted by other entities such as soil conservation districts and local governments. Practical impediments, such as farmers’ willingness to participate, climatic conditions, property procurement, and sub-contracting challenges often delay projects.

Potential Federal Funding Cuts: EPA funding of the 319 Program is subject to budget cuts. Future cuts would have an adverse effect on this performance measure.

## 5.1 Meeting Federal Standards for Ozone and Fine Particulate Matter

### Introduction:

Under federal and state law and regulations, the Department is charged with ensuring that Maryland's air is safe to breathe. Air pollution contributes to illnesses, including cancer, and can harm respiratory and reproductive systems. Air pollution can also reduce visibility; damage crops, forests and buildings; and acidify lakes and streams.

The federal government has established public-health-based ambient air quality standards for six pollutants: ozone (ground level), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), lead, and particulate matter. Maryland's air quality complies with all standards except ozone and fine particulate matter (PM<sub>2.5</sub>). The air quality in parts of Maryland, generally the Baltimore and Washington metropolitan areas and Cecil County, fails to meet the eight-hour ozone standard at times between May and September of each year. More than 89% of the population of Maryland resides in these areas.

Monitoring data show that portions of these same areas have air quality that does not meet the new federal standard for fine particulate matter. Fine particles—those less than 2.5 micrometers in diameter—are the most dangerous because they can get deep into the lungs and even into the bloodstream. Like ozone, particles can cause respiratory problems, especially for children, the elderly, and people with existing medical conditions. Particles also can make people more susceptible to respiratory infections, resulting in more visits to the doctor. While almost all of our monitors are very close to the standard, there are monitors in Baltimore City, Baltimore County, Anne Arundel County, and Prince George County that exceed the annual standard for fine particles.

**Objective 5.1:** Work to reduce transported ozone through legal action and through requests to EPA, either alone or in concert with similarly affected states, for stricter controls on sources upwind of Maryland. Achieve attainment with the eight-hour ozone standard and the PM<sub>2.5</sub> standard in Maryland's non-attainment areas.

**Strategy 5.1.1:** Work with the University of MD and regional air pollution organizations to develop the necessary scientific information to demonstrate the degree to which transported pollution needs to be addressed so that Maryland's air quality needs are met.

**Strategy 5.1.2:** Work with regional and national organizations to evaluate the effect that proposed national legislation may have on Maryland's air quality and to develop and promote reasonable alternatives where they are warranted.

**Strategy 5.1.3:** Reduce emissions from mobile, stationary and area sources by developing and administering emission reduction programs within each of these source sectors to levels adequate to allow Maryland to achieve attainment with the EPA standards.

**Strategy 5.1.4:** Issue permits to regulate the construction and operation of ozone precursor and PM<sub>2.5</sub> air emission stationary sources, conduct inspections and audits and review compliance-related documents to ensure that permit and regulatory requirements are being met within all source categories.

**Performance Measures:**

Performance Measures	FY 2006 Actual	FY 2007 Actual	FY2008 Estimate	FY2009 Estimate
Number of exceedances of the 8-hour ozone standard	20	24*	15	10
Percentage of MD population living in areas not meeting air quality standards	89%	88%	88%	88%
Tons per year emissions reported for criteria pollutants at high-impact sources	525,427	530,546	530,546	500,546
Number of air pollution permits Issued	993	881	900	900
Total number of air pollution sites	11,587	11,618	11,500	11,500
Number of air pollution sites inspected, including audits and spot checks	3,405	4,0270	4,000	4,000
Number of VEIP inspection station audits***	3,357	3,147	3,250	3,250
Number of VEIP repair facility audits	814	800	750	750

\* 2007 data is as of September 11, 2007.

**Progress and Challenges:**

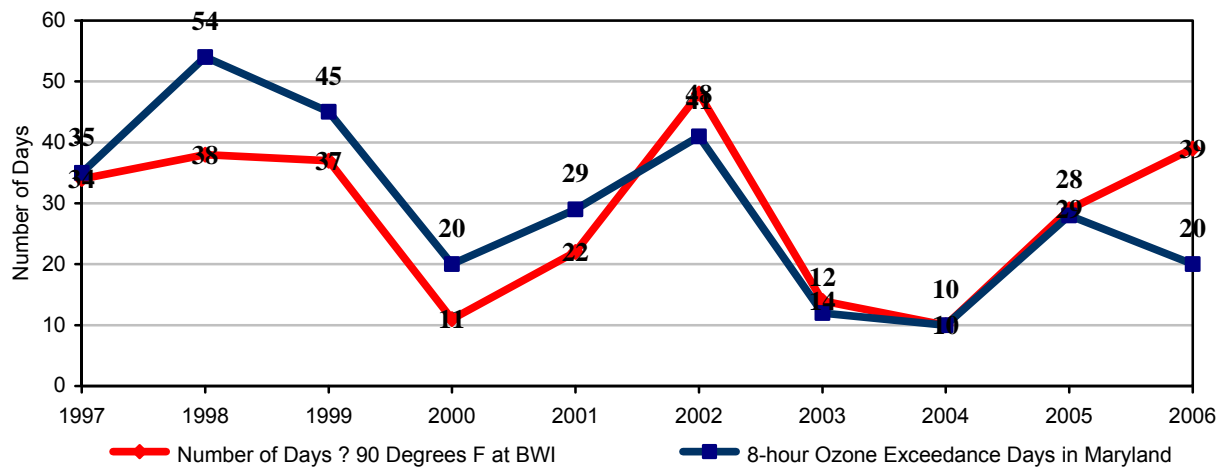
Improvements in Hot Weather: A measure of progress is how well we fare relative to meeting the standard when the temperature reaches 90°F. During the most recent years, the one-hour standard violation occurred only about 10 to 15% of the time when the temperature exceeds 90°F. In earlier years violations routinely occurred one out of every three times at the high temperature, and as much as seven out of eight times. This is less true for the 8-hour standard, but the standard now sets a violation at the orange level rather than the higher red level. We believe that over the next several years we will see the same pattern emerge under the 8-hour standard as we tighten controls to meet the new standard.

Good News for Kent and Queen Anne’s Counties: On December 22, 2006 the Environmental Protection Agency (EPA) issued a final rule to redesignate Kent and Queen Anne’s Counties to 8-hour ozone attainment and approve the proposed maintenance plan. Kent and Queen Anne’s Counties comprise the first non-attainment area in Maryland to comply with the revised 8-hour National Ambient Air Quality Standard for the pollutant ground level ozone. Businesses and citizens joined together to implement sufficient controls to reach the standard, even though it was far more than other “marginal” non-attainment areas had done. Pollution controls in the Baltimore and Washington “moderate” air quality regions have also helped Kent and Queen Anne’s Counties achieve clean air by reducing the amount of pollution carried from these heavily populated urban areas to the Eastern Shore by Maryland’s typical wind patterns.

Positive Trends: Other indicators point to positive trends. Over the course of the ozone season (i.e. the warm months), the number of hours the air quality is above the standard is decreasing. This means that exposure to harmful levels of ozone is reduced, benefiting both the average citizen as well as sensitive groups.

Transported Pollution: Maryland has an ozone problem not only because of ozone-forming pollutants being emitted by sources within Maryland, but also because ozone formed in states to the west of us is delivered to Maryland by the prevailing winds. At times, air from the Ohio River Valley containing as much as 110 parts per billion of ozone can be transported to Maryland via high atmospheric winds where it mixes with the air over Maryland. This pollutant load, when added to the pollution generated in Maryland, causes ozone violations.

## Federal 8-hour Ozone Exceedances vs. 90-plus-degree Days at BWI



## 5.2 Asbestos

**Introduction:** The goal of MDE’s Asbestos Licensing and Enforcement Division is to protect workers and the public from asbestos exposure.

**Objective 5.2:** Conduct 1,000 inspections, audits and spot checks annually.

**Strategy 5.2.1:** Conduct inspections, audits, and spot checks of asbestos projects that are notified to the Department or are the results of complaints received by the Department.

**Strategy 5.2.2:** Issue asbestos licenses and asbestos occupation accreditations to businesses, public units and individuals to ensure that companies meet the requirements to acquire asbestos licenses and individuals are properly trained to conduct various types of asbestos-related jobs.

**Strategy 5.2.3:** Train state employees who remove asbestos in proper removal and safety techniques.

**Strategy 5.2.4:** Reduce hazards presented by asbestos in State-owned buildings, by addressing abatement projects that present an imminent health hazard and by working with the Asbestos Oversight Committee to establish priorities for asbestos abatement in State buildings.

**Strategy 5.2.5:** Undertake enforcement actions for improper removal of asbestos.

**Strategy 5.2.6:** Assist schools in implementing and following their asbestos management plans in accordance with the Asbestos Hazards Emergency Response Act (AHERA).

**Strategy 5.2.7:** Audit training courses provided by private contractors to ensure that all applicable standards are met.

**Performance Measures:**

Performance Measures (data are annual, not cumulative, unless otherwise noted)	FY 2006 Actual	FY2007 Actual	FY2008 Estimate	FY2009 Estimate
Percent of inspected asbestos projects in significant compliance	99%	100%	100%	100%
Number of inspections, audits and spot checks conducted	1,217	1,008	1,000	1,000
Number of asbestos licenses issued	142	146	150	150
Number of asbestos occupation accreditations issued	4,668	5,247	5,000	5,000
Number of State employees trained	305	311	325	325
Number of asbestos abatement projects in State buildings that presented an imminent health hazard that were addressed	1	0	1	1
Number of asbestos projects enforcement actions	8	1	5	5
Percentage of asbestos training courses provided by private contractors that meet all applicable standards	64%	90%	90%	90%
Number of schools inspected for Asbestos Hazard Emergency Response Act (AHERA)	55	90	75	75

**Progress and Challenges:** The percentage of inspected projects in significant compliance remains high, and the Department's challenge is to maintain that high level of performance in FY09.



## 6.1 Applying Technology to Improve Customer Service

### Introduction:

The Agency's effective delivery of services to the public and to the communities it regulates relies significantly on the strategic application of information technologies. Currently, MDE's business systems are comprised of a series of stand-alone applications that evolved over time to typically serve a single business need. These diverse and often dissimilar application systems range from PC-based spreadsheets and databases to more complex client / server applications.

In this type of operating environment, data standardization is generally inconsistent, resulting in a significant degree of data redundancy and in other inefficiencies and limitations. To address these issues, MDE is engaged in a multi-year initiative that will result in improved operational efficiencies in serving our customers and will help make the most effective use of the Department's human and financial resources.

The Enterprise Environmental Management System (EEMS) project addresses the realization within the environmental statutory, regulatory and oversight framework that although environmental media types (i.e. air, water, and waste) are different, the activities necessary to issue permits, monitor compliance, and conduct enforcement actions are essentially the same. In addition, EEMS is a shift from environmental-media-focused systems to a system based on the regulated entity (i.e. facility, location, or person). This shift is key to providing the services that customers need to manage their regulatory obligations and that MDE needs to effectively execute its mission.

When EEMS is fully implemented, regulated entities will benefit from on-line submission of permit applications and compliance data, on-line access to permit and process statuses, and a single point of reference for environmental information. The public will benefit from the same single point of reference for environmental information, as well as detailed information relevant to their particular needs. MDE will benefit through the streamlining of processes, improved business decisions, a reduction in maintenance requirements necessary to support a single unified system versus multiple systems, and reductions in the effort necessary to satisfy mandatory reporting obligations.

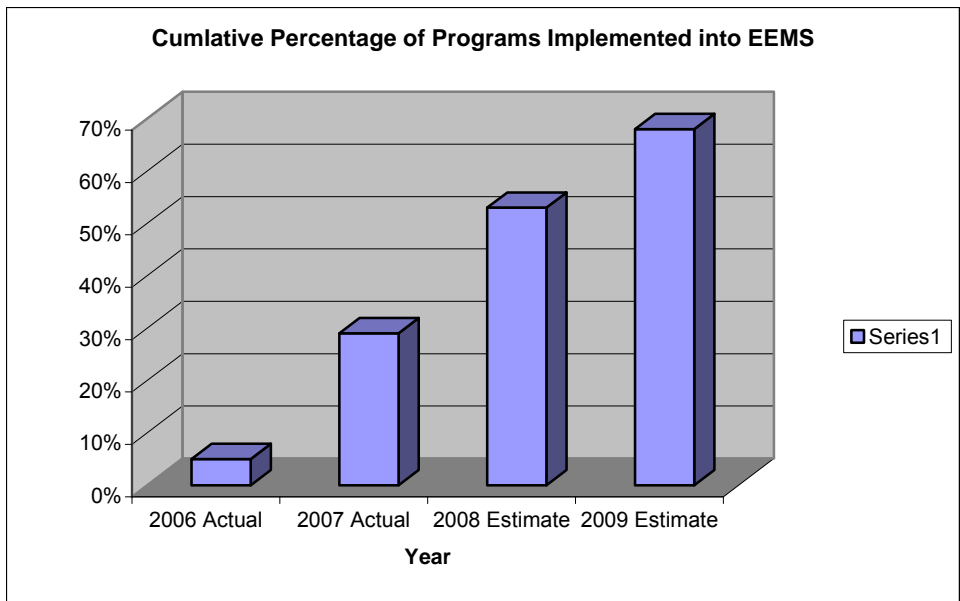
**Objective 6.1:** Improve multimedia data management and integration, operational and cost efficiencies, and accessibility to quality data by achieving an overall 68% of MDE programs implemented into EEMS.

**Strategy 6.1.1:** Continue the phased implementation of EEMS. Implementation schedule is based on the Project's Phase II analysis, prioritization of the Department's business drivers, and the availability of funding.

**Performance Measures:**

Performance Measures	FY 2006 Actual	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate
Cumulative percentage of programs implemented into EEMS	5%	29%	53%	68%
Cumulative percentage of permit types issued/tracked by EEMS	2%	30%	60%	72%

**Performance Indicators:**



**Progress and Challenges:**

Release 2 implementation commenced August 2006. MDE provided a status report to the budget committees, which approved continued implementation of the EEMS project.

A consistent fund allocation sustained over the contract period is essential for project success for inclusion of all MDE programs, without which the risk to this multi-year project will be greatly increased. Without sustained funding, the project team, including the contractors, assembled for the initial funded effort will be disbanded. Restarting the project once funds would become available would require a revamp of the initial learning curve of the application and reestablishment of project momentum.

## 6.2 Permitting Customer Service

**Objective 6.2:** Improve permitting customer service, promote pollution prevention, and enhance stakeholder involvement. Specific targets appear in the strategies below.

**Strategy 6.2.1:** All programs will meet the Department’s goal of processing 90% of all permit applications within applicable standard permit application review times, which are established by the Department and reviewed annually with stakeholder review and input. Also, MDE will not be required to refund any permit application fees for inappropriately-delayed permits pursuant to §1-607 of the Environment Article (the Predictable Permitting Services Program, or PPSP).

**Strategy 6.2.2:** Prevent 100,000 pounds of pollution and help businesses save \$100,000 as voluntarily reported by both members of *Businesses for the Bay* and facilities receiving pollution prevention technical assistance through MDE’s P2 program. The FY09 estimate is dramatically lower because EPA funding for *Businesses for the Bay* will be eliminated after February 1, 2008.

**Strategy 6.2.3:** Provide, to at least twelve businesses, Environmental Management System implementation assistance and on-site pollution prevention technical assistance.

**Performance Measures:**

Performance Measures (data are annual, not cumulative, unless otherwise noted)	FY 2006 Actual	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate
Percent of applications processed within standard review times	95%	96%	90%	90%
Number of refunds made under PPSP	0	0	0	0
Pounds of pollution prevented and costs savings achieved as voluntarily reported by both members of <i>Businesses for the Bay</i> and facilities receiving pollution prevention technical assistance through MDE’s P2 program	8,674,469 lbs/ \$689,475	10,057,097/ \$1,203,000	4.5 million lbs/ \$350,000	100,000 lbs/ \$100,000
Number of facilities receiving Environmental Management System implementation assistance and on-site pollution prevention technical assistance	19	8	12	12

**Progress and Challenges:**

Although the Department’s overall permit-turnaround performance has been satisfactory, the Department continues to address particular areas where the 90% goal is not consistently met.

Maintaining the successful pollution reductions brought about by the *Businesses for the Bay* program will be a significant challenge given the expected elimination of federal funding.