



## **Draft Chesapeake Bay Compliance and Enforcement Strategy**

**November 24, 2009**

# ***Draft Chesapeake Bay Compliance and Enforcement Strategy***

## **I. Introduction**

The Chesapeake Bay (Bay) is North America's largest and most biologically diverse estuary, home to more than 3,700 species of plants and animals. It is about 200 miles long, contains more than 11,000 miles of tidal shoreline, and is fed by 100,000 creeks, streams, and rivers. The watershed spreads over 64,000 square miles and includes parts of six states—Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia—and the entire District of Columbia. As of 2007, approximately 17 million people lived in the Bay watershed. The Bay provides significant economic and recreational benefits, estimated to exceed \$33 billion annually, to the watershed's population.<sup>1</sup> The Bay's waters are threatened by pollution from a variety of sources. To address noncompliance with environmental laws and associated environmental impacts to this watershed, the U.S. Environmental Protection Agency (EPA) has developed this Chesapeake Bay Compliance and Enforcement Strategy (Strategy), which guides the use of EPA's compliance and enforcement tools to target sources of pollution impairing the Bay watershed.

### ***a. Current Health of the Bay***

Multiple federal, state, and local entities have been working to improve the health of the Bay. While total pollution levels have declined since 1985, most of the Bay's waters are degraded and are incapable of fully supporting fishing, crabbing, or recreational activities. Algal blooms fed by nutrient pollution block sunlight from reaching underwater Bay grasses and lead to low oxygen levels in the water. Suspended sediment from urban development, agricultural lands, and some natural sources is carried into the Bay and clouds its waters. Portions of the Bay and its tidal tributaries are contaminated with chemical pollutants that can be found in fish tissue. The Bay's critical habitats and food web are at risk. Nutrient and sediment runoff have harmed Bay grasses and bottom habitat, while disproportionate algae growth has pushed the Bay food web out of balance. The Bay's habitats and lower food web (benthic and plankton communities) are functioning at 45 percent of desired levels. Many of the Bay's fish and shellfish populations are below historical levels. The blue crab population continues to be low, and the stock is not rebuilding; oyster restoration efforts are hampered by disease, and the stock remains at low levels; American shad continues at depressed levels; the menhaden population in the Bay is low despite healthy populations along the Atlantic coast; and striped bass are plentiful, but there is concern about disease and nutrition. The Bay's fish and shellfish populations are at 48 percent of desired levels. Fish kills occur in a number of rivers leading to the Bay.<sup>2</sup>

### ***b. Significant Pollutants and Sources***

The greatest pollution threats to the Bay are from nutrients (nitrogen and phosphorus) and sediment. Such pollutants come from many sources, including agricultural operations, wastewater treatment facilities, urban stormwater runoff, and air deposition from power plants and cars. Agricultural sources contribute the largest nutrient and sediment pollution in the watershed, accounting for approximately 38 percent of nitrogen loading, 45 percent of phosphorus loading, and 60 percent of the sediment loading. About one-half of the nitrogen from agriculture is from animal manure. Municipal and industrial wastewater treatment

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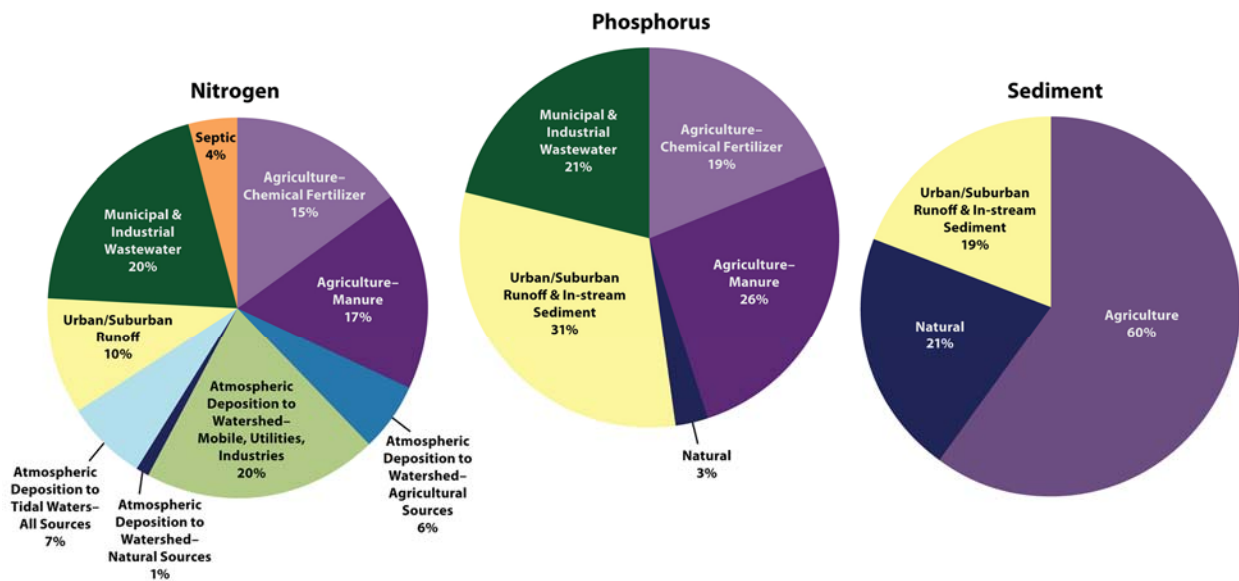
<sup>1</sup> EPA, Office of Inspector Gen., Rep. No. 08-P-0199, *EPA Needs to Better Report Chesapeake Bay Challenges: A Summary Report 3* (July 14, 2008), at <http://www.epa.gov/oig/reports/2008/20080714-08-P-0199.pdf>.

<sup>2</sup> Chesapeake Bay Program, *Bay Barometer: A Health and Restoration Assessment of the Chesapeake Bay and Watershed in 2008*, CBP/TRS-293-09, EPA-903-R-09-001, (March 2009), at [http://www.chesapeakebay.net/content/publications/cbp\\_34915.pdf](http://www.chesapeakebay.net/content/publications/cbp_34915.pdf).

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facilities account for approximately 20 percent of the nutrient loading to the Bay. Urban and suburban stormwater runoff accounts for approximately 10 percent of the nitrogen loading, 31 percent of phosphorous loading, and 19 percent of sediment loading. Population growth and development and the rapid increase in the amount of impervious surfaces have caused stormwater pollution to be a growing concern.

Air pollution contributes approximately 34 percent of the total nitrogen loading to the Bay.<sup>3</sup> Modeling estimates based on projected emissions for 2020 indicate that the relative contributions of different source sectors of airborne nitrogen oxide (NO<sub>x</sub>) emissions to oxidized nitrogen deposition to the Bay watershed will be 26 percent from on-road mobile sources; 21 percent from non-road/marine/construction mobile sources; 17 percent from industrial sources; 15 percent from power plants; 12 percent from residential and commercial sources; and 9 percent from other sources.<sup>4</sup> Figure A-1 shows relative responsibility for sector loadings to the Bay.



**Note:** Does not include loads from tidal shoreline erosion or the ocean. Urban/suburban runoff loads due to atmospheric deposition are included under atmospheric deposition loads. Wastewater loads are based on measured discharges; other loads are based on an average hydrology year using the Chesapeake Bay Program Airshed Model and Watershed Model Phase 4.3.

Figure A-1. Relative responsibility for pollution loads to the Bay.

Other pollutants of concern in the Bay include hazardous wastes, like PCBs, polycyclic aromatic hydrocarbins (PAHs), and metals in river sediment. The contaminants can leach into the groundwater or discharge directly into the Bay from different sources in the watershed and airshed, such as industrial facilities, hazardous waste sites, landfills, urban stormwater runoff, and mobile and stationary air sources.

<sup>3</sup> Chesapeake Bay Program, *Questions and Answers from the Senate Environment and Public Works Committee Hearing on the Chesapeake Bay on April 20, 2009* (June 3, 2009).

<sup>4</sup> Robin Dennis, *Report on Relative Responsibility Assessment of Sectors and States: Oxidized-Nitrogen Deposition in 2020* (final numbers), Chesapeake Bay Modeling Subcommittee Meeting, Annapolis, MD. (April 8, 2008).

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## II. Compliance and Enforcement Role

In the Bay watershed, only a portion of the nutrient and sediment pollution is regulated under the Clean Water Act (CWA) or the Clean Air Act (CAA). According to estimates by EPA's Chesapeake Bay Program Office, at least 49 percent of total nitrogen, 35 percent of total phosphorus, and 4 percent of total sediment is subject to federal regulation. The best modeling indicates that nitrogen pollution to the Chesapeake Bay must be reduced by 30 percent, and phosphorus pollution must be reduced by 8 percent to meet water quality standards. Achieving that level of reduction will require significant and sustained reductions by all source categories, including agriculture. Yet, even full compliance with existing regulations will not result in the necessary pollution reductions to restore the health of the Bay.

Agricultural sources and urban stormwater runoff account for about half of the nitrogen and three-quarters of the phosphorus pollution to the Bay. Air deposition of nitrogen from stationary and mobile sources accounts for about one-third of the nitrogen pollution. EPA regulates pollution discharges from some of these sources, including concentrated animal feeding operations (CAFOs) and municipal separate storm sewer systems (MS4s), through the CWA National Pollutant Discharge Elimination System (NPDES) permitting program and regulates other sources through the CAA. Many sources, however, are not subject to federal environmental regulations, including row crop agricultural operations and suburban stormwater runoff outside specific municipal stormwater sewersheds. In addition to being hampered by the limited universe of regulated pollution sources, EPA's ability to take enforcement action in a number of key sectors is further compromised by terms of existing permits that lack specificity. For example, MS4s are not typical *end-of-pipe* permits with clearly defined numeric effluent limits. Instead, permit conditions often emphasize actions that should be taken to achieve certain outcomes and are frequently written with imprecise provisions. Without expanded regulatory coverage and stronger permit requirements, compliance and enforcement tools will not fix the Bay's pollution problems.

The magnitude of efforts needed to achieve Bay water quality standards is significant and requires a new generation of federal and state regulatory tools and actions. These could include the following: (1) finalizing total maximum daily loads (TMDLs) throughout the Bay watershed; (2) expanding the definition of CAFO to encompass smaller animal feeding operations (AFOs); (3) defining more stringent permit conditions related to the land application of animal manure; (4) expanding NPDES stormwater regulations to apply to high-growth, urban/suburban areas; (5) creating more stringent permit conditions including standards for discharges of stormwater from new/redevelopment projects and retrofit criteria for large facilities with impervious surfaces such as shopping malls, roads, and parking lots; and (6) ensuring adequate, enforceable NPDES permits for MS4s.

Many of these programmatic and regulatory fixes could require additional time to develop and implement before pollutant reductions needed for a healthy Chesapeake Bay are realized. In the meantime, some enforcement tools and actions can be used now. For example, under existing statutory enforcement or endangerment authorities (or both), as well as permitting regulations (that would inform remedies), EPA has tools to do, among other things, the following:

- Designate AFOs as CAFOs, making them subject to permitting requirements
- Audit, inspect, and provide compliance assistance to (or take enforcement against) MS4s to improve best management practices and stormwater management plans

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- Enforce stormwater requirements at large construction sites to reduce sediment
- Enforce new source review, NSPS, and state implementation plan (SIP) requirements at stationary sources and mobile source regulations at port facilities, warehouses, and construction sites to reduce NO<sub>x</sub> emissions
- Monitor compliance with major milestones for installing controls at wastewater treatment plants and take appropriate enforcement
- Achieve pollutant reductions through strategic use of endangerment authorities
- Enhance effectiveness in overseeing state enforcement programs and initiate supportive federal enforcement actions, as appropriate
- Seek to ensure that all CAFOs that discharge or propose to discharge obtain NPDES permit coverage
- With other EPA, state, and federal partners, engage in education and outreach to the CAFO/AFO community about statutory and regulatory requirements
- Pursue enforcement-led cleanup activities at hazardous-waste sites identified as contributing to specific impairments to water quality in the Bay

Given available environmental enforcement authorities, EPA's strategic use of compliance and enforcement tools likely can assure only modest nutrient and sediment pollution reductions to the Bay acting alone. However, EPA believes that strategic enforcement efforts aimed at key regulated sectors and pollutants affecting the Bay will raise visibility and awareness of the need for a rigorous commitment to strong compliance, stewardship, and accountability by the regulated community regarding the health of the nation's largest estuary. Compliance and enforcement efforts will continue into the future after EPA develops new environmental requirements that expand coverage of existing permitting programs and establish new, enhanced standards of performance for preventing pollutants from entering the Bay's watershed.

While EPA will continue to play an important enforcement role in the Bay states, the states themselves are the critical *cops on the beat*, conducting the bulk of environmental inspections and compliance assistance. As such, EPA would closely plan and coordinate compliance and enforcement efforts with its state (and commonwealth) partners around the Bay to ensure robust watershed-wide compliance and enforcement programs that establish clear expectations for the public and the regulated community regarding compliance.<sup>5</sup> Through our coordinated efforts, EPA and state compliance and enforcement programs will strengthen efforts to ensure compliance. That complementary effort can identify innovative opportunities for using federal and state enforcement tools to promote sound management practices to reduce pollution to the Bay. If successful, such pilot approaches could also be used in other estuaries facing similar pollution assaults (e.g., Puget Sound, San Francisco Bay).

To enhance transparency, EPA is developing a Chesapeake Bay compliance and enforcement Web site where this Strategy and other relevant information related to compliance and enforcement will be posted, including the compliance status of facilities in the Bay watershed. The Web site is at [www.epa.gov/compliance/civil/initiatives/chesapeakebay.html](http://www.epa.gov/compliance/civil/initiatives/chesapeakebay.html).

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<sup>5</sup> An EPA/state Planning, Communication, and Oversight plan will be developed pursuant to this Strategy.

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## **III. Strategy**

### ***a. Overview***

The Strategy is a multiyear, multistate, and multimedia strategy designed to augment and enhance existing work to identify and address violations of federal environmental laws resulting in nutrient and sediment pollution in targeted impaired watersheds. This Strategy provides a focused and ambitious plan for addressing pollution sources, both in the Bay's watershed and the airshed. The Strategy identifies the industrial, municipal, and agricultural sources releasing significant amounts of nitrogen, phosphorus, sediment, and other pollutants to impaired watersheds in the Bay in excess of amounts allowed by the CWA and the CAA and other applicable environmental laws.

### ***b. Impaired Watershed Approach***

The Strategy examines watersheds and identifies nutrient and sediment impaired segments of those watersheds, as well as significant regulated sources discharging these pollutants and other pollutants with potential noncompliance problems. Regulated sources in noncompliance that are contributing to impairment of the identified watersheds will be systematically addressed in accordance with the Strategy. The Strategy is designed around criteria that focus attention at the watershed level including criteria that consider the following:

- The extent of impairments from pollutants of concern
- The degree of excess nutrient and sediment loads
- The number and types of regulated sources located in the watershed segment (or depositing pollutants to that watershed for some air sources)
- The water quality rating (good, threatened, or impaired)
- The number of primary contact recreation beaches
- The number of shellfish beds/beaches closed
- Fish consumption advisories
- The magnitude of wetlands losses
- The prevalence of minority populations, populations disproportionately below the poverty line, or sensitive populations such as subsistence fishermen
- Urban rivers
- Site cleanup opportunities

The Strategy analyzes existing data from a variety of sources to target key regulated sectors identified as contributing significant amounts of nitrogen, phosphorous, sediment loadings, and other pollutants to impaired watersheds in the Bay when in noncompliance with current applicable environmental regulations. For each of the sectors, EPA will examine specific watersheds impaired by nitrogen, phosphorous, sediment, and other pollutants, as well as the regulated sources in those watersheds, and the sources' compliance status. The key sectors are as follows:

- CAFOs

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- Municipal and industrial wastewater facilities
- Stormwater NPDES point sources, including MS4s and stormwater discharges from construction sites and other regulated industrial facilities
- Air deposition sources of nitrogen regulated under the CAA, including power plants

In addition, the Strategy identifies appropriate opportunities for compliance and enforcement activities related to the CWA section 404 program regulating dredge and fill operations, federal facilities, and Superfund sites, including remedial action and removal sites and Resource Conservation and Recovery Act (RCRA) corrective action facilities.

EPA will examine the compliance records for facilities in the key sectors and which are in impaired watersheds including the following:

- The pattern and seriousness of noncompliance and whether the source is considered a high-priority violator
- The occurrence of un-permitted discharges
- Whether multiple facilities or sectors are operating under one owner/operator and in more than one state
- The volume and nature of the source's discharges

EPA will conduct further investigations and inspections of targeted facilities in selected watersheds; pursue appropriate enforcement actions to ensure compliance; and estimate pollutant-loading reductions for nitrogen, phosphorous, and sediment related to those completed actions. Under the Strategy, EPA will review the ongoing water and air protection work in the Bay watershed, much of which addresses some of the most significant discharges of pollutants to the Bay, and will focus on sources that have not yet been addressed consistent with this Strategy. To leverage EPA and states' limited compliance and enforcement resources, EPA will coordinate closely with the states in the Bay watershed on targeting and pursuing the most serious contributors to Bay impairment. Specific projections of enforcement and compliance activities will be developed, monitored, and readjusted as the work goes forward.

Finally, EPA will examine opportunities for the use of imminent and substantial endangerment authorities, including CWA section 504, section 1431 of the Safe Drinking Water Act, section 7003 of RCRA, section 106 of CERCLA, and section 303 of the CAA to address significant pollution problems affecting the Bay.

### ***c. Sector Strategies***

#### ***i. Concentrated Animal Feeding Operations***

##### ***a. Overview***

EPA will enhance efforts to protect the Chesapeake Bay by prescribing actions calculated to increase CAFOs' regulatory compliance and reduce their nutrient loads to the Bay. EPA will increase its visibility in the watershed by targeting enforcement actions and remedies at facilities located in geographic hot spots impaired for nutrients and sediment that are critical to the restoration of the Bay.

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### b. Animal Agriculture

Agriculture is the single largest source of nutrients to the Chesapeake Bay. Agricultural operations deliver nitrogen and phosphorus to the Bay accounting for 38 percent of nitrogen and 45 percent of phosphorus.<sup>6</sup> 17 percent of the nitrogen and 26 percent of phosphorus from agriculture is from animal manure, and an additional 6 percent of nitrogen delivered to the Bay comes from livestock and fertilized soil emissions. About one-third of animal manure is regulated (contributing 6 percent of nitrogen and 8 percent of phosphorus delivered to the Bay). The remaining nitrogen and phosphorus from agriculture is from non-animal agriculture (e.g., rowcrops) and smaller animal operations or emissions which are not subject to the regulatory restrictions imposed on CAFOs. Thus, EPA can only address a small portion of nutrients from animal agriculture pursuant to existing regulatory authority.

Three areas represent the greatest contributions of manure-based agricultural nutrient loads to the Bay: (1) *Delmarva Peninsula*: Delaware, and the Eastern Shores of Maryland and Virginia; poultry—broiler chickens—is the dominant industry sector; (2) *South-central Pennsylvania*: Susquehanna River watershed/Lancaster and York counties; dairy is the dominant industry sector; to a lesser extent, swine and poultry (broiler and egg-laying chickens) also operate in this priority area; and (3) *Shenandoah Valley*: Virginia and West Virginia; poultry—broiler chickens and turkeys—is the dominant industry sector; to a lesser extent, small- and medium-dairies and swine facilities also operate in this priority area. The watersheds in those areas suffer from significant nutrient imbalances and nutrient-related, local water quality impairments. Densely populated animal agriculture operations in these areas cause the highest agricultural nutrient loads to the Bay by comparison to other areas. Inconsistent implementation of sound nutrient management practices has resulted in manure over-application and nutrient loading.

### c. Goal

The goal is to reduce nutrient loads to the Bay by addressing noncompliance and by focusing compliance and enforcement activities on facilities in three key areas—the Delmarva Peninsula, South-central Pennsylvania, and the Shenandoah Valley.

To achieve this goal EPA is preparing to (1) work with states to target implementation of the CAFO program to minimize CAFO nutrient effects on the Bay, specifically to investigate or inspect facilities that pose the most risk to the Bay watershed and take enforcement actions to compel compliance; (2) maximize the extent to which current state CAFO programs are achieving their intended water quality benefits by working with states to expand the permitted facility universe, issue sufficiently stringent permits, which should at a minimum require that nutrient management plans be based on existing soil saturation levels, and build sustainable programs for compliance monitoring and enforcement (e.g., undertake universe-identification and information-gathering activities, conduct joint and oversight inspections with state partners to ensure appropriate implementation of federal standards); and (3) seek to address CAFO air emissions and develop appropriate remedies to reduce emissions and their adverse water quality effect on the Bay.

Working with its state partners, EPA will address identified target facilities in the three key areas while implementing this Strategy. *Address* would mean that either EPA or the relevant state *has* inspected or investigated a facility and determined that the facility is in compliance, or that EPA or the relevant state initiates an appropriate enforcement action to compel compliance

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<sup>6</sup> This estimate assumes that these sources are in full compliance with their current NPDES permit requirements.

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or abate endangerments to drinking water sources or surface water. In general, *target facilities* will be those facilities that pose a high risk to the Chesapeake Bay watershed.

### **ii. Wastewater (Municipal and Industrial Wastewater)**

#### **a. Overview**

Wastewater treatment facilities deliver large loads of nitrogen and phosphorous to the Bay, accounting for approximately 20 percent of nitrogen and 21 percent of phosphorus entering the watershed. Due largely to previous treatment plant upgrades, nitrogen and phosphorus loads discharged by significant municipal wastewater treatment facilities have decreased by 40 percent and 65 percent, respectively, since 1985. Most of the municipal and industrial wastewater treatment plants that remain significant sources of nutrients in the Bay watershed will require additional treatment upgrades and are on enforceable schedules to meet more stringent annual nutrient limits for total nitrogen and total phosphorus. EPA and Bay states will monitor compliance with major milestones for installing the required controls and would target facilities in violation of their schedules for appropriate enforcement to ensure that these nutrient control upgrades proceed according to permit schedules.

#### **b. Goal**

EPA is initially focusing on significant wastewater facilities that are under permit schedules for upgrading treatment, with the goal of addressing all facilities that are in significant noncompliance with their schedules. EPA will also monitor those wastewater treatment facilities that have monthly average nutrient limits, with the goal of addressing the most significant sources of excess nutrients. Once a treatment facility is upgraded as required by its NPDES permit and new annual limits for total nitrogen and total phosphorous become effective, under the Strategy, EPA and states would then focus on facilities that discharge excess nutrients as a result of noncompliance with the more stringent NPDES permit limits. EPA is working with the Bay states to address noncompliant facilities that are failing to comply with nutrient effluent limits and significantly affecting Bay water quality, including all facilities with violations that meet the criteria for significant noncompliance or SNC. In the context of these goals, *address* would mean that either EPA or the relevant state initiates an appropriate enforcement action in response to identified noncompliance.

To achieve these goals, EPA is working with states to effectively implement the NPDES program, using the full breadth of EPA and state compliance and enforcement tools. This coordination includes (1) continuing EPA's oversight of authorized state NPDES enforcement programs; (2) working closely with the Bay states to ensure timely and appropriate enforcement action is initiated in response to identified SNC violations for compliance schedules and permit limits; (3) working closely with the Bay states to identify and initiate enforcement action in response to other permit violations that are not identified as SNC but that have the potential to impair water quality; and (4) providing technical and legal assistance to the states where needed. As noted earlier, the Bay states conduct the bulk of the inspections and NPDES enforcement actions under their authorized NPDES programs. Under the Strategy, EPA is developing and would initiate enforcement actions where strategically appropriate, for example, where violators operate in more than one state, where high penalties are appropriate or the required injunctive relief is extensive, or where a higher profile enforcement action might be beneficial.

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### **iii. Stormwater**

#### **a. Overview**

EPA will address discharges from regulated MS4s and stormwater discharges from construction sites and other priority regulated industrial facilities. That approach will enhance overall efforts to protect the Chesapeake Bay by focusing enforcement actions and remedies—including appropriate compliance assistance—on noncompliant MS4s, construction site operators, and priority industrial facilities in geographic hot spots that are critical to the Bay’s restoration. Inspection and audit findings within MS4 boundaries will provide leverage for improving MS4 programs, as well as improving oversight and enforcement by other local entities responsible for inspecting construction sites. Inspection findings at construction sites and industrial facilities outside MS4 boundaries could provide information to support the designation of certain urban/suburban separate storm sewer systems as MS4s, thereby bringing them into the regulated program.

Urban and suburban stormwater discharges deliver a significant load of nutrients and sediment to the Bay accounting for approximately 10 percent of nitrogen, 31 percent of phosphorus, and 19 percent of sediment. However, most of the nutrients and sediment discharged to the Bay in urban/suburban stormwater runoff are discharged through stormwater outfalls that are not in designated MS4 areas or represent pre-1986 development and, thus, not specifically regulated by the NPDES program. Only 2 percent of the nitrogen, 6 percent of the phosphorus, and 4 percent of sediment delivered to the Bay through urban/suburban stormwater discharge outfalls are regulated by EPA and the Bay states under the NPDES MS4 program.

The NPDES permitting program requires designated MS4s to develop and implement a stormwater management program to minimize the discharge of pollutants through MS4s. Components of an adequate stormwater management plan include a program to oversee construction activities within the MS4’s boundaries. Large and medium MS4 programs must also include a program for overseeing industrial and commercial facilities that have a significant effect on water quality. In the Bay watershed, approximately 450 MS4s exist. Those MS4s are primarily in Maryland, Virginia, and Pennsylvania. When the boundaries of those MS4s are overlain with the maps of watersheds impaired by stormwater runoff for nitrogen and phosphorous, the MS4s along the I-95 corridor in these states stand out as appropriate areas for further compliance monitoring and enforcement efforts. EPA’s Chesapeake Bay Program Office is evaluating additional data, which will allow EPA to identify priority watersheds with greater precision and specificity.

EPA does not have national data on MS4 noncompliance. Much of the information regarding compliance comes from audits and inspections and discussions with the states concerning problems identified in the field. While results have been mixed across EPA Regions, many Regions have found deficient municipal stormwater management programs, particularly in regard to MS4 stormwater construction oversight programs and the MS4’s ability to assess the adequacy of stormwater management practices in protecting water quality standards.

Permit quality has been a continuing concern for MS4 enforcement efforts. For example, some NPDES permits for MS4s do not contain adequate and/or clear and enforceable performance standards for developing and implementing municipal stormwater programs. Poorly written permits make it difficult to use EPA or state CWA enforcement personnel to identify and require necessary improvements to remedy deficient programs. EPA’s Office of Enforcement and Compliance Assurance has provided EPA’s Office of Water with feedback concerning permit quality problems observed nationwide related to enforceability. The Office of Water has initiated

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efforts to improve permit quality and some of the larger MS4s are now on their second or third permit cycle with successively improved permits.

Construction sites and industrial facilities are both within MS4s and outside MS4 boundaries. Activities at industrial facilities, such as industrial processes and material handling and storage, are often exposed to precipitation. As stormwater or snowmelt discharges come into contact with such activities or with the raw and processed materials associated with the activities, pollutants are transported to nearby storm drains or directly to surface waters. Pollutants in stormwater coming into contact with industrial activities and materials likely include total suspended solids, oil and grease, and chemical and/or biological oxygen demand. Concrete and asphalt operations, such as ready-mix concrete facilities, and mineral extraction have been identified as industrial stormwater potential sectors of concern in the Bay.

The construction sector is one of the 10 industrial sectors regulated under the NPDES program for industrial stormwater discharges. Clearing, grubbing, grading, and other construction activities disturb and expose the soil surfaces, allowing significant amounts of sediment transport through stormwater runoff into storm drains and other discharge points into waterbodies. In addition, the loss of vegetation, soil compaction, and increases in the amount of impervious surfaces result in increased stormwater flow amounts and velocity. Such increases, in turn, contribute to streambed and bank scour and erosion, channel widening, and stream bank undercutting, which increase the amount of sediment discharged to the Bay.

Much of the recent residential construction in the greater Chesapeake Bay watershed has occurred in and around the population centers of York, Pennsylvania; Baltimore, Maryland; Washington, D.C.; Wilmington, Delaware; and Richmond, Virginia. Data provided by Bay states under CWA section 303(d) suggests that waterbodies impaired by sediment in the Chesapeake Bay watershed are concentrated in these areas as well. As such, the primary priority watersheds for construction stormwater discharges are those watersheds where waterbodies are both impaired for sediment and current data projects high population growth rates. These watersheds form the basis for targeting efforts using construction permit information, state transportation plans, EPA audits of state programs, citizen tips, and other relevant sources of information. Additional watersheds might be added to the priority watershed list on the basis of factors such as high population growth rates (where receiving waters are not yet identified as impaired for sediments), severe impairment (where projected population is not particularly high), or the presence of large construction projects or industrial sites with the potential to discharge large quantities of pollutants in stormwater discharges. The priority watershed list will also be the basis for identifying major industrial sites in the priority industrial sectors for compliance inspections.

### **b. Goal**

EPA is preparing to focus its stormwater noncompliance enforcement efforts on MS4s, construction activity, and priority industrial sectors within the geographic priority areas. EPA and the Bay states would address all MS4s with deficiencies that are clear violations and that are within the identified geographic priority areas, and where program deficiencies could significantly affect Bay water quality. Where vague and poorly written or inadequate permits hamper the use of enforcement tools to address potential deficiencies, EPA plans to provide compliance assistance to encourage MS4s to improve municipal stormwater management plans and coordinate with permitting staff to improve and strengthen subsequent permits. The primary goals associated with construction sites and other priority industrial sectors are generally dependent on whether these sites and facilities are within or outside designated MS4

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boundaries. The primary goals are (1) to gather data to support designating unregulated priority urban/suburban separate storm sewer systems for NPDES coverage; (2) to improve MS4's municipal stormwater management programs and/or encourage stronger oversight and enforcement of applicable requirements for construction sites by other local authorities such as soil conservation districts; and (3) to increase the visibility and showcase the importance of strong, effective MS4 stormwater management programs in improving water quality. EPA will also continue to inspect and take appropriate enforcement action against discharges from noncompliant construction site operations and other industrial facilities in identified priority watersheds.

### **iv. Air Deposition**

#### **a. Overview**

EPA will protect the Chesapeake Bay by targeting enforcement actions at sources in the Chesapeake Bay airshed, which includes Pennsylvania, West Virginia, Virginia, Maryland, Delaware, New York, North Carolina, South Carolina, Tennessee, Kentucky, Indiana, Michigan, Ohio, New Jersey, and the District of Columbia. EPA will focus on achieving reductions in NO<sub>x</sub> to reduce nitrogen loading to the Bay.

Enforcement actions designed to reduce nitrogen deposition to the Chesapeake Bay could also result in substantial reductions in sulfur dioxide, mercury, and other pollutants if the Agency and its state partners are successful in obtaining binding commitments from utilities and other sources to install pollution-control technologies. Such additional pollution reductions, in turn, could yield significant public health and welfare benefits, including reduced respiratory problems and fewer fish consumption advisories.

Nitrogen emissions from sources within the Chesapeake Bay airshed contribute approximately 75 percent of the nitrogen deposition to the Bay watershed. The remaining 25 percent of the nitrogen deposition is from long-range transport of emissions from sources outside the airshed, including emissions from portions of southeastern Canada. Of the inorganic nitrogen deposited to the Chesapeake Bay watershed from air emission sources, approximately 67 percent is from air emissions of NO<sub>x</sub>. The remaining 33 percent is from emissions of ammonia (NH<sub>3</sub>). The contributions from any single facility in the long-range emissions transport category are unlikely to be significant. Sources of NO<sub>x</sub> include electric generating units, other industrial stationary sources, on- and off-road mobile sources (cars, trucks, ships, tractors), lightning, and soil. Sources of ammonia include AFOs, fertilized fields, mobile sources, and industrial stationary sources.

#### **b. Goal**

The goal is to reduce nitrogen air deposition by addressing noncompliance with existing air pollution control requirements. Coal-fired power plants, acid, glass, and cement manufacturing are already national enforcement priorities for the Agency because of the substantial emissions of NO<sub>x</sub> and other pollutants from those industries. Since 1999 EPA has pursued a coordinated, integrated compliance and enforcement strategy to address CAA New Source Review compliance issues at the nation's coal-fired power plants. Many of these cases have already resulted in settlements that will reduce nitrogen deposition to the Bay, such as the settlement with American Electric Power, which when fully phased in, will reduce NO<sub>x</sub> emissions from the company's power plants in the Chesapeake airshed by more than 150,000 tons per year. EPA also intends to seek additional NO<sub>x</sub> reductions through enforcement of New Source Performance Standards (NSPS) and SIP provisions governing NO<sub>x</sub> emissions. EPA will continue to vigorously

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pursue these priorities but with a new emphasis on sources that contribute to nitrogen pollution in the Bay. To achieve this goal EPA will (1) seek reductions from stationary sources of NO<sub>x</sub> emissions by enforcing New Source Review, NSPS, and SIP requirements pertaining to NO<sub>x</sub> emissions and obtaining either judgments or enforceable settlement agreements to install pollution control technology and incorporate best management practices to achieve NO<sub>x</sub> emissions reductions; and (2) seek reductions from mobile sources of NO<sub>x</sub> emissions by enforcing mobile source regulations at port facilities, warehouses, and construction sites.

### **v. Toxics Cleanup**

#### **a. Overview**

In addition to nutrients and sediments other serious contaminants are negatively affecting water quality in the Bay, such as PCBs; PAHs ; and metals—such as mercury, endocrine disruptors, and pesticides. The U.S. Geological Survey estimates that 72 percent of the Bay segments are impaired by contaminants. Such contaminants can leach into the groundwater or directly into the Bay from sources in the watershed, such as industrial facilities, hazardous waste sites, landfills, urban stormwater runoff, and mobile and stationary air sources.

#### **b. Goal**

EPA will look broadly at the sources of toxic contamination to the Bay and work with the states and other federal agencies to reduce the effect of hazardous substances on the Bay.

In particular, EPA will focus on toxics in three geographic areas in the watershed and closely tied to the Bay: (1) the Elizabeth River; (2) the Anacostia River; and (3) Baltimore Harbor/Patapsco River. Those areas have been identified as the waters most affected by toxic contaminants and contain current and/or historical RCRA facilities, federal facilities, and Superfund sites. EPA will use Superfund and RCRA authorities and partner with other federal departments/agencies and states. We will seek to access and leverage resources, authorities and compliance and enforcement strategies to address contaminants in these three areas. Over time, EPA will continue to look for opportunities to use its Superfund and RCRA corrective action authorities to address sources of hazardous substances within the Bay watershed.

In addition, actions taken in other parts of this strategy are likely to have a concomitant impact on toxics in the Bay. For example, air enforcement actions designed to reduce nitrogen deposition to the Bay could also result in reductions in mercury; improvements in wastewater treatment and MS4 permits, facilities, and practices could also result in reduced toxics; and better management of chicken litter from CAFOs could reduce the amount of arsenic entering the Bay. Finally, ongoing efforts to reduce toxic contaminants entering the Bay and its tributary waters, for example, for new TMDLs for local streams and larger-scale TMDLs for listed chemical impairments (e.g., PCBs in the Potomac Basin) will also have a positive effect on toxic levels in the Bay. EPA will continue to look for opportunities to address nutrients, sediments, and contaminants together.