DEPARTMENT OF ENVIRONMENTAL PROTECTION

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INTRODUCTION

Pennsylvania's Nonpoint Source (NPS) Program was developed in response to provisions in the 1987 federal Clean Water Act, Section 319, to address problems caused by pollution from nonpoint sources. Unlike point source pollution, which comes from a pipe, the causes of nonpoint source pollution cannot be easily defined or quantified. Sometimes referred to as "polluted runoff," nonpoint source pollution is generally caused by stormwater runoff across the land. Water also infiltrates into the ground. Therefore nonpoint source pollution also occurs from infiltration of pollutants into the ground water. The three largest sources of nonpoint source pollution in Pennsylvania are agriculture, abandoned mining activities and urban runoff. Other sources of nonpoint source pollution in Pennsylvania include abandoned oil and gas wells, atmospheric deposition, construction activities, on-lot sewage systems, leachate from landfills, hydromodification and silviculture (forestry).

The 1987 federal Clean Water Act required each state to prepare an Assessment Report and a Management Plan for the state Nonpoint Source Program. In the Assessment Report, the states were required to identify significant sources of nonpoint source pollution. The Management Plan was designed to identify the program components to be used to address the problems identified in the Assessment Report. After the completion of Pennsylvania's Assessment Report and Management Plan in 1990, the state was eligible for funding from the Environmental Protection Agency (EPA) to implement provisions of the Management Plan.

Section 319 of the Clean Water Act of 1987 requires each state to update its comprehensive plan to manage nonpoint source pollution every five years. Pennsylvania last updated its NPS Plan in 1999. The 1999 Update expanded and enhanced Pennsylvania's 1992 NPS Management Program and includes a variety of regulatory, non-regulatory, financial and technical assistance programs needed to improve and maintain surface and groundwater quality.

The state has received approximately $56 million from the Section 319 Grant Program (FY 90 through FY 04). This money has been used to institutionalize a nonpoint source program in Pennsylvania, implement various innovative technologies to treat nonpoint source pollution problems, develop an educational program and begin several comprehensive watershed initiatives. Other funding sources for nonpoint source pollution management include: Pennsylvania's Environmental Stewardship and Watershed Protection Grant also known as Growing Greener, Chesapeake Bay Program, Nutrient Management Act, County Conservation District Assistance and Stormwater Management Fund; NOAA's Coastal Zone Program; and USDA's Environmental Quality Incentives Program and Conservation Reserve Enhancement Program.

The *Pennsylvania Nonpoint Source (NPS) Management Program Update* outlines the Commonwealth's plan to address nonpoint source pollution over the next five years and beyond. This update enhances Pennsylvania's Nonpoint Source Management Program approved by EPA in 1999 in compliance with Section 319(b) of the Federal Water Pollution Control Act (Clean Water Act) as amended by P.L. 100-4 on February 4, 1987. This plan also establishes the overall strategy Pennsylvania will use to implement the watershed protection aspects of Pennsylvania's Growing Greener program.

Nonpoint source pollution or "polluted runoff" washes off parking lots, fields and other surfaces into the waters of the Commonwealth. Pennsylvania's 2004 Integrated Monitoring and Assessment Report

indicates that abandoned mine drainage and agricultural runoff are the two leading sources of nonpoint source pollution in Pennsylvania. Other sources of polluted runoff in Pennsylvania include: construction/urban runoff, hydrologic and habitat modifications, land disposal (on-lot sewage systems) and silviculture. These, and Section 314 Clean Lakes Program projects, are all approved by EPA as eligible for Section 319 funding.

The NPS Program Update expands and enhances Pennsylvania's 1999 NPS Management Program and includes a variety of regulatory, non-regulatory, financial and technical assistance programs needed to improve and maintain surface and groundwater quality. Section I contains Pennsylvania's strategy for NPS program implementation, including the goals, objectives action items to address nonpoint sources of pollution. Section II outlines statewide programs that address specific NPS pollution categories. Section III describes Pennsylvania's NPS assessment and monitoring programs, including information on Pennsylvania's four national monitoring projects. Section IV covers specific programs that address NPS pollution at a watershed level.

This updated NPS Management Program has been prepared in conjunction with the Pennsylvania Nonpoint Source Liaison Workgroup. This workgroup consists of local, state and federal partners representing over forty-five public and private organizations. The NPS Liaison Workgroup has worked diligently to provide input into this NPS management program. Pennsylvania's Nonpoint Source Management Section appreciates the time, effort and expertise members of the Liaison Workgroup members have generously provided. Special thanks to the many citizens and watershed groups whose valuable suggestions have also been incorporated.

(Preliminary Draft)2004 UPDATE

Pennsylvania's Nonpoint Source Management Program

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I. PENNSYLVANIA'S NPS MANAGEMENT PROGRAM

PENNSYLVANIA'S NPS STRATEGY

Pennsylvania's Nonpoint Source Strategy is based on the visions of the Department and the NPS Liaison Workgroup and includes the following five *goals*, *objectives* and *action items* to establish flexible, targeted, iterative approaches to achieve and maintain beneficial uses of the waters of the Commonwealth. The following strategy includes establishing environmental measures and indicators of progress and success. The environmental results will be measured by: water quality improvements, NPS pollution load reductions and milestones. Only those objectives and action items that can be quantified or progress measured are included below. Progress can be measured and that progress will be measured each year in an annual report. Many actions cannot be measured in definitive ways such as through public education, awareness and actions and are still important in our strategy. To view all objectives and action items please go to Appendices .

The specific actions (objectives and action items) identified in this NPS Management Plan are described below. The NPS Liaison Workgroup provided the input into the specific actions working within smaller workgroups each focused on the major nonpoint source categories (Resource Extraction, Agriculture, Construction/Urban Runoff, Silviculture, Land Disposal, Hydromodification and Lakes). *[Editors Note for Final Version*: The purpose of the NPS Liaison Workgroup and its membership is included in Appendix. Additional input was sought through opportunities to reach out to the public through presentations, public meetings and the DEP website. The result of these efforts formed the final actions listed below.]

A. NPS Vision

According to the **NPS Liaison Workgroup's Vision Statement**: Pennsylvania's Nonpoint Source Program, through partnerships with the citizens, agencies, and industries of the Commonwealth, will work to achieve appropriate water quality standards and protect beneficial uses of all surface and groundwater. To do this, the NPS Management Program will be used as a tool to control, prevent and remediate NPS pollution.

B. Goals

Pennsylvania's Nonpoint Source (NPS) Program Update for Pennsylvania over the next five years (2005-2009) is organized around five key goals:

Goal 1 *(a combination of the first two goals presented for the June 2 meeting)*

Improve and protect water resources as a result of nonpoint source program implementation efforts. Show water resource improvements by measuring reductions in sediments, nutrients and metals or increases in aquatic life use, riparian habitat, wetlands, or public health benefits. By 2012, through combined program efforts, return 500 miles of streams and 1600 lake acres that are identified by the state as not supporting adequate fish and aquatic life because of nonpoint source sources of pollution back to streams and lakes that support acceptable fish and aquatic life. (NOTE: The Hydromodification Workgroup recommends that the first sentence be the goal and that beginning with "By 2012 ……." Become an objective and read as follows:

Objective: By 2012, through combined program efforts, remove 500 miles of streams and 1600 lake acres that are identified by the state as being impaired because of nonpoint source sources of pollution. (from the State's 303d list).

Goal 2 (was goal 3)

Coordinate with watershed groups, local governments, authorities and landowners to promote and support the development, implementation and evaluation of # watershed plans to conserve, protect and restore surface and groundwater quality.

Goal 3. (was goal 4.)

Improve and develop monitoring and tracking efforts to determine if projects and programs improve water quality and / or meet target pollution reductions including TMDLs.

Goal 4. (was goal 5.)

Encourage development and use of new technologies, tools, and technology transfer practices, to enhance understanding and use of techniques for addressing nonpoint source pollution.

Goal 5. (was goal 6)

Assure implementation of appropriate best management practices to protect, improve and restore water quality by using or enhancing existing financial incentives, technical assistance, education and regulatory programs.

C. Measurable Objectives/Action Items to Address Goals

We recognize that some goals do not lend themselves well to numerical measures. Yet, a quantitative way to measure and report on our progress gives others a more tangible picture of the Nonpoint Source Management Program.

Below are contained those measurable objectives and action items that have a definite endpoint. For example, a certain number of something achieved or a specific action finished by a certain date. It is important to us that the goals/objectives and our yearly progress (reported through the annual report) be easily tracked. Having a defined way to measure progress through numbers and timelines will allow us to do this. Those objectives and action items are below and identified by the specific NPS Category workgroup that contributed them.

There are several objectives and action items by each of the work groups that do not provide this clear reporting opportunity. Those items are still important to the NPS management program and reducing nonpoint source pollution. Those objectives and action items are listed in their entirety by the appropriate NPS Category workgroup that follows this section in the report.

Goal 1

Improve and protect water resources as a result of nonpoint source program implementation efforts. Show water resource improvements by measuring reductions in sediments, nutrients and metals or increases in aquatic life use, riparian habitat, wetlands, or public health benefits

Objective: By 2012, through combined program efforts, remove 500 miles of streams and 1600 lake acres that are identified by the state as being impaired because of nonpoint source sources of pollution. from the State's 303d list.

Objective: Modify or remove dams and implement Natural Stream Channel Design measures when applicable. (Hydromodification)

> Action item: Increase the annual modification or removal of dams from 7 to 10 by the end of 2009 (Hydromodification)
>
> Action Item: By the end of 2005, establish a technical review committee for the purpose of evaluating stream habitat subsequent of dam modification/removal to determine whether Natural Stream Channel Design measures are warranted. (Hydromodification)

Objective: Where flood protection projects, both new and existing, are necessary, promote NSCD measures to minimize ecological impacts (Hydromodification)

Action item: Design and construct one project by the end of 2009. (Hydromodification)

Action item: Retrofit 6 projects by end of 2009. (Hydromodification)

Objective: By 2007, develop comprehensive PA Lake Classification and Lake Criteria System, and remove from the 303d list those lakes that have good water quality and meet designated lake uses but violated stream-based criteria. (Lakes)

Objective: Track Agricultural BMP implementation and measure reductions in sediment, nutrients, and pathogens. Track designated use attainment in watersheds where agriculture is the major source of impairment. Develop a database to collect this information on a watershed basis, by 2008. (Agriculture)

Objective: Restore 250 stream miles to designated uses by improving aquatic habitats to support fish and associated aquatic life in streams impaired by Abandoned Mine Drainage (AMD) by 2009 currently totaling approximately 4,500 miles. (Resource Extraction)

Action items: Target cleanup of AMD sources in watersheds on the proposed 2004 Integrated List of Impaired Waters, that have TMDL's and/or Watershed Restoration Plans developed. (Resource Extraction)

Action items: Install appropriate Treatment Systems or other Stream Restoration Best Management Practices (BMPs). (Resource Extraction)

Action items: Reclaim 5,000 of acres of Abandoned Mine Lands. (Resource Extraction)

Action items: Restore losing streams to the surface to reduce surface water infiltration into underground mines and restore aquatic habitat. (Resource Extraction)

Objective: Continue plugging of problem abandoned oil and gas wells to improve water quality, eliminate safety hazards, and eliminate pollution resulting from uncontrolled AMD discharges into ground and surface water from abandoned wells (Resource Extraction)

Action Items: Plug 3,000 of the 8,000 known abandoned oil and gas wells to improve water quality by 2009. (Resource Extraction)

Action items: The Well Plugging Unit of DEP's Bureau of Oil and Gas Management should continue coordination of funding for plugging of abandoned and orphaned oil and gas wells. (Resource Extraction)

Goal 2

Coordinate with watershed groups, local governments, authorities and landowners to promote and support the development, implementation and evaluation of _#__ watershed plans to conserve, protect and restore surface and groundwater quality.

Objective: Involve municipal officials, county planning officials, local stakeholders, watershed groups, and other local advocate groups by 2009. (Construction/Urban)

> Action Item: Develop and implement a tiered delivery system for local stakeholders, interest groups, and other local environmental advocates. (Construction/Urban)
>
> Action Item: Establish priority areas to target outreach efforts. (Construction/Urban)
>
> Action Item: Establish a mechanism to communicate and coordinate the follow-up on outreach efforts. (Construction/Urban)
>
> Action Item: Develop more flexible design criteria and standards that promote water quality protection. (Construction/Urban)
>
> Action Item: Replicate successful outreach efforts, i.e. "Builders for the Bay" in other watersheds. (Construction/Urban)

Objective: Past and present planning efforts by federal and state transportation agencies have concentrated primarily on addressing interstate road standards. Identify practical applications of good design criteria, construction and or maintenance standards that can be adopted by local governments by 2009. (Construction/Urban)

> Action Item: Update revise PennDOT's guide to local roads handbook. (Construction/Urban)
>
> Action Item: Coordinate with the Federal Highways Administration to update and revise their low volume road standards. (Construction/Urban)

Objective: Increase involvement of agricultural producers in watershed planning and implementation efforts by 2008. (Agriculture)

> Action Items: By 2008 all watershed planning groups addressing agricultural lands will have at least one local agricultural producer. (Agriculture)

Objective: Develop 100 integrated watershed management plans that incorporate AMD/AML Assessments by 2009. (Resource Extraction)

Action Items: Develop watershed management plans that are comprehensive in scope. (Resource Extraction)

Action Items: Identify watersheds without any plan or a plan without sufficient detail to determine BMP or restoration priorities and rough costs of remediation. (Resource Extraction)

Action Items: If no restoration plan has been completed, provides guidance to groups to prepare a grant proposal to develop a new restoration plan according to EPA/DEP guidelines. (Resource Extraction)

Action Items: Update watershed management plans on a regular basis to show water quality improvements, problem areas that still need improvement, or where additional restoration efforts are needed. Determine which of these management plans fit criteria for EPA 319 funding. (Resource Extraction)

Action Items: Identify and map locations of watersheds that have watershed management plans (Resource Extraction)

Action Items: Develop a map and GIS database of what watersheds already have restoration plans. (Resource Extraction)

Action Items: DEP staff, conservation district watershed specialists, and WPCAMR or EPCAMR should continue providing guidance on developing, updating and integrating restoration plans. (Resource Extraction)

Objective: Develop operation, maintenance and replacement (OM&R) plans and funding sources for all AMD remediation projects by 2009. (Resource Extraction)

Action Items: Establish a mechanism for operation, maintenance, and repair of projects to ensure that water quality improvements are maintained. (Resource Extraction)

Action Items: Ensure that someone has responsibility to follow the OM&R plans (Resource Extraction)

Action Items: Ensure that operation and maintenance plans are followed so that remediation systems are functioning properly (Resource Extraction)

Action Items: Evaluate efficiency of constructed passive treatment systems on a regular basis and make repairs if necessary. (Resource Extraction)

Action Items: Help local watershed groups or other responsible parties to establish funding sources to implement the OM&R plans for their treatment systems. (Resource Extraction)

Goal 3.

Improve and develop monitoring and tracking efforts to determine if projects and programs improve water quality and / or meet target pollution reductions including TMDLs.

Objective: Establish Monitoring protocol on Natural Stream Channel Design with the goal of measuring environmental results. (Hydromodification)

> Action Item: Citizen Volunteer Monitoring Program (CVMP) to develop and package protocol for training volunteer monitors by the end of 2005. (Hydromodification)
>
> Action Item: Inform public through the Stream Summit and train conservation district watershed specialists by the end of 2006. (Hydromodification)
>
> Action Item: By the end of 2007, the Keystone Stream Team will develop a monitoring program for agencies to evaluate success of NSCD projects. (Hydromodification)
>
> Action Item: Monitor and evaluate the impact of bridge and culverts for flood damage, erosion, and habitat modification by the end of 2008. (Hydromodification)

Objective: Evaluate, quantify, and document aquatic habitat loss resulting from surface water and groundwater withdrawals. (Hydromodification)

> Action Item: By the end of 2009, secure necessary funding and implement the "Delaware River Basin Instream Flow Study". (Hydromodification)

Note the members believe that the following objective and action items should be a "General" Objective of the entire NPS workgroup rather than just an objective for the Construction and Urban Workgroup:

Objective: Establishment of a comprehensive information management system that will improve the availability of data by_____. (Construction/Urban)

> Action Item: Establish monitoring, performance, effectiveness and efficiency measures of how well BMPs perform in reducing NPS loads. (Construction/Urban)
>
> Action Item: Incorporate data with stream assessment initiatives. (Construction/Urban)

Objective: By 2006, develop standardized monitoring protocols that adequately assess the status of the various uses of lakes. (Lakes)

Objective: By 2007, incorporate basic water quality monitoring provisions into the work plans of at least three sizable streamside dump cleanup proposals. (Land Disposal)

Objective: Increase accessibility of local, state, regional water quality data to decision makers, watershed organizations and producers. By 2008 all county conservation districts, local, state, and federal programs will use water quality data to target water quality restoration and protection efforts. (Agriculture)

Objective: Establish five water-quality monitoring sites per year where agricultural practices or actions have been implemented to assess the effectiveness of these practices. (Agriculture)

Objective: Utilize a single, statewide database (clearinghouse) to coordinate the sharing of monitoring and tracking data by 2009. (Resource Extraction)

> Action Items: Utilize a data storage and dissemination system similar to PASDA, Storet or e-Facts. (Resource Extraction)
>
> Action Items: Develop a standardized way of collecting data and site descriptions in useable form – standard field and laboratory protocols. (Resource Extraction)
>
> Action Items: Encourage and train watershed groups to use these protocols through a certification program. (Resource Extraction)
>
> Action Items: Develop GIS maps and link as built designs of locations and types treatment systems and land reclamation areas. (Resource Extraction)
>
> Action Items: Show water quality effects and other measurable environmental results of passive treatment systems, land reclamation or other restoration efforts using GIS. (Resource Extraction)

Goal 4.

Encourage development and use of new technologies, tools, and technology transfer practices, to enhance understanding and use of techniques for addressing nonpoint source pollution.

Objective: Establishment of a clearinghouse to serve as a resource center that identifies appropriate best management practice effectiveness, research, and technical and non-technical standards by 2009. (Construction/Urban)

> Action Item: Identify success stories and failures/lessons learned regarding structural and non-structural BMPs. (Construction/Urban)

Action Item: Establish web links to research sites such as VUSP, PSU, EPA, and Center for Watershed Protection, and the Pennsylvania Housing Research Center etc. (Construction/Urban)

Action Item: Identify research, pilot and demonstration projects that focus on protecting public health and safety, protect surface and ground water quality, and that focus and special or sensitive land features. (Construction/Urban)

Action Item: Develop a resource list of common BMPs that the regulated community can utilize. (Construction/Urban)

Action Item: Identify baseline modeling engineering standards and assumptions, and determine the need for better prediction tools. (Construction/Urban)

Objective: Adopt a stream classification system(s) in order to be better able to communicate about stream channels. This would also facilitate communication on the main principles that operate in the processes of river mechanics and maintenance. (Hydromodification)

Action Item: Convene a meeting of affected partners to adopt a stream classification system(s) by the end of 2005. (Hydromodification)

Action Item: Communicate recommended classification system(s) to affected partners by the end of 2006. (Hydromodification)

Action Item: By the end of 2007, get recommended classification system(s) adopted by affected partners. (Hydromodification)

Objective: By 2006, develop a strategy to control and mitigate exotic species that affect aquatic life and recreational uses of our waterbodies and riparian areas. (Lakes)

Objective: Assess feasibility of nutrient trading using the Conestoga River watershed pilot by 2008. (Agriculture)

Objective: Increase the adoption of cost-effective best management practices to minimize ammonia emissions and protect/improve air quality on 1,000 farms by 2012. (Agriculture)

Objective: Facilitate four projects by 2008 demonstrating market-based opportunities to address agricultural water quality issues. (Agriculture)

Objective: Provide new incentive initiatives to promote the implementation of proven, new and innovative technologies and management systems (conservation tillage, composting, etc.) identified to be environmentally sound and economically feasible. Achieve four by 2008. (Agriculture)

Objective: Encourage development and implementation of new technologies and technology transfer with a goal of more cost effective AMD remediation by 2009. (Resource Extraction)

Action Items: Encourage development of new technologies that will treat the mine pool water in-situ at a cost that is lower than conventional surface treatment. (Resource Extraction)

Action Items: Encourage DEP to finalize plans to use industrial or agricultural by-products to treat mine discharges and land reclamation sites. (Resource Extraction)

Action Items: Encourage use of innovative approaches to economic development to reclaim or reuse abandoned mine sites and mine discharges. (Resource Extraction)

Action Items: Encourage technology transfer through conferences, websites, associations, articles, and manuals. (Resource Extraction)

Action Items: The Department should encourage the development of new technologies for the recovery of metals, such as iron, aluminum, magnesium, and strontium, from mine discharges. (Resource Extraction)

Action Items: Encourage development of products using iron sludge from wetlands and settling basins associated with passive treatment systems. (Resource Extraction)

Objective: Improve and encourage education and outreach programs for information dissemination to the general public by 2006. (Resource Extraction)

Action item: Continue education efforts on the benefits of the safe use of coal ash and other waste byproducts to reclaim abandoned mine lands. (Resource Extraction)

Action Items: Continue to fund educational activities by schools, colleges, and watershed associations to promote and teach children and adults about mine drainage problems and solutions. (Resource Extraction)

Action Items: Hold one AMR conference each year cosponsored by Eastern Pa Coalition for Abandoned Mine Reclamation (EPCAMR) and Western Pa Coalition for Abandoned Mine Reclamation (WPCAMR) as a means to promote technology transfer among mine reclamation professionals and networking among watershed associations and agencies, consultants, colleges and institutions. (Resource Extraction)

Action Items: Continue to promote the Council for the Research and Reclamation of Disturbed Lands in PA Annual Meeting for the exchange of information about land reclamation. (Resource Extraction)

Action Items: Continue to update and promote the WPCAMR and EPCAMR websites and other educational activities as a source of information to everyone involved with mine reclamation. (Resource Extraction)

Action Items: Encourage participation by watershed associations and mine reclamation professionals in conferences and workgroups to discuss new and existing technologies. (Resource Extraction)

Action Items: Encourage sharing of information gathered by Acid Drainage Technology Initiative (ADTI) and other agencies and groups. (Resource Extraction)

Goal 5.

Assure implementation of appropriate best management practices to protect, improve and restore water quality by using or enhancing existing financial incentives, technical assistance, education and regulatory programs.

Objective: Establish a system of long range planning, technical support, and financial assistance needs for stormwater management systems and programs for local governments by 2009. (Construction/Urban).

Action Item: Develop a two tiered system to process, and fund municipal implementation for the Act 167 program. (Construction/Urban)

Objective: Promote a general understanding of channel maintenance and its impact on channel function. (Hydromodification)

Action Item: Develop a fact sheet on dredging and stream corridor management by the end of 2005 (Hydromodification)

Action Item: Promote the use of fluvial geomorphology in evaluating and restoring streams when appropriate (i.e. the stream channel is unstable) by supporting the annual stream summit. (Hydromodification)

Action Item: Promote the use of soil-bioengineering and other techniques to lessen the negative impacts of hard techniques that may be needed to protect infrastructure by supporting the annual stream summit. (Hydromodification)

Action Item: Promote inter-agency cooperation and collaboration in addressing stream channel restoration by designating a representative from such agencies as DEP, PennDOT, DCNR, Fish and Boat Commission, Pa Game Commission, USDA, USCOE, US Department of Interior and FEMA to participate with the Keystone Stream Team by the end of 2005. (Hydromodification)

Objective: Promote the Keystone Stream Team as the mechanism to facilitate the transfer of information on Natural Stream Channel Design. (Hydromodification)

Action Item: Develop a cost range for assessing, design and construction of natural stream channel design projects by the end of 2005. (Hydromodification)

Action Item: Continue definition of regional characteristics related to sediment transport, regional curves, reference reaches, etc., by the end of 2005. (Hydromodification)

Action Item: Develop a team to evaluate the functionality/success of existing natural stream channel design projects by the end of 2006. (Hydromodification)

Action Item: Develop web-based database to store and share FGM data that will be collected on natural stream channel design projects in Pennsylvania by the end of 2006. (Hydromodification)

Action Item: Establish a process to facilitate pre-project planning, peer review of projects and promote the transfer of technology by the end of 2007. (Hydromodification)

Objective: Establish a dedicated and secure fund for the implementation, operation, maintenance and repair for natural stream channel design projects by the end of 2008 (Hydromodification)

Objective: Establish a system of long range planning, technical support, and financial assistance needs for stormwater management systems and programs for local governments by 2009. (Construction/Urban).

Objective: Encourage additional municipalities to develop and update sewage management programs in accordance with Act 537 by 2007. (An estimated 85 municipalities had programs planned or operational in 2003.) (Land Disposal)

Objective: Increase use of the PENNVEST Individual On-lot Sewage Disposal System Funding Program for repair and replacement of malfunctioning systems by 2007. (An average of 32 projects per year were financed between 1994 and 2004.) (Land Disposal)

Objective: Enhance public awareness of household hazardous waste (HHW) and increase the number of participants in HHW collections by 2007. (33,934 participants were reported in 2003.) (Land Disposal)

Objective: Increase the number of regional (inter-municipal, public/private partnership) HHW collections by 2007. (Two were reported in 2003.) (Land Disposal)

Objective: Expand on-farm assessments and collections of the Farm-A-Syst and Chemsweep programs, emphasizing performance-based approaches to environmental management. By 2009, increase the total amount of waste pesticides collected by the Chemsweep program to 4.0 million pounds. (Land Disposal)

> Action Item: By 2007, prepare and distribute two Farm-A-Syst worksheets for management of pastures and animal concentration areas. (Land Disposal)

Objective: Secure sustainable funding for the statewide biosolids program and for biosolids recycling research, training and program delegation to county conservation districts by 2007. (Land Disposal)

Objective: Reclaim additional acres of disturbed or degraded lands using biosolids or other recycled byproducts by 2007. (An average of ____ acres per year were reclaimed from 2001 to 2003.) (Land Disposal)

Objective: Utilize existing programs to clean up 50 illegal dumps threatening lakes, streams, groundwater or wetlands by 2009. (Land Disposal)

Objective: By 2007, develop and implement a program encouraging rural landowners to clean up farm dumps. (Land Disposal)

Objectives: Promote the new Pennsylvania Energy Harvest Program as a means to use environmental problems as economic opportunities. The grant program mixes money from the Clean Air Fund, Growing Greener and U.S. Department of Energy. (Resource Extraction)

> Action Items: This initiative allows DEP to promote state-of-the-art coal technologies that will fuel economic development and create new jobs by providing incentives for private investment in depressed areas. (Resource Extraction)

> Action Items: The Pennsylvania Energy Harvest initiative is slated to be expanded by $80 million over four years to provide the financial tools that will encourage clean and renewable energy projects from sources such as biomass, wind, solar, small-scale hydroelectric, landfill methane, coal-bed methane and waste-coal. (Resource Extraction)

Objective: By 2012 increase farmer participation in environmental stewardship on-site assessment and certification activities (PEACCE, OFAER, etc.) by 250 producers. (Agriculture)

Objective: By 2012, increase nutrient management, soil conservation and agronomic management (for purposes of water quality protection) educational efforts to producers, program and technical support staff, and agribusiness by 20%. (Agriculture)

Objective: By 2012, expand Pennsylvania's Conservation Reserve Enhancement Program (CREP) to include the entire state. (Agriculture)

Objective: Develop and fully implement a Manure Hauler and Broker Certification program by 2006. (Agriculture)

> Action Items: Develop program criteria that includes training for hauler and broker certification. (Agriculture)
>
> Action Items: Achieve 100% participation in education, continuing education training, and certification by 2006. (Agriculture)
>
> Action Items: Provide a continuing statewide education and certification program.

Objective: Increase accessibility to agriculture air-water research data and information through workshops, print media, and the internet by 2012. (Agriculture)

> Action Items: Develop and include links to existing web sites. (Agriculture)
>
> Action Items: Develop an agricultural air-water research information brochure. (Agriculture)
>
> Action Items: Hold two technical information workshops. (Agriculture)

Objective: Facilitate conservation planning and implementation efforts, and track conservation planning and implementation to achieve 100% compliance by 2012. (Agriculture)

Objective: Develop and implement MFEMPs on all sites utilizing mushroom substrate (MS) and spent mushroom substrate (SMS) by 2012. (Agriculture)

Objective: Complete four projects by 2008 which implement alternative use technologies for SMS. (Agriculture)

Objective: Establish a system of long range planning, technical support, and financial assistance needs for AMD/AML systems and programs for local governments and watershed groups by 2009. (Resource Extraction)

> Action items: Establish a dedicated and secure fund for the implementation, operation, maintenance and repair. Such as the establishment of local trust funds and grayfields / brownfields legislation. (Resource Extraction)

Action items: Use existing DEP and other agency regulatory programs to help achieve this goal. (Resource Extraction)

Objective: Encourage more use of sound science and innovative technology in beneficial uses of biosolids, alkaline coal ash, dredge, and other byproduct materials in reclamation by 2009. (Resource Extraction)

Action Items: Use regulations allowing a general permit for the beneficial use of dredged sediment, coal ash, cement kiln dust and lime kiln dust in mine reclamation. (Resource Extraction)

Action items: Use results of independent studies and reports to show that these materials can be used in a safe manner to benefit the environment and economy of towns with abandoned mine lands. (Resource Extraction)

Action items: Use Biosolids to be recycled and applied as a fertilizer to improve and maintain productive soils and stimulate plant growth under controlled conditions. Surface applications of biosolids on mine spoil increase soil moisture and fertility and provide a beneficial alternative to disposal of biosolids in landfills or incinerators. (Resource Extraction)

Action items: Use the Pennsylvania Joint Legislative Air and Water Pollution Control and Conservation Committee report on the beneficial use of coal fly ash in mine reclamation projects as an example in promotion of the beneficial use of these products. (Resource Extraction)

Action items: Continue to require extensive sampling and testing protocols to ensure the safety of the material being used. (Resource Extraction)

Action items: Continue to require suppliers of dredge material to conduct independent sampling and testing prior to the shipment of each 10,000 cubic yards of the dredged material and test the material again once the dredged material is mixed with the coal ash and kiln dust. (Resource Extraction)

Objective: Establish and implement a means for beneficial use of abandoned mine pools and mine discharges by 2009. (Resource Extraction)

Action Items: Inventory available land and water resources to determine where the most likely sites could be located, such as within or close to an urban area for industrial use and a rural area for a water supply. (Resource Extraction)

Action items: Work with county industrial development authorities and businesses to convince industry to move to the areas of the state where mine pool water is readily available. (Resource Extraction)

Action items: Encourage the DEP, PennVEST and the Department of

Community and Economic Development take an active role in investigating incentives to use polluted mine water that would require some level of treatment before the discharge can be used as a water supply. (Resource Extraction)

Action items: Encourage manufacturing operations to use the billions of gallons of water stored underground in abandoned mine pools throughout the bituminous and anthracite coal fields as a water supply. (Resource Extraction)

Action items: Encourage additional incentives for the use of abandoned mine lands near mine pools by allowing restoration to a relatively flat grade rather than requiring reclamation to approximate original contour, to make a site better suited for building construction. (Resource Extraction)

Objective: Encourage and implement the redevelopment of abandoned mine lands for recreational, industrial, commercial and residential uses by 2009. (Resource Extraction)

Action item: Encourage the use of financial resources in the grayfields / brownfields legislation as an incentive for reuse of abandoned mine lands. (Resource Extraction)

Action items: Encourage development such as golf courses, campgrounds, ATV/Motor-cross Parks, horse back riding trails, snowmobile trails and shooting ranges that would take the pressure off use of undeveloped lands for these purposes. (Resource Extraction)

Action items: Encourage financial incentives for developers to use these areas. (Resource Extraction)

II. STATEWIDE PROGRAMS TO ADDRESS SPECIFIC NONPOINT SOURCE MANAGEMENT CATEGORIES

This section of the NPS Management Program provides a detailed summary of existing statewide programs that include a mix of water quality based and technology based programs, and a variety of regulatory, non-regulatory, financial and technical assistance programs all designed to expeditiously achieve and maintain beneficial uses of water. This section describes the NPS institutionalized implementation programs and identifies measures to be used to control, prevent and remediate nonpoint sources of pollution from the following categories: **resource extraction, agriculture, construction/urban runoff, land disposal, silviculture and hydrologic/habitat modification.**

A. RESOURCE EXTRACTION

Past practices of resource extraction and exploration are the major source of nonpoint source pollution to surface and groundwaters in Pennsylvania. Significant deposits of bituminous and anthracite coal, oil and gas occur within Pennsylvania. Coal is found in the western, northcentral and northeastern portions, and oil and gas deposits are concentrated in the western and northcentral portions of the Commonwealth.

Financial Assistance

The Abandoned Mine Reclamation Fund [Note: this fund is currently up for reauthorization – so we may have several changes to make]

Until recently, the Abandoned Mine Reclamation Fund did not address water quality problems but focused only on health and safety hazards. In the past 30 years, nearly $1 billion has been spent through a variety of state and federal programs to restore about 25,000 acres of Pennsylvania's abandoned mine lands. About two-thirds of these funds came from the AMR Fund, which is administered by the Department's Bureau of Abandoned Mine Reclamation, through the federal Office of Surface Mining (OSM). The AMR fund is an interest bearing account made up of fees paid by current mine operators. The fees are 35 cents per ton on surface mined coal and 15 cents a ton on underground mined coal. In 1997, about $13 million was paid into the AMR Fund by Pennsylvania mine operators. Yearly grant amounts vary depending on Congressional appropriations; grants through the 1990's have averaged around $20 million per year. Pennsylvania receives back in grants about $1.80 for every dollar paid into the Fund. Through this Fund, thousands of acres of surface mine lands, and many miles of streams clogged with coal mine sediment or degraded by mine drainage have been restored. The Fund has paid for restoration initiatives, such as closing and backfilling mine openings and open surface mine pits, including over 84 miles of abandoned surface mine highwalls, stabilizing refuse piles, and preventing infiltration into underground mine workings, and extinguishing or stopping the advance of underground and refuse bank fires.

Historically, the federal OSM required that abandoned mine reclamation be addressed in a priority manner. Health and safety hazards were considered as Priorities 1 and 2. Acid mine drainage was defined as a Priority 3 problem and did not receive much attention or funding through the AMR Fund. OSM has more recently authorized AMD problems to be funded along with the traditional land reclamation priorities, if it can be demonstrated that the water quality problems present health, safety, or general welfare problems to the community. This policy allows for watershed based reclamation.

Ten-Percent Set-Aside Program

In 1990, SMCRA was amended to include a provision allowing states to establish an acid mine drainage abatement and treatment called the AMD Ten Percent Set-Aside Program. The fund and program are managed by the Department's Bureau of Abandoned Mine Reclamation (BAMR).

Money from the Ten Percent Set-Aside Fund may be used to treat abandoned mine drainage where mining ceased prior to August 3, 1997, and where no continuing reclamation responsibility can be determined. In order to qualify, the water quality must adversely impact biological resources. Sites must be capable of being treated using passive treatment technologies. Another important consideration is the potential for forming partnerships with organized groups active in improving the watershed and with county conservation districts.

The Appalachian Clean Streams Initiative

The Appalachian Clean Streams Initiative (ACSI) was formed in 1995 by the OSM as a regional partnership of federal, state, local, industry, watershed groups, university researchers, and individuals interested in the cleanup of streams degraded by AMD. The initiative provides an opportunity for partnership, coordination, and better results from expenditure of public funds.

Nonpoint Source Grants

The DEP, Bureau of Watershed Management sponsors passive treatment projects for the remediation of mine drainage pollution with funding through the Section 319 Grant. To learn more about the Section 319 program go to: http://www.dep.state.pa.us/dep/deputate/watermgt/wc/subjects/nonpointsourcepollution/default.htm

Growing Greener Grants

The Environmental Stewardship and Watershed Protection Act authorizes the Department of Environmental Protection (DEP) to allocate nearly $547 million in grants for acid mine drainage abatement, mine cleanup efforts, abandoned oil and gas well plugging and local watershed-based conservation projects. These projects can include: watershed assessments and development of watershed restoration or protection plans;

implementation of watershed restoration or protection projects (stormwater management wetlands, riparian buffer fencing and planting, streambank restoration (especially FGM), agricultural BMPs); construction of mine drainage remediation systems; reclamation of previously mined lands; and demonstration/education projects and outreach activities.

These grants are available to a variety of eligible applicants, including: counties, authorities and other municipalities; county conservation districts; watershed organizations; and other organizations involved in the restoration and protection of Pennsylvania's environment. These grants will support local projects to clean up non-point sources of pollution throughout Pennsylvania.

To learn more about Growing Greener go to:

http://www.dep.state.pa.us/growgreen/defaultdep.htm

Technical Assistance

Comprehensive Plan for Abandoned Mine Reclamation

The Department's Bureau of Abandoned Mine Reclamation has developed Pennsylvania's Comprehensive Plan for Abandoned Mine Reclamation, which establishes a framework for organizing reclamation efforts, coordinating among agencies involved in reclamation, prioritizing expenditures, and decision making.

The plan has as its goals:

- to focus expenditures for reclamation of abandoned mine lands on maximizing benefits;
- to develop partnerships involving local citizens, local government, and other groups that promote abandoned mine reclamation;
- to develop long-term funding sources to allow long-term planning and funding commitments;
- to develop a holistic approach to reclamation planning that will result in reclamation and rehabilitation of an entire geographic area;
- to encourage the development and use of innovative technologies that reduce the cost of reclamation;
- to coordinate the activities of the abandoned mine lands program with the BMR regulatory program so that active mine operators are encouraged to remine and reclaim where possible; and
- to ensure that property owners who allow the use of their lands for long-term treatment of abandoned mine drainage are not subject to personal or environmental liabilities because of the reclamation projects.

Abandoned Mine Reclamation Coalitions

In 1982 the Western Pennsylvania Coalition for Abandoned Mine Reclamation (WPCAMR) was formed by conservation districts in the bituminous coal region of the State. The Eastern Pennsylvania Coalition for Abandoned Mine Reclamation (EPCAMR) covering the Anthracite coal region and the northern bituminous counties was formed in 1996. Combined the coalitions cover 40 counties in Pennsylvania. The coalitions compliment existing DEP remediation programs by taking a community involvement approach and by gearing towards smaller projects. To learn more about the coalitions, go to: http://amrclearinghouse.org

Mining and Reclamation

The Bureau of Mining and Reclamation is responsible for the regulation, permitting, compliance and reclamation of surface and underground coal, non-coal mining, and coal refuse disposal. Authority is given under the federal Surface Mining Control Act, the Pennsylvania Clean Streams Law, various other Pennsylvania laws, and implementing regulations.

BMR is responsible for issuing permits where future post-mining pollution is highly unlikely to occur, and to ensure that mining is conducted in compliance with the regulations. In order to prevent degradation from mining, BMR's permitting program concentrates on improving methods of predicting post-mining acid discharges and on special mining techniques. BMR also initiates and coordinates abandoned mine reclamation efforts and is responsible for encouraging remining of abandoned mine areas as a means of achieving reclamation.

Oil and Gas Management Programs

The Bureau of Oil and Gas Management is responsible for the statewide oil and gas conservation and environmental programs to facilitate the safe exploration, development, and recovery of Pennsylvania's oil and gas reserves in a manner that will protect the Commonwealth's natural resources and the environment. Production of oil and gas currently takes place in over 30 counties. The BO&GM conducts its activities under the authority of several statutes: the Clean Streams Law, the Solid Waste Management Act, the Oil and Gas Act, the Dams and Encroachment Act, the Coal and Gas Resource Coordination Act, the Oil and Gas Conservation Law, and the Administrative Code.

Activities of the BO&GM include processing well permits, registrations and orphan well determinations; issuing permits for waste water discharges, road spreading of brine for dust control, erosion, and sedimentation; and administering the abandoned and orphan well plugging program.

Since the first commercial oil well was drilled in Pennsylvania in 1859, as many as 250,000 oil and gas wells have been drilled in the state. Permitting of new drilling, however, did not begin until 1956; and registration of oil and gas operators was not required until 1985. This lack of regulation led to about 100 years of abandonment or improper plugging of many wells. Unplugged old wells can allow leakage of gas into nearby water wells or leakage of salt brine into surface or groundwater.

The Oil and Gas Act of 1984 requires oil and gas well operators to plug nonproducing wells. In 1992, the legislature amended the Oil and Gas Act to allow certain oil and gas wells abandoned before April 1985 to be classified as orphan wells, gave the Department authority to plug orphan wells, and created a means of funding the plugging. Approximately 6,600 abandoned wells have been reported and classified as abandoned.

Salt brines are present in subsurface oil and gas formations and are typically produced as a waste product along with oil and gas. Brines have a potential for contamination by leaching into surface or groundwater. Disposal of brines in an environmentally safe and economical manner has been a problem. Brine has shown promise for beneficial use as a dust suppressant and road stabilizer on unpaved secondary roads. Strict guidelines have been set by the Department for the use of brines on unpaved roads.

Objectives/Action Items of the Resource Extraction Workgroup

Goal 1 *(a combination of the first two goals presented for the June 2 meeting)*

Improve and protect water resources as a result of nonpoint source program implementation efforts. Show water resource improvements by measuring reductions in sediments, nutrients and metals or increases in aquatic life use, riparian habitat, wetlands, or public health benefits. By 2012, through combined program efforts, return 500 miles of streams and 1600 lake acres that are identified by the state as not supporting adequate fish and aquatic life because of nonpoint source sources of pollution back to streams and lakes that support acceptable fish and aquatic life.

Objective: Evaluate and categorize or prioritize watersheds with abandoned mine lands for restoration activities. (Resource Extraction)

> Action items: Continue restoration activities on abandoned mine lands including construction of passive treatment systems and land reclamation in watersheds. (Resource Extraction)
>
> Action items: Encourage restoration activities in watersheds with restoration plans and active watershed associations. (Resource Extraction)
>
> Action items: Identify streams or watersheds with active watershed associations and who have started restoration efforts. For watersheds without an association, encourage establishment of a watershed association or encourage a conservation district or municipal authority to lead restoration efforts. (Resource Extraction)

Action items: Identify streams or watersheds impaired by AMD that are most likely to have potential to achieve water quality standards or that could show a significant progress towards reestablishing a designated use, such as watersheds with few discharges or AMD problem areas or with planned restoration efforts underway and close to completion. (Resource Extraction)

Action items: Identify streams or watersheds that already have some aquatic macroinvertebrates or fish life and that could reestablish additional species with installation of additional remediation projects. (Resource Extraction)

Objective: Restore 250 stream miles to designated uses by improving aquatic habitats to support fish and associated aquatic life in streams impaired by Abandoned Mine Drainage (AMD) by 2009 currently totaling approximately 4,500 miles. (Resource Extraction)

Action items: Target cleanup of AMD sources in watersheds on the proposed 2004 Integrated List of Impaired Waters, that have TMDL's and/or Watershed Restoration Plans developed. (Resource Extraction)

Action items: Install appropriate Treatment Systems or other Stream Restoration Best Management Practices (BMPs). (Resource Extraction)

Action items: Reclaim 5,000 of acres of Abandoned Mine Lands. (Resource Extraction)

Action items: Restore losing streams to the surface to reduce surface water infiltration into underground mines and restore aquatic habitat. (Resource Extraction)

Objective: Continue plugging of problem abandoned oil and gas wells to improve water quality, eliminate safety hazards, and eliminate pollution resulting from uncontrolled AMD discharges into ground and surface water from abandoned wells (Resource Extraction)

Action Items: Plug 3,000 of the 8,000 known abandoned oil and gas wells to improve water quality by 2009. (Resource Extraction)

Action items: The Well Plugging Unit of DEP's Bureau of Oil and Gas Management should continue coordination of funding for plugging of abandoned and orphaned oil and gas wells. (Resource Extraction)

Goal 2 (was goal 3)

Coordinate with watershed groups, local governments, authorities and landowners to promote and support the development, implementation and evaluation of # watershed plans to conserve, protect and restore surface and groundwater quality.

Objective: Develop 100 integrated watershed management plans that incorporate AMD/AML Assessments by 2009. (Resource Extraction)

Action Items: Develop watershed management plans that are comprehensive in scope. (Resource Extraction)

Action Items: Identify watersheds without any plan or a plan without sufficient detail to determine BMP or restoration priorities and rough costs of remediation. (Resource Extraction)

Action Items: If no restoration plan has been completed, provides guidance to groups to prepare a grant proposal to develop a new restoration plan according to EPA/DEP guidelines. (Resource Extraction)

Action Items: Update watershed management plans on a regular basis to show water quality improvements, problem areas that still need improvement, or where additional restoration efforts are needed. Determine which of these management plans fit criteria for EPA 319 funding. (Resource Extraction)

Action Items: Identify and map locations of watersheds that have watershed management plans (Resource Extraction)

Action Items: Develop a map and GIS database of what watersheds already have restoration plans. (Resource Extraction)

Action Items: DEP staff, conservation district watershed specialists, and WPCAMR or EPCAMR should continue providing guidance on developing, updating and integrating restoration plans. (Resource Extraction)

Objective: Develop operation, maintenance and replacement (OM&R) plans and funding sources for all AMD remediation projects by 2009. (Resource Extraction)

Action Items: Establish a mechanism for operation, maintenance, and repair of projects to ensure that water quality improvements are maintained. (Resource Extraction)

Action Items: Ensure that someone has responsibility to follow the OM&R plans (Resource Extraction)

Action Items: Ensure that operation and maintenance plans are followed so that remediation systems are functioning properly (Resource Extraction)

Action Items: Evaluate efficiency of constructed passive treatment systems on a regular basis and make repairs if necessary. (Resource Extraction)

Action Items: Help local watershed groups or other responsible parties to establish funding sources to implement the OM&R plans for their treatment systems. (Resource Extraction)

Goal 3.

Improve and develop monitoring and tracking efforts to determine if projects and programs improve water quality and / or meet target pollution reductions specified in watershed plans or TMDLs by 2009.

Objective: Utilize a single, statewide database (clearinghouse) to coordinate the sharing of monitoring and tracking data by 2009. (Resource Extraction) (Resource Extraction)

Action Items: Utilize a data storage and dissemination system similar to PASDA, Storet or e-Facts. (Resource Extraction)

Action Items: Develop a standardized way of collecting data and site descriptions in useable form – standard field and laboratory protocols. (Resource Extraction)

Action Items: Encourage and train watershed groups to use these protocols through a certification program. (Resource Extraction)

Action Items: Develop GIS maps and link as built designs of locations and types treatment systems and land reclamation areas. (Resource Extraction)

Action Items: Show water quality effects and other measurable environmental results of passive treatment systems, land reclamation or other restoration efforts using GIS. (Resource Extraction)

Goal 4.

Encourage development and use of new technologies, tools, and technology transfer practices, to enhance understanding and use of techniques for addressing nonpoint source pollution.

Objective: Encourage development and implementation of new technologies and technology transfer with a goal of more cost effective AMD remediation by 2009. (Resource Extraction)

Action Items: Encourage development of new technologies that will treat the mine pool water in-situ at a cost that is lower than conventional surface treatment. (Resource Extraction)

Action Items: Encourage DEP to finalize plans to use industrial or agricultural by-products to treat mine discharges and land reclamation sites. (Resource Extraction)

Action Items: Encourage use of innovative approaches to economic development to reclaim or reuse abandoned mine sites and mine discharges. (Resource Extraction)

Action Items: Encourage technology transfer through conferences, websites, associations, articles, and manuals. (Resource Extraction)

Action Items: The Department should encourage the development of new technologies for the recovery of metals, such as iron, aluminum, magnesium, and strontium, from mine discharges. (Resource Extraction)

Action Items: Encourage development of products using iron sludge from wetlands and settling basins associated with passive treatment systems. (Resource Extraction)

Objective: Improve and encourage education and outreach programs for information dissemination to the general public by 2006. (Resource Extraction)

Action item: Continue education efforts on the benefits of the safe use of coal ash and other waste byproducts to reclaim abandoned mine lands. (Resource Extraction)

Action Items: Continue to fund educational activities by schools, colleges, and watershed associations to promote and teach children and adults about mine drainage problems and solutions. (Resource Extraction)

Action Items: Hold one AMR conference each year cosponsored by Eastern Pa Coalition for Abandoned Mine Reclamation (EPCAMR) and Western Pa Coalition for Abandoned Mine Reclamation (WPCAMR) as a means to promote technology transfer among mine reclamation professionals and networking among watershed associations and agencies, consultants, colleges and institutions. (Resource Extraction)

Action Items: Continue to promote the Council for the Research and Reclamation of Disturbed Lands in PA Annual Meeting for the exchange of information about land reclamation. (Resource Extraction)

Action Items: Continue to update and promote the WPCAMR and EPCAMR websites and other educational activities as a source of information to everyone involved with mine reclamation. (Resource Extraction)

Action Items: Encourage participation by watershed associations and mine reclamation professionals in conferences and workgroups to discuss new and existing technologies. (Resource Extraction)

Action Items: Encourage sharing of information gathered by Acid Drainage Technology Initiative (ADTI) and other agencies and groups. (Resource Extraction)

Goal 5.

Assure implementation of appropriate best management practices to protect, improve and restore water quality by using or enhancing existing financial incentives, technical assistance, education and regulatory programs.

Objective: Continue to encourage and promote "Reclaim PA" as a cost-effective means to achieve reclamation of abandoned surface mines. (Resource Extraction)

Action Items: Continue to promote remining and reclamation initiatives in the context of a rigorous permitting and enforcement program to assure that current mining and reclamation practices will reduce, not increase, overall AMD. (Resource Extraction)

Action items: Continue use of Subchapters F and G regulations of the Commonwealth's coal mining regulations to allow previously mined areas with preexisting discharges to be mined under a revised set of water quality limits that impose no liability to treat the discharge unless the preexisting discharge is degraded as a result of the mining. (Resource Extraction)

Action items: Continue the use of the DEP Remining Operator's Assistance Program (ROAP) to make remining more attractive by alleviating some of the financial burden of preparing a permit application. ROAP pays engineering consultants for collection and analysis of hydrogeologic data required in a mining permit application. To use ROAP funds, mining operations must reclaim one or more highwalls, subsidence features, spoil piles, unvegetated coal refuse, abandoned buildings and structures, mine drainage pollution, and unsealed underground mine openings safety hazards. (Resource Extraction)

Action items: Encourage the use of the Bond Credits Program to allow an operator to earn bond credits by reclaiming abandoned mine lands under an agreement with DEP. An operator can use bond credits as collateral on any mining bond. (Resource Extraction)

Objective: Establish a system of long range planning, technical support, and financial assistance needs for AMD/AML systems and programs for local governments and watershed groups by 2009. (Resource Extraction)

Action items: Establish a dedicated and secure fund for the implementation, operation, maintenance and repair. Such as the establishment of local trust funds and grayfields / brownfields legislation. (Resource Extraction)

Action items: Use existing DEP and other agency regulatory programs to help achieve this goal. (Resource Extraction)

Objective: Encourage more use of sound science and innovative technology in beneficial uses of biosolids, alkaline coal ash, dredge, and other byproduct materials in reclamation by 2009. (Resource Extraction)

Action Items: Use regulations allowing a general permit for the beneficial use of dredged sediment, coal ash, cement kiln dust and lime kiln dust in mine reclamation. (Resource Extraction)

Action items: Use results of independent studies and reports to show that these materials can be used in a safe manner to benefit the environment and economy of towns with abandoned mine lands. (Resource Extraction)

Action items: Use Biosolids to be recycled and applied as a fertilizer to improve and maintain productive soils and stimulate plant growth under controlled conditions. Surface applications of biosolids on mine spoil increase soil moisture and fertility and provide a beneficial alternative to disposal of biosolids in landfills or incinerators. (Resource Extraction)

Action items: Use the Pennsylvania Joint Legislative Air and Water Pollution Control and Conservation Committee report on the beneficial use of coal fly ash in mine reclamation projects as an example in promotion of the beneficial use of these products. (Resource Extraction)

Action items: Continue to require extensive sampling and testing protocols to ensure the safety of the material being used. (Resource Extraction)

Action items: Continue to require suppliers of dredge material to conduct independent sampling and testing prior to the shipment of each 10,000 cubic yards of the dredged material and test the material again once the dredged material is mixed with the coal ash and kiln dust. (Resource Extraction)

Objectives: Promote the new Pennsylvania Energy Harvest Program, funded by a combination of sources including the Clean Air Fund, Growing Greener and U.S.

Department of Energy, as a means to use environmental problems as economic opportunities. (Resource Extraction)

Action Items: Promote state-of-the-art coal technologies that will fuel economic development and create new jobs by providing incentives for private investment in depressed areas. (Resource Extraction)

Action items: Use the Pennsylvania Energy Harvest initiative to provide the financial tools that will encourage clean and renewable energy projects from sources such as biomass, wind, solar, small-scale hydroelectric, landfill methane, coal-bed methane and waste-coal. (Resource Extraction)

Objective: Establish and implement a means for beneficial use of abandoned mine pools and mine discharges by 2009. (Resource Extraction)

Action Items: Inventory available land and water resources to determine where the most likely sites could be located, such as within or close to an urban area for industrial use and a rural area for a water supply. (Resource Extraction)

Action items: Work with county industrial development authorities and businesses to convince industry to move to the areas of the state where mine pool water is readily available. (Resource Extraction)

Action items: Encourage the DEP, PennVEST and the Department of Community and Economic Development take an active role in investigating incentives to use polluted mine water that would require some level of treatment before the discharge can be used as a water supply. (Resource Extraction)

Action items: Encourage manufacturing operations to use the billions of gallons of water stored underground in abandoned mine pools throughout the bituminous and anthracite coal fields as a water supply. (Resource Extraction)

Action items: Encourage additional incentives for the use of abandoned mine lands near mine pools by allowing restoration to a relatively flat grade rather than requiring reclamation to approximate original contour, to make a site better suited for building construction. (Resource Extraction)

Objective: Encourage and implement the redevelopment of abandoned mine lands for recreational, industrial, commercial and residential uses by 2009. (Resource Extraction)

Action item: Encourage the use of financial resources in the grayfields / brownfields legislation as an incentive for reuse of abandoned mine lands. (Resource Extraction)

Action items: Encourage development such as golf courses, campgrounds, ATV/Motor-cross Parks, horse back riding trails, snowmobile trails and shooting

ranges that would take the pressure off use of undeveloped lands for these purposes. (Resource Extraction)

Action items: Encourage financial incentives for developers to use these areas. (Resource Extraction)

Objective: Continue to encourage the use of coal refuse and waste coal to generate electricity and to refine technology that will convert waste coal to energy, thereby cleaning up refuse piles and reducing surface production of AMD. (Resource Extraction)

Action Items: Encourage coal refuse burning power plants to use waste coal, also known as boney piles, culm, coal refuse, to generate electricity using circulating fluidized bed technology (CFB). CFB's are considered by the EPA to be the best available control technology for reducing emissions from the burning of coal. (Resource Extraction)

Action items: Promote use of CFB produced waste in reclamation projects. The lighter ash collected in the fabric collector is called fly ash. CFB ash is alkaline because of the limestone added to control sulfur emissions. CFB ash is suitable for reclamation projects involving beneficiation of acid-producing materials and filling of surface-mine pits and deep-mine voids because of its low permeability and benign chemical properties. The ash can also used for beneficial use programs in reclamation of strip mines and as a soil enhancement additive for farming. (Resource Extraction)

Objective: Use existing sources of funding and encourage establishment of new sources of funding for reclamation and mine drainage treatment. (Resource Extraction)

Action Items: Use the following existing funding sources for reclamation and mine drainage treatment projects: (Resource Extraction); Growing Greener; Title IV of the federal Surface Mining Control and Reclamation Act (SMCRA); Bond Forfeiture; Reclamation-in-lieu of civil penalties; Government financed construction contracts; Act 2 Brownfields / Grayfields Legislation; PA DEP 319 Non Point Source Pollution Program; Clean Air Fund; U.S. Department of Energy; and U.S. Office of Surface Mining Appalachian Clean Streams Program.

Action items: Reauthorize the federal Surface Mining Control and Reclamation Act (SMCRA) and distribute funds where most needed. Legislation has been proposed to continue the program and accelerate the rate of reclamation for the most dangerous sites. Under proposed legislation, Pennsylvania would receive an initial increase of $11.4 million dollars annually, raising Pennsylvania’s share of cleanup funds from about $24.1 million yearly to $35.5 million, nearly a 50 percent increase (Resource Extraction)

B. AGRICULTURE

Agriculture is Pennsylvania's number one industry. The nonpoint source impacts of agriculture on the environment are also a major concern to Pennsylvania. Recent studies have shown that 39 percent of all nonpoint source pollution in Pennsylvania comes from agricultural lands. Examples of nonpoint source problems associated with agriculture include: erosion and resulting sedimentation of waterways, improper manure and fertilizer management, improper manure storage and unintended effects of pesticides. Significant state and federal efforts have been made to reduce soil erosion, sedimentation of waterways and other agriculture-related nonpoint source problems. State and federal program funds have been used to reduce nonpoint source pollution from agriculture.

Agriculture Incentive Programs

Incentive programs such as the Chesapeake Bay Program, the Environmental Quality Incentives Program (EQIP) and the federal Clean Water Act's Section 319 implementation program, work very well to address nonpoint source problems. Best Management Practice (BMP) implementation plays a large part in incentive programs. Incentive based programs are the desired method to address agricultural nonpoint source issues. There is a strong commitment to continue targeting programs to address agricultural nonpoint source challenges in Pennsylvania.

EQIP

This program was established in the 1996 Farm Bill, the Federal Agriculture Improvement and Reform Act of 1996 (PL104-127). It is a voluntary conservation program for farmers and ranchers who face serious threats to soil, water and related natural resources. It provides technical, financial and educational assistance primarily in designated priority areas. Half of the assistance is to be targeted to livestock related natural resource concerns and the remainder to other significant conservation priorities.

Local work groups convened by the county conservation district identified priority areas. The local work group is made up of representatives from Natural Resources Conservation Service (NRCS), Farm Service Agency (FSA), Cooperative Extension Service, and other federal, state and local agencies interested in natural resources. This local work group seeks input from the community regarding natural resource concerns and completes a natural resource assessment including wellhead protection areas. Based on the assessment, the local work group develops proposals for priority areas. Priority area proposals are submitted to the NRCS State Conservationist, who selects areas within the state based on recommendations from the State Technical Committee.

All EQIP activities must be carried out according to a conservation plan. All practices applied must meet NRCS Field Office Technical Guide standards. EQIP funding is

offered to producers through five to ten year contracts based on the producer's conservation plan. To learn more about EQIP go to: http://www.pa.nrcs.usda.gov/

Conservation Reserve Enhancement Program (CREP)

The Conservation Reserve Enhancement Program (CREP) provides technical and financial assistance to eligible farmers and ranchers to address soil, water, and related natural resource concerns on their lands in an environmentally beneficial and cost-effective manner. The program provides assistance to farmers and ranchers in complying with Federal, State, and tribal environmental laws, and encourages environmental enhancement. Pennsylvania has received USDA approval for three geographic areas. Pennsylvania proposes to increase enrollment in the existing Conservation Reserve Program (CRP) by 100,000 acres by compensating farmers for land rental to reduce nutrient and sediment loading in sections of the Susquehanna and Potomac River basins. The first phase Pennsylvania's CREP will target efforts in twenty (20) counties in the Susquehanna and Potomac River watersheds in the southern and central parts of the state. IN a phase II, Pennsylvania expanded the CREP to the other remaining watersheds Pennsylvania's portion of the Chesapeake Bay Basin. Pennsylvania recently received USDA approval to expand the CREP program to its Ohio River Basin watersheds. To learn more about CREO go to: http://www.pa.nrcs.usda.gov/programs/index.html

Chesapeake Bay Program

In 1983, Pennsylvania entered into an agreement with Maryland, Virginia, the District of Columbia, the Chesapeake Bay Commission, and the U.S. Environmental Protection Agency (U.S.E.P.A.) in the first step toward restoration of the Chesapeake Bay. In 1987, the second Chesapeake Bay Agreement was signed. This agreement established a goal of reducing the controllable nutrient loads measured during 1985 by 40 percent by the year 2000. The Bay Agreement and the 40 percent reduction goal were reaffirmed in 1992, and emphasis was placed on achieving the nutrient reductions by establishing reduction goals for each of the Bay's major tributaries.

The major tributaries within Pennsylvania draining into the Bay include the Susquehanna and Potomac Rivers. The Susquehanna River accounts for 93 percent and the Potomac River for six percent of Pennsylvania's 21,000 square miles of the 67,000 square mile Bay drainage area. Consequently, Pennsylvania's tributaries contribute a significant portion of the nutrient loads being transported to the Bay.

The Financial Assistance Program provides cost-share funds to landowners to correct nutrient management problems on their farms. Thirty-eight counties participate in the program. Cost-share funds are limited to 80 percent of the cost up to $30,000 of best management practices approved by the State Conservation Commission

To learn more about Pennsylvania's Chesapeake Bay program go to: http://www.dep.state.pa.us/hosting/pawatersheds/chesapeakebay/

Act 6 Plan Development Incentives Program

The Plan Development Incentive Program is a cost share program designed to assist existing livestock and poultry operations with costs associated in the development of nutrient management plans. This program was developed as an incentive to encourage participation of CAOs and other agriculture operations in the Nutrient Management Act program. An eligible applicant will receive a "one-time" cost share payment up to 75% of actual costs of plan development.

To learn more about the Act 6 funding go to:
http://panutrientmgmt.cas.psu.edu/main_financial_assist.htm

The Nutrient Management Grant Program is a cost share based grant program designed to provide assistance to Pennsylvania farmers with state-approved nutrient management plans who need to have plan identified best management practices (bps). The Nutrient Management Grant Program can provide up to 80 percent of the cost of implementing a bmp not to exceed $75,000 per plan.

To learn more about the is Act 6 program go to:
http://panutrientmgmt.cas.psu.edu/main_financial_assist.htm

Nonpoint Source Grants

The DEP, Bureau of Watershed Management sponsors passive treatment projects for the remediation of mine drainage pollution with funding through the Section 319 Grant. To learn more about the Section 319 program go to:
http://www.dep.state.pa.us/dep/deputate/watermgt/wc/subjects/nonpointsourcepollution/default.htm

Growing Greener Grants

The Environmental Stewardship and Watershed Protection Act authorizes the Department of Environmental Protection (DEP) to allocate nearly $547 million in grants for acid mine drainage abatement, mine cleanup efforts, abandoned oil and gas well plugging and local watershed-based conservation projects. These projects can include: watershed assessments and development of watershed restoration or protection plans; implementation of watershed restoration or protection projects (stormwater management wetlands, riparian buffer fencing and planting, streambank restoration (especially FGM), agricultural BMPs); construction of mine drainage remediation systems; reclamation of previously mined lands; and demonstration/education projects and outreach activities.

These grants are available to a variety of eligible applicants, including: counties, authorities and other municipalities; county conservation districts; watershed organizations; and other organizations involved in the restoration and protection of Pennsylvania's environment. These grants will support local projects to clean up non-point sources of pollution throughout Pennsylvania.

To learn more about Growing Greener go to:

http://www.dep.state.pa.us/growgreen/defaultdep.htm

Integrated Pest Management Program

The Pennsylvania Department of Agriculture and Pennsylvania State University cooperate to promote Integrated Pest Management (IPM) in the state. The mission of the IPM program is to promote effective pest control alternatives that result in the efficient protection of food, fiber, health, home and industrial resources in a manner that is profitable, safe, environmentally compatible and sustainable. This will be accomplished by supporting research to develop and/or improve IPM programs through public education of IPM practitioners, and implementation of IPM programs.

The Pennsylvania IPM Program is working to change attitudes about the use of pesticides in Pennsylvania. IPM by definition uses genetic, biologic, cultural and chemical tactics in some combination to control pest problems in a safe, economical and environmentally friendly manner. In this context, pesticides are now an IPM "team player" instead of being "the star and only game in town"! All pesticide use is now being promoted under the IPM umbrella. In consultation with the Pennsylvania IPM Program, the Department of Agriculture and the Pennsylvania Natural Resources Conservation Service have adopted this approach to pest control in recently released standards.

To learn more about IPM go to:
http://www.agriculture.state.pa.us/plantindustry/cwp/view.asp?a=3&q=120221&plantindustryNav=|

PA Clean Streams Law

The Pennsylvania Clean Streams Law, originally passed in 1937, is intended to "preserve and improve the purity of the waters of the Commonwealth for the protection of public health, animal and aquatic life, and for industrial consumption, and recreation…" Many of Pennsylvania's environmental regulations impacting water quality originate under this statute. Title 25 of the Pennsylvania Code covers many water resource issues including among them: NPDES permitting, Water Quality Standards, Erosion Control, Dam Safety and Waterway Management and Stormwater Management.

http://www.dep.state.pa.us/eps/default.asp?P=fldr2002aea3947001

Concentrated Animal Feeding Operations (CAFO) Strategy

The Department of Environmental Protection (DEP) has adopted a strategy for Concentrated Animal Feeding Operations (CAFO's). CAFOs are defined under the strategy as operations with either more than 1,000 animal equivalent units, or operations with 301 to 1,000 animal equivalent units which have the potential to discharge to surface waters. CAFOs are growing in size and number in Pennsylvania. The strategy integrates

tools that are already in place to control excess nutrient runoff, such as the Nutrient Management Act (Act 6), with the Chesapeake Bay Program's experience with the new permitting requirements. It is the intent of the strategy to ensure that all CAFOs are constructed and managed in an environmentally sound manner while also ensuring agricultural production that is profitable, economically feasible, and based on sound technology and practical production techniques. The final strategy for meeting federal requirements for controlling the water quality impacts of concentrated animal feeding operations is available on the department's Website at: http://www.dep.state.pa.us.

In compliance with the provisions of the Federal Clean Water Act, The Clean Streams Law (35 P.S. §§ 691.1-691.1001) and sections 1905-A, 1917-A and 1920-A of The Administrative Code of 1929 (71 P.S. §§ 510-5, 510-17 and 510-20), the Department of Environmental Protection (Department) has announced the availability of the Final Strategy for Meeting Federal Requirements for Controlling the Water Quality Impacts of Concentrated Animal Feeding Operations (CAFO Strategy) and the related administrative and permit documents supporting this CAFO Strategy.

http://www.dep.state.pa.us/dep/deputate/watermgt/wqp/wqp_wm/cafo_home.htm

http://cfpub.epa.gov/npdes/afo/info.cfm

Objectives/Action Items of the Agriculture Workgroup

Goal 1 (a combination of the first two goals presented for the June 2 meeting)

Improve and protect water resources as a result of nonpoint source program implementation efforts. Show water resource improvements by measuring reductions in sediments, nutrients and metals or increases in aquatic life use, riparian habitat, wetlands, or public health benefits. By 2012, through combined program efforts, return 500 miles of streams and 1600 lake acres that are identified by the state as not supporting adequate fish and aquatic life because of nonpoint source sources of pollution back to streams and lakes that support acceptable fish and aquatic life.

Objective: Track Agricultural BMP implementation and measure reductions in sediment, nutrients, and pathogens. Track designated use attainment in watersheds where agriculture is the major source of impairment. Develop a database to collect this information on a watershed basis, by 2008. (Agriculture)

> Action Items: Develop a GIS-based system that can be used by conservation districts, the Coastal NPS Pollution Program, NRCS, and DEP to track BMP implementation. (Agriculture)
>
> Action Items: Develop a database to collect this information on a watershed basis, by 2008. (Agriculture)

Action Items: Provide training for database use and begin implementation. (Agriculture)

Action Items: Use local monitoring data to evaluate agriculture- impaired waterbodies and help determine whether these waterbodies can be removed from the 303(d) list of impaired waterbodies. (Agriculture)

Action Items: The Pa DEP should help to prioritize agriculture-impaired watersheds.
Continue and expand sediment and nutrient monitoring and trends analysis to measure progress in meeting Pennsylvania's Chesapeake Bay Tributary strategies. (Agriculture)

Goal 2 (was goal 3)

Coordinate with watershed groups, local governments, authorities and landowners to promote and support the development, implementation and evaluation of # watershed plans to conserve, protect and restore surface and groundwater quality.

Objective: Increase involvement of agricultural producers in watershed planning and implementation efforts by 2008. (Agriculture)

Action Items: By 2008 all watershed planning groups addressing agricultural lands will have at least one local agricultural producer. (Agriculture)

Action Items: Create and /or enhance tools, review grants for agriculture, to ensure they include education and outreach components for agricultural producers. (Agriculture)

Action Items: Promote to the agricultural community and watershed organizations the importance of local agricultural producers being involved in watershed planning efforts. (Agriculture)

Goal 3. (was goal 4.)

Improve and develop monitoring and tracking efforts to determine if how projects and programs improve water quality and / or meet target pollution reductions including TMDLs.

Objective: Increase accessibility of local, state, regional water quality data to decision makers, watershed organizations and producers. By 2008 all county conservation districts, local, state, and federal programs will use water quality data to target water quality restoration and protection efforts. (Agriculture)

Action Items: Make the Pa DEP water quality data available to local groups. (Agriculture)

Action Items: Establish a Water Quality E-Atlas of water quality data using (by consolidating) existing water quality data. (Agriculture)

Objective: Establish 5 water-quality monitoring sites per year (annually) to assess the effectiveness of agricultural practices or actions, to obtain baseline data. (Agriculture)

Action Items: Target sites to small watersheds where concentrated implementation efforts are being made. (Agriculture)

Action Items: Utilize water quality monitoring data to document water quality improvements including sediment, nutrients, and other agriculture-related pollutant reductions. (Agriculture)

Goal 4. (was goal 5.)

Encourage development and use of new technologies, tools, and technology transfer practices, to enhance understanding and use of techniques for addressing nonpoint source pollution.

Objective: Assess feasibility of nutrient trading using the Conestoga River watershed pilot by 2008. (Agriculture)

Action Item: Encourage report review and determine possible next steps. (Agriculture)

Objective: Increase the adoption of cost-effective best management practices to minimize ammonia emissions and protect/improve air quality on 1,000 farms by 2012. (Agriculture)

Action Item: Determine cost-effective BMPs, develop standards, help producers implement those BMPs, develop incentives and provide educational programs. (Agriculture)

Objective: Facilitate 4 projects by 2008 demonstrating market-based opportunities to address agricultural water quality issues. (Agriculture)

Action Item: Provide financial assistance, i.e. Energy Harvest Grants, to complete these projects. (Agriculture)

Objective: Protect, improve or restore water quality by using new incentives to promote implementation of proven, new and innovative technologies and management systems

(conservation tillage, composting, etc.) identified to be environmentally sound and economically feasible. Achieve 4 by 2008. (Agriculture)

Action Items: Identify practices that need new initiatives. (Agriculture)

Action Items: Develop practice standards. (Agriculture)

Action Items: Secure adequate funding for implementation. (Agriculture)

Action Items: Provide technical assistance. (Agriculture)

Goal 5. (was goal 6.)

Assure implementation of appropriate best management practices to protect, improve and restore water quality by using or enhancing existing financial incentives, technical assistance, education and regulatory programs.

Objective: By 2012 increase farmer participation in environmental stewardship on-site assessment and certification activities (PEACCE, OFAER, etc.) by 250 producers. (Agriculture)

Action Item: Provide training and implementation support for PEACCE and other agricultural producer assessment and certification programs. (Agriculture)

Objective: By 2012, increase nutrient management, soil conservation and agronomic management (for purposes of water quality protection) educational efforts to producers, program and technical support staff, and agribusiness by 20%. (Agriculture)

Action Items: Increase implementation resources. (Agriculture)

Action Items: Develop education and outreach efforts. (Agriculture)

Objective: Track nutrient management plan implementation on all Confined Animal Operations (CAOs), Confined Animal Feeding Operations (CAFOs), financial assistance farms, volunteers, and where required by state/federal mandate. (Agriculture)

Action Items: Track nutrient management planning reviews to document nutrient management plan implementation. (Agriculture)

Action Items: Utilize the Pa DEP CAFO program as a benchmark for CAFO compliance. (Agriculture)

Action Items: Utilize other program information. (Agriculture)

Action Items: Publicize nutrient management program implementation success annually. (Agriculture)

Objective: By 2012, expand Pennsylvania's Conservation Reserve Enhancement Program (CREP) to include the entire state. (Agriculture)

Action Items: Submit the Delaware River basin CREP proposal to the USDA. (Agriculture)

Action Items: When approved, implement the Delaware River basin CREP proposal goals. (Agriculture)

Action Items: Provide continued statewide funding for implementation of the CREP in Pennsylvania. (Agriculture)

Objective: Develop and fully implement a Manure Hauler and Broker Certification program by 2006. (Agriculture)

Action Items: Develop program criteria that includes training for hauler and broker certification. (Agriculture)

Action Items: Achieve 100% participation in education, continuing education training, and certification by 2006. (Agriculture)

Action Items: Provide a continuing statewide education and certification program. (Agriculture)

Objective: Increase accessibility to agriculture air-water research data and information through workshops, print media, and the internet by 2012. (Agriculture)

Action Items: Develop and include links to existing web sites. (Agriculture)

Action Items: Develop an agricultural air-water research information brochure. (Agriculture)

Action Items: Hold a minimum of two technical information workshops. (Agriculture)

Objective: Facilitate conservation planning and implementation efforts, and track conservation planning and implementation to achieve 100% compliance by 2012. (Agriculture)

Action Items: Provide additional technical & financial resources and training to successfully implement this effort. (Agriculture)

Action Items: Streamline county conservation district and USDA-NRCS tracking efforts so that county / statewide data is easily obtainable upon request. (Agriculture)

Objective: Develop and implement a Mushroom Farm Environmental Management Plan (MFEMP) for all sites utilizing mushroom substrate (MS) and spent mushroom substrate (SMS) by 2012. (Agriculture)

Action Items: Seek funding to support MFEMP development. (Agriculture)

Action Items: Implement cost-sharing for MFEMP implementation. (Agriculture)

Action Items: Develop a method, if not already available, to track implementation. (Agriculture)

Objective: By 2008 complete 4 projects, which implement alternative use technologies for spent mushroom substrate (SMS). (Agriculture)

C. CONSTRUCTION/URBAN RUNOFF

This nonpoint source pollution category encompasses two major subcategories, highway construction, and new land development that includes residential, industrial, commercial, institutional and recreational construction. Uncontrolled runoff from these construction sites can cause significant soil erosion and localized sediment pollution in streams and other water bodies.

The Commonwealth has a well-established and nationally recognized Erosion and Sediment Pollution Control (E & SPC) Program. Pennsylvania's E & SPC Program is administered by the Department and county conservation districts coordinated through a delegation of the Department's authorities to county conservation districts. Joint responsibilities for program implementation include the processing and issuance of permits, complaint investigations, site inspections, compliance and enforcement. BMPs are reviewed for design and performance effectiveness through permit plan reviews and periodic site inspections at the construction site.

Standards and criteria for minimizing erosion and preventing sediment pollution are contained within the Department's Chapter 102 rules and regulations as authorized under the Clean Streams Law. These regulations apply to any earth disturbance activity including land development; and road, highway and bridge construction. Chapter 102 requires that an erosion and sediment pollution control plan be developed and implemented for earth disturbance activities. Each plan must specify the control measures and facilities (BMPs) that will be used to minimize erosion and prevent sediment pollution from the earth disturbance activity. The NPDES (National Pollutant Discharge

Elimination System) Permit Program for Stormwater Discharges from Construction Activities integrates the Commonwealth's Erosion Control requirements.

Both the Department and county conservation districts facilitate implementation of BMPs by conducting numerous training seminars and workshops for persons, municipalities and other parties engaged in undertaking earth disturbance activities. The Department provides direct support, training and financial assistance to county conservation districts to maintain their proficiency and program involvement.

Dirt and Gravel Road Initiative

The Task Force on Dirt and Gravel Roads was formed in 1993 to address the environmental impacts of sediment and dust generated by the use and maintenance of some 28,000 miles of unpaved roads in the Commonwealth. The task force received a Section 319 Grant for developing a monitoring program and for developing maintenance techniques/standards.

Storm Water Management

The Bureau of Watershed Conservation administers Pennsylvania's stormwater management program mandated by the Storm Water Management Act, 32 P.S. 680.1 *et seq.* The Act requires counties to prepare watershed stormwater management plans for designated watersheds. The plans consider hydrologic and hydraulic effects of changes in land use and the quantitative and qualitative impacts on receiving streams. Nonpoint source pollution may be considered as one of the components in a plan. The specific issues addressed are: a. identification of critical NPS sub-watersheds based on annual loadings; b. estimation of annual pollutant loadings under existing and future land use conditions; c. application of water quality modeling techniques to derive standards and criteria for use by municipalities; d. identification of Best Management Practices (BMPs) applicable to the watershed; and e. evaluation of the effectiveness of BMPs. These water quality issues and associated BMPs are generally addressed as the counties carry out the planning process.

When a water quality component is considered, the watershed plan will provide standards and criteria for the nonpoint source water quality controls associated with new development activities. Applicable structural and nonstructural BMPs are recommended within those plans which are unique to the watersheds. The standards and criteria in the plan are implemented by local municipalities through their codes and ordinances.

The BWC administers a grant program in accordance with the Storm Water Management Act, 32 P.S. 680.1 et seq., for county preparation of stormwater management plans for designated watersheds.. The stormwater management plans emphasize the management of surface waters so that new developments or activities in each municipality within a watershed do not adversely affect health, safety or property in that municipality or in other municipalities or basins. The Bureau of Watershed Conservation reviews and approves all watershed stormwater management plans and subsequent revisions.

Stormwater Management Act

Act 167, the Stormwater Management Act, regulates stormwater runoff from land alteration through stormwater management plans developed by the county governments and implemented through local municipal ordinances. The watersheds designated by Act 167 encompass a main stream and all of its tributaries and may encompass several hundred square miles. In a watershed having an approved Watershed Stormwater Management Plan, anyone engaged in the alteration or development of the land which promotes earth disturbance or alters the stormwater runoff characteristics, must comply with the requirements Act of 167. Where there is no approved plan, the regulation of stormwater is under the authority of the Municipalities Planning Code and the applicable class code.

Objectives/Action Items of the Urban/Stormwater Workgroup

Goal 1

Improve and protect water resources as a result of nonpoint source program implementation efforts. Show water resource improvements by measuring reductions in sediments, nutrients and metals or increases in aquatic life use, riparian habitat, wetlands, or public health benefits. By 2012, through combined program efforts, return 500 miles of streams and 1600 lake acres that are identified by the state as not supporting adequate fish and aquatic life because of nonpoint sources of pollution back to streams and lakes that support acceptable fish and aquatic life.

Objective: Reduce stormwater impairments that are caused by construction, dirt and gravel roads, and urban runoff by 2009. (Construction/Urban)

Action Item: Require counties to develop Act 167 watershed management plans, and municipalities to implement the plan requirements. (Construction/Urban)

Action Item: Continue to require the implementation of stormwater ordinances that address water quality for all municipalities. (Construction/Urban)

Action Item: Encourage the development and implementation of municipal stormwater ordinances that address water quality that are outside the scope of current Act 167 plans or MS4 requirements.

Action Item: Encourage and endorse long-term maintenance (O&M) of post construction stormwater management BMPs. (Construction/Urban)

Action Item: Require local, state, and federal agencies to incorporate water quality standards and practices into their planning, design, construction and maintenance procedures through the regulatory process. (Construction/Urban)

Action Item: When prioritizing funding through state or federal grant programs, encourage and require where appropriate, stormwater management retrofit and /or restoration activities. (Construction/Urban)

Goal 2 (was goal 3)

Coordinate with watershed groups, local governments, authorities and landowners to promote and support the development, implementation and evaluation of _#_ watershed plans to conserve, protect and restore surface and groundwater quality.

Objective: Involve municipal officials, county planning officials, local stakeholders, watershed groups, and other local advocate groups by 2009. (Construction/Urban)

Action Item: Develop and implement a tiered delivery system for local stakeholders, interest groups, and other local environmental advocates. (Construction/Urban)

Action Item: Establish priority areas to target outreach efforts. (Construction/Urban)

Action Item: Educate target stakeholders such as, developers, designers, solicitors, engineers, municipal officials, etc. on innovative techniques, **hydrologic and infiltration processes**. (Construction/Urban)

Action Item: Establish a mechanism to communicate and coordinate the follow-up on outreach efforts. (Construction/Urban Promote adoption and implementation by municipalities of model ordinances that promote water quality protection. (Construction/Urban)

Action Item: Develop more flexible design criteria and standards that promote water quality protection. (Construction/Urban)

Action Item: Encourage planning and implementation of zoning strategies that are compatible with environmentally sensitive areas **and include low impact development techniques**. (Construction/Urban).

Action Item: Replicate successful outreach efforts, i.e. “Builders for the Bay” in other watersheds. (Construction/Urban)

Objective: Past and present planning efforts by federal and state transportation agencies have concentrated primarily on addressing interstate road standards. Identify practical applications of good design criteria, construction and or maintenance standards that can be adopted by local governments by 2009. (Construction/Urban)

Action Item: Update revise PennDOT's guide to local roads handbook. (Construction/Urban)

Action Item: Coordinate with the Federal Highways Administration to update and revise their low volume road standards. (Construction/Urban)

Action Item: Continue to pursue opportunities to promote and implement demonstration projects that utilize good design, construction and maintenance techniques. (Construction/Urban)

Goal 3. (was goal 4.)

Improve and develop monitoring and tracking efforts to determine if projects and programs improve water quality and / or meet target pollution reductions including TMDLs.

Objective: Track and report on existing regulatory and non-regulatory program requirements and the potential effect they have on protecting and maintaining water quality on an annual basis. (Construction/Urban)

Action Item: Provide report(s) on program activities, which identify effective best management practices that reduces pollutant levels from urban development and dirt and gravel road maintenance activities. (Construction/Urban)

Action Item: Develop, update and revise program guidance documents and reference manuals to reflect regulatory or non-regulatory changes. (Construction/Urban)

Action Item: Publicize, distribute and provide training for the use innovative measures that integrate runoff planning and design for construction and permanent storm water management**.** (Construction/Urban)

Action Item: Provide training to enhance understanding of hydrologic and infiltration processes as they relate to the implementation of specific nonpoint source stormwater management practices. (Construction/Urban)

Action Item: Continue and enhance yearly technical training sessions and conduct program evaluations to ensure consistent, technically sound program administration by county conservation districts and DEP regional offices. (Construction/Urban)

Action Item: Encourage flexibility and new technology and require the use of performance-based criteria for BMPs. (Construction/Urban)

<u>Goal 4</u>. (was goal 5.)

Encourage development and use of new technologies, tools, and technology transfer practices, to enhance understanding and use of techniques for addressing nonpoint source pollution.

Objective: Establishment of a clearinghouse to serve as a resource center that identifies appropriate best management practice effectiveness, research, and technical and non-technical standards by 2009. (Construction/Urban)

Action Item: Publicize new approaches and technologies. (Construction/Urban)

Action Item: Identify success stories and failures/lessons learned regarding structural and non-structural BMPs. (Construction/Urban)

Action Item: Establish web links to research sites such as VUSP, PSU, EPA, and Center for Watershed Protection, and the Pennsylvania Housing Research Center etc. (Construction/Urban)

Action Item: Promote the use of green engineering, low impact development, environmentally sensitive site design, and other "big picture" site design and planning concepts. (Construction/Urban)

Action Item: Publicize, distribute and provide general support for the use of DEP's post construction stormwater BMP manual. (Construction/Urban)

Action Item: Identify research, pilot and demonstration projects that focus on protecting public health and safety, protect surface and ground water quality, and that focus and special or sensitive land features. (Construction/Urban)

Action Item: Develop a resource list of common BMPs that the regulated community can utilize. (Construction/Urban)

Action Item: Identify baseline modeling engineering standards and assumptions, and determine the need for better prediction tools. (Construction/Urban)

Goal 5. (was goal 6)

Assure implementation of appropriate best management practices to protect, improve and restore water quality by using or enhancing existing financial incentives, technical assistance, education and regulatory programs.

Objective: Establish a system of long range planning, technical support, and financial assistance needs for stormwater management systems and programs for local governments by 2009. (Construction/Urban).

> Action Item: Continue promotion of PENNVEST funding for municipal stormwater projects to assist municipalities in meeting future NPDES stormwater permit requirements. (Construction/Urban)
>
> Action Item: Develop a two tiered system to process, and fund municipal implementation for the Act 167 program. (Construction/Urban)
>
> Action Item: Encourage the development and integration of innovative funding mechanisms that provide long-term financial assistance to conservation districts, municipalities and other local stakeholders. (Construction/Urban)

D. HYDROLOGIC/HABITAT MODIFICATION

Indirect changes in hydrology that result in nonpoint pollution include: changing land uses, increasing impervious surface areas, lack of stormwater management, lack of floodplain management, unlimited livestock access to streams and removal of riparian vegetation. Hydrologic modification such as channelization, dredging, dam construction, bridge construction and any encroachment into a body of water or watercourse are regulated in Pennsylvania and require permits.

WATERWAYS AND WETLAND PROTECTION

The Pennsylvania Department of Environmental Protection's (DEP) jurisdiction for protecting watercourses, floodways and bodies of water (including lakes and wetlands), is primarily established by the Dam Safety and Encroachments Act of 1978. New, amended regulations became effective October 12, 1991. Since March 1, 1995, DEP has been given authority to issue federal Section 404 authorization along with state permit approvals for most projects through the Pennsylvania State Programmatic General Permit (PASPGP-2). This provides "one-stop shopping" for approximately 85 percent of the state and federal permit applications received. The remaining 15 percent of the Chapter 105/Section 10 or 404 permit applications are individually reviewed by both DEP and the United States Army Corps of Engineers (USACOE). Permitting and enforcement are housed within the Soils and Waterways Section in the DEP Regional Offices. Program development and coordination is provided by the Division of

Waterways, Wetlands and Erosion Control in the Bureau of Watershed Management. All permit applications are reviewed for impacts to the environment, as well as, effects on public health and safety. Special protection is provided for Exceptional Value Wetlands. Mitigation for wetland impacts is required for permitted activities.

Thirty (30) of Pennsylvania's 66 county conservation districts have Chapter 105 Delegation Agreements with the Department. The basic duties of each district are to: 1) provide information and written materials to the general public on the Dam Safety and Encroachments Act and Chapter 105 regulations, 2) register general permits, and 3) perform on-site investigations as the first step to gain voluntary compliance.

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DEP WETLANDS INITIATIVES

Since 1990, 6,052.9 acres of wetlands have been created or restored through permitting programs and private land initiatives, more than offsetting the 1014.2 acres of permitted losses under the state program during the same timeframe. These initiatives include:

Pennsylvania Wetland Replacement Project <http://www.dep.state.pa.us/dep/deputate/watermgt/WQP/WQP WWEC/GENERAL/WETLANDS/FUND.htm>(PWRP)

The Department, in cooperation with the National Fish and Wildlife Foundation, has established the PWRP, a fund to assist permit applicants in meeting the wetland replacement requirements in the Chapter 105 regulations. The fund minimizes the regulatory burden on the permit applicants while providing an avenue for viable and productive wetland restoration projects.

Wetland Restoration/Creation Site Registry

The Wetland Registry's purpose is to link property owners who desire to have wetlands created or restored on their property, with individuals who are required to replace wetlands as a result of permitting actions authorized by the Department. Environmental organizations or other such groups are also encouraged to use the wetland registry when looking for wetland restoration project sites.

Pennsylvania Department of Transportation Wetland Bank

In the mid 1990's Pennsylvania Department of Transportation (PADOT) Engineering District 9 approached DEP and other resource agencies about creating a wetland mitigation bank to offset wetland impacts associated with transportation infrastructure construction and improvements. Those early discussions lead to the construction of several wetland mitigation banks within the PADOT District 9 over the next 5 years. Based on the early successes of those projects in June 2002 PADOT and the regulatory agencies approved a statewide Wetland Mitigation Banking Agreement for use

throughout the Commonwealth. These agreements outline the relationship, duties, and responsibilities for each of the various resource and permitting agencies. The District 9 agreement was used as a template for the statewide agreement and the individual agreements used by Districts 2 and 3. All PADOT Districts are now using the new statewide agreement for the development of mitigation banks. The mitigation banks are designated to capture the small impacts associated with small infrastructure improvements and maintenance activities.

The Pennsylvania Handbook of Best Management Practices for Developing Areas

This handbook is intended to be a site planning and best management practice (BMP) selection guide for local authorities, planners, contractors and others involved with planning, designing, reviewing, approving and building development projects. The handbook targets accelerated soil erosion and sedimentation and management of stormwater runoff, because these are the primary issues covered by local, state, and federal regulations that apply to development projects. Related issues such as water quality protection, watershed management and wildlife habitat are covered as a secondary consideration to the extent that many of the planning principles and practices that are recommended for erosion control or stormwater management also may provide benefits in this areas. As the field of watershed management continues to evolve, the handbook will change to reflect improvements in our understanding of the design and use of BMPs.

FLOOD PLAIN MANAGEMENT

Regulation of the use of flood plain lands is a responsibility of state and local governments. Flood prone communities in the National Flood Insurance Program (NFIP) are required to adopt and enforce such flood plain regulations to qualify for the sale of federally-backed insurance to its residents. Areas that are prone to flooding and 100-year flood levels are shown on **Flood Insurance Rate Maps (FIRMs)** for communities that participate in NFIP.

The Department of Community and Economic Development (DCED) administers the Act 166 reimbursement program and provides technical assistance in flood plain management to local municipalities. The agency also provides financial assistance to help municipalities defray their administrative and enforcement costs associated with local floodplain management regulations. DCED receives $60,000 per year from the Federal Emergency Management Agency (FEMA). These funds are being used to develop local capacity in the flood plain management regulations and implementation. DCED is in the process of contracting with 11 county conservation districts to carry on the program. These are all districts that have experience running the program. The conservation districts visit each municipality to review the Flood Plain Management Regulations and the local ordinances, and discuss how they are being implemented within the municipality. Additional funding is needed to expand the program to all counties.

WATERSHED PROTECTION AND FLOOD PREVENTION PROGRAM (PL 83-566)

This program authorizes the Secretary of Agriculture to conduct investigations and surveys of water and related land resources in cooperation with other agencies and to provide technical and financial assistance to local organizations for planning and carrying out watershed projects. The program is versatile and has its strength in taking a comprehensive approach to solving water resource problems such as flood control, flood plain management including urban runoff, agricultural NPS challenges and abandoned mine drainage problems. Projects are developed on a watershed basis. The program emphasizes planning through interdisciplinary teams that include the sponsors, other agencies and private organizations.

EMERGENCY WATERSHED PROTECTION (EWP)

The program provides technical and financial assistance to local units of government to relieve imminent hazards to life and property created by natural disasters that cause sudden impairment of a watershed. Emergency measures are implemented to reduce threats to life or property by retarding runoff to prevent flooding or soil erosion.

SECTION 206 OF THE FLOOD CONTROL ACT OF 1960

Section 206 of the Flood Control Act of 1960, as amended, provides authority for the U.S. Army Corps of Engineers (USACOE) to use its technical expertise in flood plain management matters to help both public and private interests. Upon request, the USACOE will develop flood plain information and technical assistance needed in planning the prudent use of lands subject to flooding from streams and lakes.

HAZARD MITIGATION GRANT PROGRAM (PL 93-288)

Funding is available under the Hazard Mitigation Grant Program which is Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (PL 93-288). The program's authority was recently amended to provide funds to states and communities to fund 75 percent of the cost of post-disaster mitigation projects. Typical projects may include: providing technical and/or financial assistance to property owners; structural hazard control such as debris basins; flood proofing and elevating buildings; acquisition and relocation; and development of state and local standards to protect new and substantially improved buildings from disaster damage. The amount of funds available is based on a percentage of the total federal Disaster Relief/Recovery Assistance made available under a presidentially declared major disaster.

SECTION 553 OF THE NATIONAL FLOOD INSURANCE REFORM ACT

A new program, funded by NFIP, provides assistance under Section 553 of the National Flood Insurance Reform Act (PL 103-325). This program provides flood damage mitigation funding at any time before or after a disaster and is known as the Flood Mitigation Assistance Program. Predisaster or mitigation planning is a prerequisite.

WATER RESOURCES DEVELOPMENT ACT (WRDA)

The Water Resources Development Act (WRDA) of 1986 was amended in 1988 to change the status of the program from temporary to permanent. Section 1135 of WRDA aims to restore fish and wildlife habitat that has been negatively impacted by U.S. Army Corps of Engineers civil works projects. Restoration practices are implemented through cost-share assistance between federal and nonfederal sponsors. Typical sponsorship consists of 75 percent Federal funding, and 25 percent nonfederal funding. Total costs for any project under the Section 1135 Program cannot exceed $5 million.

EMERGENCY MANAGEMENT INSTITUTE

The Emergency Management Institute was established in Emmitsburg, Maryland to provide training to the international emergency management community. It currently provides instruction on: (1) managing flood plain development for the NFIP; (2) retrofitting existing flood prone buildings; (3) natural hazard mitigation and recovery; and (4) digital flood insurance rate maps.

NATIONAL TECHNICAL INFORMATION SERVICE (NTIS)

The National Technical Information Service (NTIS) is a federal organization that serves as a scientific, technical, and engineering information clearing house, selling technical information products, and services in the public interest. NTIS maintains an information center and bookstore.

ASSOCIATION OF FLOOD PLAIN MANAGERS (ASFPM)

The Association of Flood Plain Managers (ASFPM**)** is a good source of information for many government flood plain management programs. The Mitigation Committee, for instance, focuses on post disaster activities, including programs that can provide funding help to property owners. The Floodproofing/Retrofitting Committee has been very helpful in coordinating and publicizing federal, state, and local flood proofing activities. The maps and Mapping Committee is active in pursuing new mapping techniques and Geographic Information Systems. The association is primarily an organization that represents state agencies who are the lead agencies for their respective states' floodplain management programs. These agencies also usually serve as the state coordinator agency for the NFIP.

FLOODPLAIN MANAGEMENT RESOURCE CENTER

The ASFPM has established the Floodplain Management Resource Center in Boulder, Colorado, as a public service. The Center houses a large number of documents, as well as, the nation's largest collection of documents on retrofitting. Assistance is provided in securing documents, copies of those out of print, or summaries of documents.

Municipalities, watershed associations and conservation districts are key organizations in managing NPS challenges in hydromodification activities at the grassroots level.

Objectives/Action Items of the Hydromodification Workgroup

Goal 1 *(a combination of the first two goals presented for the June 2 meeting)*

Improve and protect water resources as a result of nonpoint source program implementation efforts. Show water resource improvements by measuring reductions in sediments, nutrients and metals or increases in aquatic life use, riparian habitat, wetlands, or public health benefits. By 2012, through combined program efforts, return 500 miles of streams and 1600 lake acres that are identified by the state as not supporting adequate fish and aquatic life because of nonpoint source sources of pollution back to streams and lakes that support acceptable fish and aquatic life.

Objective: Modify or remove dams and implement Natural Stream Channel Design measures when applicable. (Hydromodification)

> Action item: Increase the annual modification or removal of dams from 7 to 10 by the end of 2009 (Hydromodification)
>
> Action Item: By the end of 2005, establish a technical review committee for the purpose of evaluating stream habitat subsequent of dam modification/removal to determine whether Natural Stream Channel Design measures are warranted. (Hydromodification)

Objective: Where flood protection projects, both new and existing, are necessary, promote NSCD measures to minimize ecological impacts (Hydromodification)

> Action item: Design and construct one project by the end of 2009. (Hydromodification)
>
> Action item: Retrofit 6 projects by end of 2009. (Hydromodification)

Objective: Promote implementation of NSCD projects on waterways that are impacted by sediment. (Hydromodification)

Goal 2 (was goal 3)

Coordinate with watershed groups, local governments, authorities and landowners to promote and support the development, implementation and evaluation of __#__ watershed plans to conserve, protect and restore surface and groundwater quality.

Objective: Encourage all watershed groups and others interested in doing stream channel restoration to refer to the ***Guidelines For Natural Stream channel Design for Pennsylvania Waterways*** and do a holistic physical assessment that lead to restoration plans that allow for prioritization of projects (Hydromodification)

Objective: Continue to update the ***Guidelines For Natural Stream channel Design for Pennsylvania Waterways.***

Objective: Establish a mechanism for operation, maintenance, and repair (O & M) of projects to ensure that water quality improvements are maintained. (Hydromodification/Resource Extraction)

Goal 3. (was goal 4.)

Improve and develop monitoring and tracking efforts to determine if projects and programs improve water quality and / or meet target pollution reductions including TMDLs.

Objective: Establish Monitoring protocol on Natural Stream Channel Design with the goal of measuring environmental results. (Hydromodification)

> Action Item: Citizen Volunteer Monitoring Program (CVMP) to develop and package protocol for training volunteer monitors by the end of 2005. (Hydromodification)
>
> Action Item: Inform public through the Stream Summit and train conservation district watershed specialists by the end of 2006. (Hydromodification)
>
> Action Item: By the end of 2007, the Keystone Stream Team will develop a monitoring program to evaluate success of NSCD projects. (Hydromodification)
>
> Action Item: Monitor and evaluate the impact of bridge and culverts for flood damage, erosion, and habitat modification by the end of 2008. (Hydromodification)

Objective: Evaluate, quantify, and document aquatic habitat loss resulting from surface water and groundwater withdrawals. (Hydromodification)

> Action Item: By the end of 2009, secure necessary funding and implement the "Delaware River Basin Instream Flow Study". (Hydromodification)

Goal 4. (was goal 5.)

Encourage development and use of new technologies, tools, and technology transfer practices, to enhance understanding and use of techniques for addressing nonpoint source pollution.

Objective: Adopt a stream classification system(s) in order to be better able to communicate about stream channels. This would also facilitate communication on the main principles that operate in the processes of river mechanics and maintenance. (Hydromodification)

Action Item: Convene a meeting of affected partners to adopt a stream classification system(s) by the end of 2005. (Hydromodification)

Action Item: Communicate recommended classification system(s) to affected partners by the end of 2006. (Hydromodification)

Action Item: By the end of 2007, get recommended classification system(s) adopted by affected partners. (Hydromodification)

Goal 5. (was goal 6)

Assure implementation of appropriate best management practices to protect, improve and restore water quality by using or enhancing existing financial incentives, technical assistance, education and regulatory programs.

Objective: Promote a general understanding of channel maintenance and its impact on channel function. (Hydromodification)

Action Item: Develop a fact sheet on dredging and stream corridor management by the end of 2005 (Hydromodification)

Action Item: Promote the use of fluvial geomorphology in evaluating and restoring streams when appropriate (i.e. the stream channel is unstable.) (Hydromodification)

Action Item: Promote the use of soil-bioengineering and other techniques to lessen the negative impacts of hard techniques that may be needed to protect infrastructure by supporting the annual stream summit. (Hydromodification)

Action Item: Promote inter-agency cooperation and collaboration in addressing stream channel restoration by designating a representative from such agencies as DEP, PennDOT, DCNR, Fish and Boat Commission, Pa Game Commission, USDA, USCOE, US Department of Interior and FEMA to participate with the Keystone Stream Team by the end of 2005. (Hydromodification)

Objective: Promote the Keystone Stream Team as the mechanism to facilitate the transfer of information on Natural Stream Channel Design. (Hydromodification)

Action Item: Develop a cost range for assessing, design and construction of natural stream channel design projects by the end of 2005. (Hydromodification)

Action Item: Develop a mechanism to distribute the cost range information to agencies, nonprofits, and watershed organizations.

Action Item: Continue definition of regional characteristics related to sediment transport, regional curves, reference reaches, etc., by the end of 2005. (Hydromodification)

Action Item: Develop a team to evaluate the functionality/success of existing natural stream channel design projects by the end of 2006. (Hydromodification)

Action Item: Develop web-based database to store and share FGM data that will be collected on natural stream channel design projects in Pennsylvania by the end of 2006. (Hydromodification)

Action Item: Develop a mechanism to teach potential users how to use the web-based Natural Stream Channel Design database.

Action Item: Establish a process to facilitate pre-project planning, peer review of projects and promote the transfer of technology by the end of 2007. (Hydromodification)

Objective: Increase the number of municipalities effectively implementing floodplain and stormwater management measures. (Hydromodification)

Action Item: Enforce Act 167 requirements to manage stormwater and maintain stream channel stabilization (Hydromodification)

Action Item: Have adequate funding levels to continue the conservation district " community assisted visits and contacts " to municipalities (Hydromodification)

Action Item: Increase outreach efforts in the Floodplain Management Program to continually re-train since there is a perpetual turnover of municipal officials. (Hydromodification)

Objective: Establish a dedicated and secure fund for the implementation, operation, maintenance and repair for natural stream channel design projects by the end of 2008 (Hydromodification)

E. LAKES

Section 314 of the Clean Water Act focuses on lakes. Clean Lakes initiatives are now funded through Section 319. Pennsylvania has approximately 4,000 lakes, ponds and reservoirs that total about 161,000 water acres. The State's Park System includes 150 lakes and ponds located in 72 different parks and include a total of 33,460 water acres. Boating, swimming, fishing and other recreational activities are often a part of a lake community. Pennsylvania's lake management regulation is codified in the Department's Rules and Regulations at Section 95.6 - Discharges to Lakes, Ponds and Impoundments which sets forth treatment requirements for point source discharges necessary to control eutrophication. The Department of Conservation and Natural Resources has also developed a Lake Management Plan for state park lakes that identifies individual lake needs. These individual problems have often been excluded from the overall maintenance and planning concerns of the parks. The challenge in lake management is to involve the people in the watershed in preventing nonpoint source pollution and restoring riparian habitat.

Restoration Efforts

The Commonwealth's Lake Protection and Restoration Program is supported mainly by EPA's Nonpoint Source Program, Section 319 of the Clean Water Act. Program goals to restore and/or protect lake water quality are based on studies that identify impairments, pollution sources, and recommendations for remediation. Public use and benefit of the lake and watershed priority based on impairment are important criteria in prioritizing lakes to be funded. Impairment screening is done to determine the Trophic Status Index (TSI) and the need for more in-depth (Phase I type) studies. Phase I assessment studies evaluate existing water quality conditions, identify sources and magnitude of pollutants, identify water quality violations, and determine impacts on recreational uses and aquatic life. Phase I evaluations also include a review of feasible control and restoration methods, and recommend lake and watershed management plans to restore or protect water quality. Phase II projects continue documentation of water quality conditions and implement BMPs as recommended in the Phase I management plan. State Parks Lake Management is geared to improve recreational opportunities, as well as, for conservation of lake resources for future park users.

Objectives/Action Items of the Lakes Workgroup

<u>Goal 1</u>

Improve and protect water resources as a result of nonpoint source program implementation efforts. Show water resource improvements by measuring reductions in sediments, nutrients and metals or increases in aquatic life use, riparian habitat, wetlands, or public health benefits. By 2012, through combined program efforts, return 500 miles of streams and 1600 lake acres that are identified by the state as

not supporting adequate fish and aquatic life because of nonpoint source sources of pollution back to streams and lakes that support acceptable fish and aquatic life.

Objective: By 2007, develop comprehensive PA Lake Classification and Lake Criteria System, and remove from the 303d list those lakes that have good water quality and meet designated lake uses but violated stream-based criteria. (Lakes)

Action Item: In order to properly judge a lake's attainment of uses, improvements to the State's Water Quality Criteria (Chapter 93) need to be developed:

a. Review present classification of lakes
b. Review lake classification and water quality standards in other states, and review their process of determining impairments.
c. Develop a documented review that can be referenced and built upon for the proper classification of lakes
d. Develop standards for the classification of lakes based on lake characteristics, not stream classifications. (Lakes)

Action Item: Re-evaluate 303d listed lakes and remove those that were placed on the list because of lake classification errors and not true impairments. (Lakes)

Objective: Maintain or show improvement in water quality, load reductions (measurable environmental results) and environmental conditions in streams and lakes, including habitats and wetlands, as a result of nonpoint source implementation methods. (Lakes)

Action Item: Evaluate efficiency of BMPs and streambank restorations that have improved the water quality of inlets and lakes. (Lakes)

Goal 3

Improve and develop monitoring and tracking efforts to determine if projects and programs improve water quality and / or meet target pollution reductions including TMDLs.

Objective: By 2006, develop standardized monitoring protocols that adequately assess the status of the various uses of lakes. (Lakes)

Action Item: Determine the adequacy of water quality sampling, macrophyte mapping, and fishery assessments to assess all uses of lakes. Determine minimum frequency and level of effort required to gain adequate information.

a: Survey other States' protocols in lake assessments
b: Develop protocols for PA.
c. Implement protocols and keep records of work. (Lakes)

Action Item: Determine level and frequency of monitoring needed to show efficacy of BMPs. (Lakes)

Action Item: Determine the level and frequency of monitoring needed to verify that TMDLs are met. (Lakes)

Objective: Continue and improve monitoring and tracking efforts to determine if projects and programs implemented to address NPS problems are making water quality improvements and addressing TMDLs. (Lakes)

Action Item: Monitor lakes and streams periodically to track improvements and to provide data for TMDL models. (Lakes)

Goal 4.

Encourage development and use of new technologies, tools, and technology transfer practices, to enhance understanding and use of techniques for addressing nonpoint source pollution.

Objective: By 2006, develop a strategy to control and mitigate exotic species that affect aquatic life and recreational uses of our waterbodies and riparian areas. (Lakes)

Action Item: Support/encourage DEP's participation on the Invasive Species Task Force. (Lakes)

Action Item: Support/encourage the continued development of the Draft and final statewide Invasive Species Management Plan. (Lakes)

Action Item: Agencies (DEP, PFBC, and others) to continue efforts to publicize the problems associated with aquatic invasive species and provide info on how to prevent their spread. (Lakes)

Action Item: Develop an invasive species outreach program that encourages and guides citizens to monitor and control the spread of invasive aquatic and riparian species in order to protect native populations (including endangered, threatened and special concern species) and aquatic life uses of waterbodies. (Lakes)
Action Item: Assemble an information packet of educational materials about invasive species to be sent to the general public upon request. (Lakes)

Action Item: Distribute information at conferences, and through the watershed academy various publications on invasive species threatening PA waterways and riparian habitats. (DEP has newly prepared publications and PFBC has one). (Lakes)

Action Item: Coordinate and administer a pilot Invasive Species Workshop under the Watershed Academy program for watershed specialists and watershed groups. (Lakes)

Objective: Support conferences and outreach events for information dissemination of current and innovative technologies on lake management. (Lakes)

Action Item: Conduct a pilot project on the use of aquatic weevils on Eurasian watermilfoil in a PA lake to determine feasibility and efficacy. (Lakes)

Action Item: Hold annual lake conferences on lake management issues. (Lakes)

Action Item: Encourage the use of in-lake treatments to mitigate NPS generated within and leaving the lake as a tool to be used concurrent with watershed implementation that mitigates incoming NPS. (Lakes)

Objective: by 2006, expand the availability of technical and educational resources on lake management and restoration issues through a public clearinghouse to provide outreach to public and private lake managers, owners, and stakeholders. (Lakes)

Action Item: DEP to provide information on state lake databases, lake assessments and lake water quality via a lake page/section on the DEP website. (Lakes)

Action Item: Providers of technical assistance to watershed groups needs to include lake professionals. The C-SAW program is one avenue. (Lakes)

Action Item: The various lake interests (DEP, PALMS, consultants) need to make a better connection with university limnology professionals and to communicate and share information across all lake interests, including water suppliers and lake users. (Lakes)

<u>Goal 5</u>.

Assure implementation of appropriate best management practices to protect, improve and restore water quality by using or enhancing existing financial incentives, technical assistance, education and regulatory programs.

Objective: By 2006, disseminate new information and outreach materials on NPS issues for municipalities, watershed groups and local stakeholders. (Lakes)

Action Item: Provide/support annual lake conferences in PA for outreach to lake stakeholders to disseminate the latest information on lake management BMPs and techniques. (Lakes)

Action Item: Provide local entities (municipalities) with language, ideas and templates to help write and enact protective zoning and development ordinances on watershed planning, stormwater management, septic management, road

development and maintenance, open areas, green development, riparian area management, and groundwater protection. (Lakes)

F. SILVICULTURE

The major nonpoint source pollution concern with silvicultural activities is soil erosion and sediment loading to surface water from timber harvesting and road construction. Best management practices (BMPs) have been used to reduce the effects of such problems. Chapter 102 of the Department's rules and regulations requires that an erosion and sediment pollution control plan be developed for every earth disturbance activity. Implementation of program activities are shared by DEP and county conservation districts, including the processing and issuance of earth disturbance permits, complaint handling, site inspections and compliance activities.

Forestry Issues Working Group

The Forest Issues Working Group (FIWG) provides a forum where a diverse group of professional natural resource managers, forest landowners, scientists, environmental organizations and other citizens concerned about Pennsylvania's forests can exchange views, concerns and information with the objective of promoting better understanding and cooperation on key forestry issues. The FWIG developed a handbook titled "Best Management Practices for Pennsylvania Forests".

Forestry Initiative of Pennsylvania

The Sustainable Forestry Initiative of Pennsylvania (SFI) is a coalition of private companies, timber harvesters and forest practitioners. They have developed a landowner packet containing information intended to help landowners understand timber harvesting and resource management. Over 6,000 packets had been distributed to Pennsylvania landowners as of May 1998. The SFI also does training on forestry best management practices for forest practitioners. As of May 1998, 1552 professionals, mainly loggers, have been trained by SFI.

Department of Conservation and Natural Resources—Bureau of Forestry

The Bureau of Forestry (BOF), Forest Advisory Services, Stewardship and Education Section is devoted to the long-term stewardship of Pennsylvania's forests. This section is responsible for the Cooperative Forest Assistance Program (CFA) appropriated under the 1990 Farm Bill for State and Private Forestry. It is also responsible for the conservation education efforts of the Bureau of Forestry. Service Foresters are available to landowners to assist them in understanding, managing and utilizing the forest resource. The Bureau of Forestry is also part of the Sustainable Forestry Initiative of Pennsylvania. Maintaining and protecting the quality of water on state forest lands continues to be one of the highest priorities.

The Forest Stewardship Program was authorized under the Forestry Title of the 1990 Farm Bill. The aim of the program is to provide information, education and technical assistance to private forest landowners. The program's educational component disseminates this information primarily through workshops and multimedia public service messages. The program's technical component provides landowners with one-on-one assistance.

The Stewardship Incentive Program complements the Stewardship Program by providing the landowner with tools and incentives to implement practices recommended in the plan.

The Forestry Incentives Program (FIP) provides cost-sharing for tree planting, timber stand improvement and site preparation.

Green Certification

Green Certification involves an evaluation of the management practices against objective and regionally appropriate standards of sustainable forestry. This project provides a valuable tool for obtaining an independent evaluation of the states' forest management practices. This evaluation has been completed for all 2.1 million acres of Pennsylvania's state forest land and DCNR received the Green Certification. The Scientific Certification System (SCS) Forest Conservation Program is a third-party forest management certification program designed to distinguish and recognize "well-managed" operations in which timber products are produced in a manner that sustains the timber resource, maintains the forest ecosystem and meets minimum financial and socioeconomic criteria.

Research

The Pennsylvania State University (PSU) – School of Forest Resources is working with the DCNR-Bureau of Forestry and the U.S. Forest Service to develop the state's Forest Stewardship Program awareness and knowledge efforts. Many of these elements contain research components that provide further refinement to extension programs.

Allegheny National Forest

The U.S. Forest Service is responsible for managing the forest resources within the Allegheny National Forest, located in northwestern Pennsylvania. A Forest Plan, developed in 1986, contains nonpoint source pollution control and forestry practices for the entire forest, as well as, standards and guidelines for specific management areas. These include standards such as filter strips, stream crossings, road drainage and runoff, road surfacing, and erosion control and stabilization measures.

Objectives/Action Items of the Silviculture Workgroup

Goal 1

Improve and protect water resources as a result of nonpoint source program implementation efforts. Show water resource improvements by measuring reductions in sediments, nutrients and metals or increases in aquatic life use, riparian habitat, wetlands, or public health benefits. By 2012, through combined program efforts, return 500 miles of streams and 1600 lake acres that are identified by the state as not supporting adequate fish and aquatic life because of nonpoint source sources of pollution back to streams and lakes that support acceptable fish and aquatic life.

Objective: Provide effective communications with 520,000 woodlot owners and 4,000 forest practitioners managing 13 millions acres of private woodland on forest best management practices for silvicultural activities. (Silviculture)

Action Item: DCNR Bureau of Forestry and its partners will improve outreach and communications with organized groups of forest landowners such as the 20 Forest Landowner Associations in Pennsylvania. (Silviculture)

Action Item: Distribute forest landowner packets to inform landowners of their responsibility for minimizing nonpoint source pollution on timber harvesting operations. (Silviculture)

Action Item: Provide periodic notices/articles on forest best management practices to cooperating agencies/forest groups for their newsletters, websites, etc. (Silviculture)

Action Item: Develop and distribute tour brochures showing proper implementation of best management practices at demonstration sites. (Silviculture)

Action Item: Provide training on Silvicultural NPS Best Management Practices for forest landowners; include on-site visits with loggers and /or foresters of active harvest operations. (Silviculture)

Goal 2 (was goal 3)

Coordinate with watershed groups, local governments, authorities and landowners to promote and support the development, implementation and evaluation of # watershed plans to conserve, protect and restore surface and groundwater quality.

Objective: Provide training to forest practitioners on using water quality best management practices for silvicultural activities. (Silviculture)

Action Item: Continue offering training opportunities through such projects as the Sustainable Forestry Initiative program. (Silviculture)

Action Item: Promote and hold training at developed Service Forest Project Areas that have incorporated nonpoint source best management practices for silviculture. (Silviculture)

Action Item: Develop a BMP demonstration site for each service forester area that does not presently have one. (Silviculture)

Action Item: Develop a video for forest landowners and forest practitioners to show proper implementation of forest best management practices. (Silviculture)

Goal 3

Improve and develop monitoring and tracking efforts to determine if projects and programs improve water quality and / or meet target pollution reductions including TMDLs.

Objective: To assure that timber harvesting activities are carried out in such a way that the potential for polluted runoff during harvesting is minimized. (Silviculture)

Action Item: Use existing regulatory requirements such as DEP's Chapter 102 and 105 programs and the PA Clean Streams Law, and promote manuals such as *BMPs for Silviculture* to ensure water quality is maintained. (Silviculture)

Action Item: Develop incentives to increase the use of the recently developed self-evaluation forms for forest landowners and timber harvesters to evaluate BMP installation and effectiveness. (Silviculture)

Action Item: Provide a process that a timber harvester can use to voluntarily request assistance, without penalty, to correct a BMP installation problem. (Silviculture)

Action Item: Establish baseline silviculture BMP implementation based on current usage and compare five years later to evaluate the effectiveness of BMP training. (Silviculture)

Action Item: Develop a "statement of mutual intent" supporting the BMP manual to maintain consistency among practitioners. (Silviculture)

Action Item: Develop and make available a timber harvest operations and erosion control field manual that explains proper logging procedures and requirements necessary to protect wetlands and minimize sediment pollution to waterways. (Silviculture)

Goal 4.

Encourage development and use of new technologies, tools, and technology transfer practices, to enhance understanding and use of techniques for addressing nonpoint source pollution.

Objective: To provide the tools to forest landowners and timber harvesters to help them manage forest lands for water quality protection and sustainability. (Silviculture)

Action Item: Encourage landowners to enroll in tax incentive programs such as Clean & Green, Forest Stewardship Program (FSP), cost share programs such as Forest Land Enhancement Program (FLEP), Conservation Reserve Enhancement Program (CREP), Environmental Quality Incentives Program (EQIP), tax incentives and various forested riparian buffer assistance programs. (Silviculture)

Action Item: Explore new technologies and alternative practices such as carbon sequestration to provide forest landowners and practitioners additional options for protecting water quality. (Silviculture)

Action Item: Support having adequate technical assistance for development of woodland management plans. (Silviculture)

Action Item: Support needed technical services to forest landowners to address water quality issues through state/federal forestry agencies, woodland ~~land~~owner associations, SFI, forest practitioners and others. (Silviculture)

Action Item: Publicize existing data that identifies the need for forested riparian buffers. (Silviculture)

Action Item: Develop workshops for landowners, local government officials and consultants on the benefits of forested riparian buffers. (Silviculture)

Action Item: Provide free planting stock to cooperating landowners to establish forested riparian buffers. (Silviculture)

Action Item: Increase efforts to have a larger percentage of the new Chesapeake Bay riparian buffer restoration goal be *Forested* riparian buffers. (Silviculture)

Action Item: Encourage the use of riparian management zones in woodland management plans. (Silviculture)

Action Item: Provide forest landowner workshops on riparian forest management zones which include an emphasis on spring seeps, intermittent and first order streams. (Silviculture)

Action Item: Support the successful VIP-Coverts Program of forest stewardship in managing forest resources, including efforts for maintaining/improving water quality. (Silviculture)

Action Item: Develop a woodland management plan for forest landowners that addresses the qualities of the Tree Farm Program and the Stewardship Program. (Silviculture)

Action Item: Increase funding for Forest Stewardship Program and explore additional funding from EQIP, CRP, and CREP. (Silviculture)

Action Item: Support efforts to increase the % of funding levels for forestry BMPs in the current Farm Bill (i.e. EQIP, CRP, CREP) including that 10% of funds be set aside for forestry practices in EQIP and that 20% of all buffers be forested riparian buffers. (Silviculture)

Action Item: Develop a strategy to fund water quality forest practices through methods other than direct public funding. (Silviculture)

Goal 5.

Assure implementation of appropriate best management practices to protect, improve and restore water quality by using or enhancing existing financial incentives, technical assistance, education and regulatory programs.

Objective: To utilize trees for water quality improvements by others outside the forest landowner/practitioners/logger constituency. (Silviculture)

Action Item: Work with organizations such as the PA State Association of Township Supervisors (PSATS) to provide training for municipal officials on using trees for reclamation efforts on non-coal mining lands. (Silviculture)

Action Item: Work with the Urban Tree Canopy Project with counties in southeast Pennsylvania to increase tree cover in urban areas. (Silviculture)

Action Item: Promote use of trees for reducing storm water runoff and increasing "infiltration" thereby reducing nonpoint source pollution loads. (Silviculture)

Action Item: Educate the general public about pollution reducing benefits of trees at events such as the Philadelphia Flower Show and Pennsylvania Farm Show. (Silviculture)

Action Item: Encourage planting of abandoned coal mine lands with trees promoting carbon sequestration and reducing erosion and sedimentation. (Silviculture)

Action Item: Support efforts that result in watershed plans that recognize forest resources as a contributor to reducing nonpoint source pollution in the watershed. (Silviculture)

Action Item: Find ways to reach out to industry through efforts such as the Forestry for the Bay Committee. (Silviculture)

G. LAND DISPOSAL

The Land Disposal category covers several potential nonpoint sources of pollution. Improper disposal of household hazardous wastes has been shown to cause significant degradation of surface and ground waters. This potential source of pollution is addressed through programs administered by the Bureau of Land Recycling and Waste Management (BLRWM). The impact of illegal dumps, both active and abandoned, on waters of the Commonwealth is still largely undefined.

The land application of municipal biosolids, if properly carried out, offers significant nutrient reuse benefits. If not properly managed, however, it can pose a nonpoint threat to surface waters. Pennsylvania 's many on-lot sewage treatment systems are also potential sources of nonpoint pollution to groundwater. Programs regulating these potential sources are administered by the Bureau of Water Supply and Wastewater Management.

Land Recycling and Waste Management

The Bureau of Land Recycling and Waste Management oversees implementation of the Land Recycling Program (Act 2), hazardous sites cleanup (Act 108), municipal waste planning and recycling (Act 101), municipal and residual waste management, tanks remediation, Superfund (CERCLA), Resource Conservation and Recovery Act (RCRA), and multi-site remediation programs. Additional information concerning programs which promote recycling and the proper disposal of household hazardous wastes may be found on the Bureau's web site at:
http://www.dep.state.pa.us/dep/deputate/airwaste/wm/default.htm.

Water Supply and Wastewater Management

The Bureau of Water Supply and Wastewater Management addresses land disposal of wastewater in several different ways. The On-lot Sewage Program encourages each municipality in the State to develop and implement an official plan dealing with existing and future sewage needs (Act 537, Chapters 71, 72 and 73). The Bureau also supports continued training of municipal sewage enforcement officers and evaluates alternate wastewater treatment technologies according to established protocols.

The Commonwealth has regulated biosolids since 1977. There are currently 15 biosolids composting sites in Pennsylvania, and nearly 400 sites are permitted for biosolids application. Persons seeking to land apply biosolids must obtain a Land Application of Sewage Sludge Permit from the Bureau. Additional information concerning each of these initiatives can be accessed through the Bureau's web site at: http://www.dep.state.pa.us/dep/deputate/watermgt/Wqp/ws-wm.htm.

Objectives/Action Items of the Land Disposal Workgroup

Goal 3

Improve and develop monitoring and tracking efforts to determine if projects and programs improve water quality and / or meet target pollution reductions including TMDLs.

Objective: By 2007, incorporate basic water quality monitoring provisions into the work plans of at least three sizable streamside dump cleanup proposals. (Land Disposal)

> Action Item: Identify sponsors of streamside dump cleanup proposals which have qualified to receive funds under Growing Greener or other regional or statewide grant programs. (Land Disposal)
>
> Action Item: Work one-on-one with project sponsors, cooperators and funding agents to encourage the inclusion of monitoring protocols that will address the dumps' impacts on water quality in the underlying groundwater and nearby streams or lakes. (Land Disposal)

Goal 4.

Encourage development and use of new technologies, tools, and technology transfer practices, to enhance understanding and use of techniques for addressing nonpoint source pollution.

Objective: Evaluate denitrification and other alternate wastewater treatment technologies as they are submitted, using DEP Experimental On-lot Technology Verification Protocols. (Land Disposal)

Action Item: Pursue testing of denitrification and other alternate treatment technologies using Experimental On-lot Technology Verification Protocols. (Land Disposal)

Action Item: Initiate development of performance-based regulations for approval of alternate on-lot treatment technologies. (Land Disposal)

Goal 5.

Assure implementation of appropriate best management practices to protect, improve and restore water quality by using or enhancing existing financial incentives, technical assistance, education and regulatory programs.

Objective: Provide continued training of 1,152 local sewage enforcement officers biannually, and promote increased participation by other municipal officials. (Land Disposal)

Action Item: Continue formalized training for SEOs, emphasizing both the public health and environmental impacts of malfunctioning on-lot treatment systems. (Land Disposal)

Action Item: Provide technical updates as needed to the SEO Guidance Manual and to DEP regional office staff working in the Act 537 program. (Land Disposal)

Action Item: Train SEOs and DEP regional staff on demonstrated alternative treatment technologies for individual homes and community systems. (Land Disposal)

Action Item: Encourage statewide organizations representing local officials to provide and promote regular opportunities for training in environmental issues, including on-lot wastewater management. (Land Disposal)

Objective: Encourage additional municipalities to develop and update sewage management programs in accordance with Act 537 by 2007. (An estimated 85 municipalities had programs planned or operational in 2003.) (Land Disposal)

Action Item: Educate and support local governments in how to build community support for a sewage management program. (Land Disposal)

Action Item: Continue to support a peer-to-peer information transfer to facilitate the adoption of local sewage management programs. (Land Disposal)

Action Item: Explore the benefits and feasibility of cooperative inter-municipal approaches to the management of on-lot wastewater treatment systems. (Land Disposal)

Objective: Increase use of the PENNVEST Individual On-lot Sewage Disposal Funding Program for repair and replacement of malfunctioning systems by 2007. (An average of 32 projects per year were financed between 1994 and 2004.) Explore regional options for the treatment and disposal of pumped septic wastes. (Land Disposal)

Action Item: Increase awareness of the availability of funds for repair and replacement among SEOs and the general public. (Land Disposal)

Action Item: Encourage active promotion of available funding sources by SEOs when responding to complaints and requests for advice on malfunctioning on-lot treatment systems. (Land Disposal)

Action Item: Investigate the feasibility of designating, upgrading and promoting wastewater treatment plants throughout the State as regional centers for the treatment and disposal of pumped on-lot septic wastes. (Land Disposal)

Objective: Enhance public awareness of household hazardous waste (HHW), and increase the number of participants in HHW collections by 2007. (33,934 participants were reported in 2003.) (Land Disposal)

Action Item: Work one-on-one with county recycling coordinators to educate the public and municipal officials about the importance of recycling and proper waste disposal and to sponsor local HHW collections. (Land Disposal)

Action Item: Promote recently developed tire and electronics recycling programs and work to establish a network of electronics recycling sites around the State. (Land Disposal)

Action Item: Investigate more cost efficient methods for collecting and disposing of mercury and managing waste latex paint. (Land Disposal)

Action Item: Reduce the improper disposal of oil by maintaining and encouraging the use of the existing network of oil collection centers throughout Pennsylvania. (Land Disposal)

Action Item: Consider ways to revitalize the Home-A-Syst outreach program and promote its widespread use among homeowners in the State. (Land Disposal)

Objective: Increase the number of regional (inter-municipal, public/private partnership) HHW collections by 2007. (Two were reported in 2003.) (Land Disposal)

Action Item: Encourage existing regional programs to share their experience with peers and with public and private interests in the HHW field. (Land Disposal)

Action Item: Consider organizing a symposium that would bring together a broad range of interests from across the State to explore HHW issues, including regional solutions. (Land Disposal)

Objective: Expand on-farm assessments and collections of the Farm-A-Syst and Chemsweep programs, emphasizing performance-based approaches to environmental management. By 2009, increase the total amount of waste pesticides collected by the Chemsweep program to 4.0 million pounds. (Land Disposal)

Action Item: By 2007, prepare and distribute two Farm-A-Syst worksheets for management of pastures and animal concentration areas. (Land Disposal) Action Item: Broaden the Farm-A-Syst program to include poultry industry environmental management systems. (Land Disposal)

Action Item: Encourage continued coordination of Chemsweep pesticides collections with local and regional HHW collections to maximize impact and make the most efficient use of organizational efforts and program resources. (Land Disposal)
Action Item: Support the expansion of Chemsweep collection services to non-farm users of pesticides, including professional applicators, golf courses, landscape services and pest exterminators. (Land Disposal)

Objective: Secure sustainable funding for the statewide biosolids program and for biosolids recycling research, training and program delegation to county conservation districts by 2007. (Land Disposal)

Action Item: Support continued research into the efficacy and safety of land applying biosolids. (Land Disposal)

Action Item: Continue formal training for biosolids generators and land appliers in recommended procedures for producing and applying biosolids. (Land Disposal)

Action Item: Continue to promote delegation of biosolids program oversight to county conservation districts, to help ensure compliance with local conservation plans and proper application practices. (Land Disposal)

Action Item: Encourage the development of an improved residential septage registration system to reduce illegal disposal practices. (Land Disposal)

Objective: Reclaim additional acres of disturbed or degraded lands using biosolids or other recycled byproducts by 2007. (An average of _____ acres per year were reclaimed from 2001 to 2003.) (Land Disposal)

Objective: Utilize existing programs to clean up 50 illegal dumps threatening lakes, streams, groundwater or wetlands by 2009. (Land Disposal)

Action Item: Develop and distribute outreach materials informing the public of the health, safety and environmental hazards associated with illegal dumping. (Land Disposal)

Action Item: Encourage community organizations, sportsmen, watershed groups and municipal officials to work together to identify, evaluate, prioritize and clean up illegal dumps in their local areas. (Land Disposal)

Action Item: Disseminate information describing existing dump cleanup programs, the resources they offer and results they have achieved throughout the State. (Land Disposal)

Objective: By 2007, develop and implement a program encouraging rural landowners to clean up farm dumps. (Land Disposal)

Action Item: Develop and distribute 10 county-wide mailings to farmers and other rural landowners informing them of the health, safety and environmental hazards associated with farm dumps and describing how they can safely clean up dumps and what resources are available to assist in the task. (Land Disposal)

Action Item: Encourage agricultural organizations, solid waste haulers and volunteer organizations to work with landowners to evaluate and clean up farm dumps. (Land Disposal)

H. Other NPS Categories

III. Resource Management in Pennsylvania

A. Pennsylvania's Watershed Approach

Pennsylvania is committed to a watershed approach to water resource management. Watersheds are "nature's boundaries," binding water resource together. They do not conform to municipal or state lines, or to provincial or political attitudes. Water resource problems caused by floods and drought, polluted runoff, habitat destruction, abandoned mine drainage, groundwater impairment, and poor air quality, cannot be addressed in isolation. They must be solved within an ecological system – the watershed; and they must be solved locally by people with an interest in the watershed. Locally managed and monitored watershed improvement projects are essential to enhancing, maintaining, and reclaiming the Commonwealth's water resources.

Over the past 25 years, Pennsylvania has made significant strides toward reducing and eliminating pollution from industrial and municipal wastewater discharges. These efforts have been so effective that by 1998 only 3.4 percent of surface water quality impairment in the Commonwealth can be attributed solely to point sources. The remaining 96 percent is linked to nonpoint sources – abandoned mines, agriculture, urban runoff, failed septic systems, and air deposition – must be managed comprehensively to achieve meaningful and lasting results. Watershed management emphasizes specific geographic areas and directs attention toward meeting tangible environmental goals.

B. Unassessed Waters Protocol

Plan for Achieving Comprehensive Assessments

The Department's plan for achieving comprehensive (statewide) assessment of its surface waters includes implementation of a program to evaluate all unassessed free-flowing streams by the end of the year 2003. The Department has developed a strategy for these assessments which involves preliminary screening of each watershed followed by a field-level biological assessment. Full-scale field work for this unassessed waters project began in 1997. This is a cooperative effort, with assessments being conducted by the Department's six Regional Offices, the Susquehanna River Basin Commission, the Interstate Commission on the Potomac River Basin, and Central Office staff. A total of twenty (20) State Water Plan (SWP) Watersheds have been completed, and assessments have been initiated in twenty-one (21) more. These assessments have included sampling at more than 3,300 stations, representing almost 24,500 stream miles (29 percent of Pennsylvania's total 83,240 stream miles.). After completion of the initial assessments, the long range goal is to reassess all waters on a five year cycle. Completion of these activities will depend upon the resources that are available and the impact of other priorities within the Department.

Pennsylvania's long-standing monitoring programs are primarily oriented toward identifying water quality problems and taking action to abate pollution. Although the location of point source (PS) discharges is generally well known, and effluent quality

from paint sources is monitored regularly, nonpoint sources (NPS) are not well defined and the extent and severity of NPS impacts have not been totally identified. Consequently, the goal is to evaluate unassessed free-flowing streams in Pennsylvania to identify NPS impacts, lesser known PS impacts, combined NPS/PS impacts, and to protect unassessed waters that are found to be of high quality or exceptional value.

This process uses a biological screening protocol to establish whether aquatic life uses are impaired or not impaired. Where uses are found to be impaired or where the screening does not yield definitive information, more detailed assessments will be conducted to identify the NPS and/or PS responsible for the problem so that remediation plans can be developed or other appropriate actions can be initiated. The information obtained from this effort can also be used in 305(b) assessments and to help identify areas that require Total Maximum Daily Load (TMDL) calculations and to establish priorities for TMDL development.

An initial desktop analysis and prioritization was completed at the State Water Plan Watershed level. Each watershed was identified as high, medium, or low priority - depending on the potential for NPS pollution. Information from the existing 305(b) assessment database, an agricultural pollution potential index developed by Penn State University, groundwater programs and relative loadings for various land uses was used in this initial prioritization. The relative loadings database has been developed by Penn State University using Geographical Information Systems (GIS) and information from the DEP fixed station Water Quality Network, the point source discharge database and data collected from the Department’s atmospheric deposition monitoring network.

Starting with the high priority State Water Plan Watersheds, smaller "assessment unit" watersheds were delineated within each of the 104 State Water Plan Watersheds. These assessment units average 50 square miles in size, and are mapped at the 1:24,000 scale. Information on land cover, land uses, atmospheric deposition, abandoned mine drainage, water quality (collected by the Department and other agencies), and known PS discharges within each assessment unit was used to identify known and potential sources of pollution. Recent assessments completed during ongoing monitoring and assessment activities were also considered so that, where possible, assessments are not duplicated.

Each assessment unit was identified as having a low, medium, or high potential for NPS impact for purposes of field work. Assessment priorities were established as a cooperative effort between various divisions within the Bureau of Watershed Conservation (BWC). Generally, those watersheds having the greatest number of miles potentially impaired were given the highest priority and the 1997 field work was done in these areas. The 1998 field work focus was watersheds with a high potential for containing unimpaired water quality.

Within each high and medium priority assessment unit, a prescreening reconnaissance is conducted on all subwatersheds. The purposes of this field effort are to familiarize the investigator with the unit and its land use patterns, to preliminarily site sampling locations and to attempt to aggregate subwatersheds having similar physical habitat and

land use characteristics so that only one representative subwatershed needs to be sampled.

Biological screening is conducted on wadeable waters using a modification of EPA's Rapid Bioassessment Protocol (RBP I), which includes field identification of benthic macroinvertebrates to the family level and an RBP habitat assessment. Each biological screening results in an Assessment Summary for input to the 305(b) assessment database that identifies waters with obvious water quality impairment and those with no obvious impairment.

C. Total Maximum Daily Loads (TMDLs)

The Commonwealth is working under an MOU with EPA Region III that requires TMDL development for all newly listed waters (1998 on) within the next three years, and all waters on the 1996 list within ten years (non-AMD impaired streams) and 12 years for AMD impacted streams. For streams impaired by NPS, TMDLs will be based on biological and habitat end points or goals, rather than chemical water quality criteria. Quantifiable instream and streamside habitat indicators will be established and linked to allocated load reductions, and will be used to demonstrate resulting environmental improvement. Pollutant load reductions will be estimated from recommended best management practice installation or use.

Impaired streams requiring TMDL development will be prioritized. Implementation of watershed restoration plans will be coordinated with TMDL development to ensure implementation funds, including Section 319 grant money, will be targeted to watersheds most in need of restoration, and where local support and interest and existing water quality projects can enhance restoration efforts.

As TMDLs are developed and approved for waters impaired by nonpoint source pollution, these waters will be identified in future Section 319 Grant Project Proposal requests and given priority for funding future restoration actions.

D. Watershed Restoration Action Strategies (WRAS)

The development of WRAS for Category I Watersheds most in need of restoration is a recommendation of the Clean Water Action Plan. The Commonwealth developed a process to prepare WRAS for high priority watersheds at Pennsylvania's state water plan scale, integrating programs underway in the watershed and coordinating efforts with other agencies, watershed groups and the public. All incremental grant projects for FY99 and 2000 are located in these watersheds and will be important components of each WRAS. Pennsylvania's WRAS are summarized in outline form, with sections detailing public outreach, monitoring and evaluation, specific water quality/natural resources goals, implementation measures, schedules and funding needs.

E. DCNR's Pennsylvania Rivers Conservation Program

The Department of Conservation and Natural Resources' (DCNR) Pennsylvania Rivers Conservation Program is part of the DCNR's Community Conservation Partnership Initiative DCNR partnerships involve greenways, open spaces, community parks, rail trails, river corridors, natural areas, indoor and outdoor recreation and environmental education. Agency programs will be linked with efforts to conserve natural resources including necessary best management practices (BMPs) to insure a complete river conservation plan. Assistance can take the form of grants, technical assistance, information exchange and training.

F. Coastal Nonpoint Pollution Program (CZARA 6217)

The Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) established Section 6217 to protect coastal waters from nonpoint source pollution. This program, administered jointly at the federal level by the National Oceanic and Atmospheric Administration (NOAA) and the Environmental Protection Agency (EPA), is designed to help protect and restore coastal waters in coastal states and territories. CZARA requires states to provide for the implementation of management measures for categories of nonpoint sources within a Section 6217 management area, with the goal of achieving water quality standards over time.

Pennsylvania's 6217 management area was initially identified by EPA and NOAA as entire watersheds that drain to both of Pennsylvania's coastal waters -- the Delaware Estuary and Lake Erie. Our Coastal Nonpoint Pollution Program Plan (CNPP) identifies existing programs that continue to address many of the management measures, and cites the Pennsylvania Clean Streams Law as the major authority for implementing the measures. Major supporting initiatives include the Erosion and Sedimentation Pollution Control Program, the Nutrient Management Program, the Pesticide Management Program, the Stream ReLeaf initiative, the Stormwater Management Planning Program, and the statewide Nonpoint Source (Section 319) Program. Additional activities on the local level by the county conservation districts, municipalities and nonprofit organizations continue to support the CNPP as well.

The federal agencies issued "final draft" conditional approval of Pennsylvania's CNPP in October of 1997.

G. EPA Rivers Initiative

The Targeted Watershed Grants Program (formerly known as the Watershed Initiative) was conceived to encourage successful community-based approaches to restore, preserve, and protect the nation's watersheds. This new competitive grant program is a bold approach to watershed management in that it will provide needed resources to those

watershed organizations whose restoration plans are ripe, and who are anxious to achieve quick, yet tangible environmental change.

In 2003, three Pennsylvania watershed groups were among 20 watershed groups nationwide that will receive a total of $15 million in federal funding under a new watershed initiative to support community-driven initiatives that protect habitat, improve water quality and enhance outdoor recreation.

The Christina Basin Partnership will receive a $1 million grant to support efforts to preserve and protect the Christina watershed that covers 565 square miles in Delaware, Pennsylvania and Maryland. The Christina watershed group plans to use the funding to further restore and protect the river by implementing agricultural and stormwater best management efforts in targeted areas of the river. The Greene County Watershed Alliance will receive an $800,000 grant to support efforts to preserve and protect the Dunkard Creek watershed that covers more than 150,000 acres in Pennsylvania and West Virginia. The Greene County Watershed Alliance will use the funding to further restore and protect the streams in the watershed that have been devastated by drainage from abandoned coal mines.

The Upper Susquehanna Coalition will receive $700,000 to protect the headwaters of the Susquehanna River in northern Pennsylvania and New York.

In 2004, Pennsylvania also received funding for the Schuylkill River. At 130-miles in length with over 180 tributaries, the Schuylkill drains an area of 2,000 square miles of southeastern Pennsylvania and is the largest tributary to the Delaware River Estuary. Industrialization and mining in the last two centuries has left the Schuylkill with problems of storm water runoff, agricultural pollution, active and abandoned mine drainages, and sewage overflows. The Schuylkill Action Network, a cooperative of federal, state, and municipal entities, was awarded a Targeted Watershed grant to: 1) demonstrate the use of water treatment residuals in agricultural riparian buffers, 2) test the use of a pharmaceutical process to remove phosphorus from effluent, and 3) test the use of reclaimed acid mine drainage discharge as water for thermodynamic power

H. Delaware Estuary Program

In 1988 Governor Casey along with the Governors of New Jersey and Delaware signed a package nominating the Delaware Estuary to the National Estuary Program (NEP). The NEP was established by the 1987 Water Quality Act to promote long-term planning and management in nationally significant estuaries threatened by point and nonpoint source pollution, development or overuse.

U.S. EPA has provided limited funds to the Delaware Estuary Program. In addition, the majority of those funds have been allocated to the Partnership for the Delaware Estuary, Inc. to focus on educational efforts in the estuary.

I. Great Lakes Initiative

Pennsylvania's 56 miles of coastline on Lake Erie provide membership in the Great Lakes Basin community. Management of this unique region is achieved through the cooperation of two nations, two provinces, eight states, and a myriad of local municipal governments. In 1995, Governor Tom Ridge created the Office of the Great Lakes (Office) to devote full-time attention to Great Lakes issues. Presque Isle Bay (PIB) is located in the northwest corner of Pennsylvania on the southern shore of Lake Erie. Most of the watershed comprises urban and industrial areas within Erie and Millcreek Township. The abatement of nonpoint source pollution is a critical step in the restoration of beneficial uses in Presque Isle Bay.

J. Nonpoint Source Assessment and Monitoring

Water quality monitoring activities are designed in part to support and direct nonpoint source program activities by providing information on the quality of water resources. Pennsylvania's Basic Water Quality Monitoring Program consists of ambient fixed station monitoring, intensive surveys and citizens' volunteer monitoring. The Department's plan for achieving comprehensive assessment of its surface waters includes a program to evaluate all unassessed free-flowing streams using a field-level biological assessment by 2003. A major purpose of this program is to delineate areas with water quality impairment and determine the type of pollution responsible, point source (PS), nonpoint source (NPS) or a combination of the two. This water quality information is tracked using Pennsylvania's Geographic Information System and will be used to develop TMDLs. After 2003, all free flowing streams will be assessed on a five year cycle. Information in this section is taken from the 1998 Pennsylvania Water Quality Assessment 305(b) Report

Watershed management is driven by people living in or otherwise connected to the watershed, and promotes locally defined solutions and partnerships. Such local commitment ensures a high degree of implementation and stewardship. Watershed management also saves money. Financial efficiencies can be realized through watershed-wide education, monitoring, permitting, funding, and pollution prevention activities. Cost savings through pollutant trading and innovative technology development are also a product of integrated watershed protection. In addition, watershed management is recognized as a cost-effective way to maintain a high level of drinking water quality. Most importantly, watershed resource management unleashes local creativity, enabling problems to be solved and resources protected in the best possible way through the least expensive means.

Pennsylvania supports a simple six-step approach to integrated watershed resource management as presented below:

- Watersheds are assessed and prioritized.
- Watersheds are evaluated.
- Restoration and protection plans are developed.

- Financial resources are secured.
- Restoration and protection plans are implemented.

Results are compared to goals. An effective overall comprehensive watershed management approach relies heavily on ever improving electronic technology. Water quality assessments, accessible data, and land use information are all important components of a successful watershed resource management program. DEP will continue to use and improve reliable electronic databases, use GIS as an effective means of displaying and analyzing data, and use satellite imagery to determine land use, track land use trends, and determine program effectiveness. In addition, it is DEP's goal to make all information available in a live and usable format to the general public over the DEP web site.

K. Source Water Protection Programs

Since the 1996 reauthorization of the Safe Drinking Water Act, DEP has been working to develop a Source Water Assessment and Protection Program related to raw water quality of drinking water sources serving public water systems (PWSs).

Congress intended the source water assessments to support local, voluntary source water protection programs and interagency program cooperation to address these priority issues to public health and safety. Local source water protection programs will be rightfully expecting DEP, state and federal program cooperation in addressing the priority impacts to their public drinking water sources.

Nonpoint sources of contamination are now the primary cause of maximum contaminant level (MCL) violations and drinking water treatment problems. Protecting sources of public drinking water and support for local source water protection programs are a priority for the Department. The objectives are not always coincident with biological criteria. A stream may meet water quality standards but still pose a potential public health threat and a treatment problem for a PWS. The Drinking Water State Revolving Fund set aside funds will be used to enhance source water protection activities and protect human health in areas where NPS is a major problem.

Groundwater Quality Protection Policy

The key State Groundwater Protection Programs are summarized below. Funding sources include Section 106 grant funding and state monies. The protection of groundwater centers around the Pennsylvania Clean Streams Law 35 P.S. 691.1 et seq., which governs the protection and use of ground and surface water. In regard to groundwater

The groundwater protection program is based on the Department's Principles for Groundwater Pollution Prevention and Remediation. Pennsylvania has completed the Comprehensive State Ground Water Protection Program (CSGWPP) and Self

Assessment in accordance with EPA guidance. The CSGWPP provides a mechanism whereby Pennsylvania and EPA can work together to develop a comprehensive and consistent statewide approach to groundwater quality protection.

Pennsylvania has applied for EPA approval of its Wellhead Protection Program (WHP), which has been actively developed since 1989. The Pennsylvania Safe Drinking Water regulations direct public water suppliers to find the best source available and take those measures necessary to protect that source. The state regulations define wellhead protection, set permitting requirements for groundwater resources, and set forth requirements for state approval of local WHP programs.

The state's WHP program will form the cornerstone of the Source Water Protection Program for groundwater resources serving public water systems. The Source Water Protection program is required to define the boundaries of areas providing source water to public water systems and to identify contaminants in the delineated source areas to determine the susceptibility of public water supplies to contaminants. These assessments are to be completed within two years after EPA approval of the state's Source Water Protection Program.

Drinking Water Source Protection Programs

As already mentioned, the state's Wellhead Protection Program will form the cornerstone of the Source Water Protection Program for groundwater sources serving PWSs. Local Voluntary Drinking Water Source Protection (DWSP) Management Plans will be supported and encouraged through technical, compliance and financial assistance to local communities and PWSs. Loans and grants will be made available to communities and systems to finance development and initial implementation of local DWSP management plans.

The source water assessments will rank the susceptibility of the public drinking water source to existing or potential sources of contamination in the assessment area. This will serve to direct or prioritize existing regulatory, technical support and grant programs to needed areas for the protection of public health and safety. In turn, this will support development of local voluntary source protection programs.

Regional DEP staff will assist local communities and PWSs to develop local DWSP and to work closely with other DEP programs to coordinate pollution prevention efforts in these areas. This assistance effort is primarily for local communities in planning to meet their environmental goals and to educate the public and local communities on protection programs.

L. Citizen's Volunteer Monitoring Program (CVMP)

The Department has expanded its Volunteer Monitoring Program. Involvement of organizations and individuals in monitoring water quality enables them to become better-informed, active participants in the Nonpoint Source Program. Over 70 groups that include 10,000 individuals are involved statewide in monitoring activities. More than 1,500 sampling stations are utilized. Program goals include:

- producing credible and useful water quality information;
- improving communication and knowledge about water quality issues;
- resolving and preventing environmental conflicts through positive cooperation; and
- training citizen groups to work with local government and other agencies to protect water quality.

The program is developing training activities, QA/QC protocol, fact sheets, a group directory and a newsletter, "Monitoring Matters," to help promote and improve the program. A volunteer environmental monitoring panel has been formed to help advise the Program on its continued development. In partnership with the Environmental Alliance for Senior Involvement (EASI) , the Departments of Environmental Protection and Aging have established 10 Senior Environment Corps across the state to collect water quality data and mentor local students. EASI has approximately 200 seniors monitoring 118 sites on at least 77 streams across Pennsylvania.

The Citizens' Volunteer Monitoring Program held three skills building workshops on water monitoring and analysis for volunteer monitors in 1998. Approximately 140 people participated. Technical assistance has also been proided to 20 watershed groups across the Commonwealth. The CVMP coordinated the statewide water quality snapshot in 1998 during Earth Week. There were over 500 participating groups across Pennsylvania.

. http://www.epa.gov/owow/watershed/initiative/2004/04selectsumm.html

M. Water Quality Network Monitoring

Surface Water Assessment

The Pennsylvania Water Quality Network (WQN) is a statewide network of 153 fixed stations administered by the Bureau of Watershed Conservation. These stations are generally sampled monthly for stream discharge or lake height measurement and chemical analysis, and annually for a biological evaluation. About 20 percent of the stations are sampled each year for contaminants in fish tissue. The Department has also expanded its Citizens' Volunteer Monitoring Program. Over 70 groups that include 10,000 individuals are involved in monitoring more than 1,500 sampling stations

statewide. Training activities, a QA/QC protocol, fact sheets, a group directory and a newsletter are being developed to help promote and improve the program.

All surface waters in the Commonwealth have multiple designated uses which include various water supply and recreational uses, as well as, a specific fish and aquatic life use. Most of the Department's assessments, especially the Unassessed Waters Program, focus on support of the fish and aquatic life use, thus the assessment presented here reports on that use. Assessments for 24,408 stream miles are reported. A total of 18,970 stream miles are reported as supporting the designated fish and aquatic life use. Impairment of uses is reported in 5,438 miles. Approximately 58,832 miles remain to be assessed, based on the current Geographical Information System (GIS) mapping

The two largest sources of reported impairment are abandoned mine drainage with 1,764 miles and agriculture with 1,297 miles. The major causes of reported impairment on a statewide basis are metals, siltation, nutrients, suspended solids, organic enrichment/low dissolved oxygen and pH.

Drinking Water Source Assessments

The goal for the Drinking Water Source Assessment Program is to complete delineation of a drinking water source protection area (DWSPA), complete a potential contaminant source inventory, and conduct a susceptibility analysis for each drinking water source serving a public water system (PWS) in Pennsylvania by the statutory deadline. The drinking water source assessments are of the raw water quality of the source serving the public water system and not the finished water quality after treatment. The objective of the source water assessments is to rank the susceptibility of the drinking water source to existing or potential sources of contamination in the assessment area. The assessments will support the implementation of the Drinking Water Program and will be a technical basis to assist voluntary development of local source water protection programs. The assessments are mandated in the SDWA to be completed by 2001.

Source water assessments for community water systems (CWS) supplied primarily by surface water sources will be conducted through contract services. This represents 289 CWS and 544 surface water sources.

Source water assessments for CWS supplied primarily by groundwater and serving a population of or greater than 3,300 will be conducted by DEP staff. This represents 94 CWS and 877 groundwater sources. DEP staff will also conduct source water assessments for high priority sources. This priority criteria will be reviewed through the public participation process.

Technical staff duties to accomplish this task will include delineating wellhead protection areas (WHPA), conducting and coordinating surveys of potential contaminant sources and analyzing the susceptibility of the drinking water sources to these potential contaminants. Staff will provide technical assistance in development, and review and approval of related portions of proposed local drinking water source protection programs.

Equipment and materials will be needed to conduct these assessments, and to locate and enter this data in a GIS for implementation of the program and coordination among DEP programs.

For the smaller public water systems (PWS), those serving a population ≤ 3300 (1620 PWS) and the noncommunity water systems (11,000 NCWSs), DWSPA assessments will be conducted through a Geographic Information System (GIS) analysis. DEP staff will work with a contractor for development of the GIS analysis and to maintain the GIS for the Drinking Water Program. In addition, staff will be responsible to identify and make requests for needed equipment and services to maintain the hardware and software of the GIS commensurate with expected capabilities to meet the goals of the drinking water program.

Groundwater Assessment

Groundwater monitoring activities focus on groundwater resources that are near the land surface. These generally consist of the shallower groundwater as distinguished from the deep-set regional flow systems that change very slowly compared to the more dynamic shallow groundwaters. It is these resources that are most likely to control the quality of streams under baseflow conditions, and are most likely to become contaminated through nonpoint source pollution.

Ambient and Fixed Station Network (FSN) monitoring is conducted on a semi-annual basis in selected groundwater basins. An overall report on data collected from 1985 to 1997 has been completed. All monitoring is conducted in accordance with program specific regulations and the Department's *Groundwater Monitoring Guidance Manual*. The FSN and Ambient Survey monitoring is conducted in accordance with *Pennsylvania's Groundwater Quality Monitoring Network: Ambient and Fixed Station Network (FSN) Monitoring Programs*.

Surface Water Assessment

The Pennsylvania Water Quality Network (WQN) is a statewide network of 153 fixed stations administered by the Bureau of Watershed Conservation. These stations are generally sampled monthly for stream discharge or lake height measurement and chemical analysis, and annually for a biological evaluation. About 20 percent of the stations are sampled each year for contaminants in fish tissue. The Department has also expanded its Citizens' Volunteer Monitoring Program. Over 70 groups that include 10,000 individuals are involved in monitoring more than 1,500 sampling stations statewide. Training activities, a QA/QC protocol, fact sheets, a group directory and a newsletter are being developed to help promote and improve the program.

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Technical staff duties to accomplish this task will include delineating wellhead protection areas (WHPA), conducting and coordinating surveys of potential contaminant sources and analyzing the susceptibility of the drinking water sources to these potential contaminants. Staff will provide technical assistance in development, and review and approval of related portions of proposed local drinking water source protection programs. Equipment and materials will be needed to conduct these assessments, and to locate and enter this data in a GIS for implementation of the program and coordination among DEP programs.

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work with a contractor for development of the GIS analysis and to maintain the GIS for the Drinking Water Program. In addition, staff will be responsible to identify and make requests for needed equipment and services to maintain the hardware and software of the GIS commensurate with expected capabilities to meet the goals of the drinking water program.

Groundwater Assessment

Groundwater monitoring activities focus on groundwater resources that are near the land surface. These generally consist of the shallower groundwater as distinguished from the deep-set regional flow systems that change very slowly compared to the more dynamic shallow groundwaters. It is these resources that are most likely to control the quality of streams under baseflow conditions, and are most likely to become contaminated through nonpoint source pollution.

Ambient and Fixed Station Network (FSN) monitoring is conducted on a semi-annual basis in selected groundwater basins. An overall report on data collected from 1985 to 1997 has been completed. All monitoring is conducted in accordance with program specific regulations and the Department's *Groundwater Monitoring Guidance Manual*. The FSN and Ambient Survey monitoring is conducted in accordance with *Pennsylvania's Groundwater Quality Monitoring Network: Ambient and Fixed Station Network (FSN) Monitoring Programs*.

Surface Water Monitoring Program

Ambient Fixed Station Monitoring

The Pennsylvania Water Quality Network (WQN) is a statewide, fixed station water quality sampling system operated by the Bureau of Watershed Conservation. It is designed to assess both the quality of the Commonwealth's surface waters and the effectiveness of the Water Quality Management Program by accomplishing three basic objectives:

- Monitor temporal water quality trends in major surface streams;
- Monitor temporal water quality trends in selected reference waters; and
- Monitor temporal water quality trends in selected lakes.

Major streams are considered to be interstate waters and intrastate streams with drainage areas of roughly 200 square miles or greater. These waters receive both point and nonpoint source pollutants and are sampled at or near their mouths to measure overall quality before flows enter the next higher order stream. In this way, trends can be established and the effectiveness of water quality management programs can be assessed by watershed.

Reference stations are selected to represent: 1) "ambient" waters of natural quality minimally affected by human activities, and 2) "typical" waters with quality

representative of that normally found in the region of the state being sampled. Sampling stations on these streams represent Pennsylvania's 10 Ecoregions as defined by the U.S. Environmental Protection Agency (EPA).

Lakes included in the WQN (except for Lake Erie and Presque Isle Bay, which are part of the base network) are selected after consideration of size, public access, intensity of use and availability of existing data. Large lakes with heavy public use and/or historical data are favored for inclusion because changing trends in the water quality of these resources have the potential for serious impacts on water uses.

In addition to the WQN's 153 fixed stations generally sampled monthly, approximately 90 lakes are scheduled for annual sampling in groups of 15-20. Lake groups are sampled once a year for five consecutive years before initiating a new group. The five-year data blocks can then be used to assess lake water quality trends. Fifteen (15) lakes are currently being sampled.

Depth integrated, single mid-channel or spatially composited samples are collected monthly from each stream. At Lake Erie and Presque Isle Bay, monthly samples are collected at mid-depth. Two samples are collected from one site on each of the other lake monitoring sites during mid-summer stratification. These sites correspond to the deepest point in each lake, with one sample collected a meter below the surface and the second one meter above the bottom. A temperature/dissolved oxygen profile is recorded through the vertical water column and an aliquot from the shallow sample is filtered for a chlorophyll analysis. All chemical data collected as part of the WQN are stored in the U.S. EPA STORET database.

Stream discharge (flow volume) is measured or calculated each time a water sample is collected. United States Geological Survey (USGS) stream gauging facilities and/or extrapolation equations are utilized whenever possible. Where no USGS facilities/equations exist, stream discharge is measured with U.S. Army Corps of Engineers (USCOE) and private facilities, or calculated according to methods outlined by USGS. Lake levels for Lake Erie and Presque Isle Bay stations are measured at the U.S. Coast Guard station at the entrance to Erie Harbor.

At a minimum, macroinvertebrate data are collected annually at stream stations between August 1 and October 31 utilizing modified EPA Rapid Bioassessment Protocols. Qualitative plankton samples and chlorophyll are collected annually from Lake Erie during the same period. Quantitative invertebrate or plankton sampling and qualitative or quantitative fish sampling is optional and may be conducted at the discretion of the collector. Fish tissue is sampled periodically at the rate of about 35 samples per year. Sampling locations are determined annually. Sampling is rotated through the network to provide periodic complete coverage and to maintain surveillance on problem waters. Fillets are sampled for appropriate pollutants in order to assess suitability for human consumption.

N. National Monitoring Program in Pennsylvania

Monitoring of both land treatment and water quality is the best way to document the effectiveness of nonpoint source pollution control efforts. The purposes of the United States Environmental Protection Agency (USEPA) Section 319 National Monitoring Program (NMP) are to provide credible documentation on the feasibility of controlling nonpoint sources, and to improve the technical understanding of nonpoint source pollution and the effectiveness of nonpoint source control technology and approaches.

Nationwide there are only 23 national monitoring sites. Pennsylvania's Section 319 Program has made a substantial commitment to and provided funding for three national monitoring sites, including the only national monitoring site for abandoned mine drainage. These include:

Pequea Mill Creek Watershed in an agricultural setting;

Stroud Water Research in a riparian reforestation area; and

Swatara Creek Watershed in an area impacted by abandoned mine drainage (AMD).

The **Villanova Urban Stormwater Partnership** to evaluate urban BMPs.

O. Watershed Partners

United States Geological Survey Programs In Pennsylvania

The Pennsylvania District of the U.S. Geological Survey (USGS) has conducted nonpoint-source investigations for over 20 years. These investigations have been integral parts of local, state, regional and national programs to assess the extent and sources of nonpoint-source contamination, evaluate practices targeted to reduce nonpoint-source contamination, and determine pathways and transformation of contaminants in the environment.

Delaware River Basin Commission (DRBC)

Interstate Commission on the Potomac River Basin (ICPRB)

Congress established the Interstate Commission on the Potomac River Basin under interstate compact in 1940. Its commissioners are appointed representatives of the participants in the compact -- the District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia and the federal government. ICPRB provides technical support to the signatories on water quality and water resource issues, supplies the public with information on the Potomac River and its tributaries, and helps coordinate the efforts of government agencies and citizen groups in preserving and enhancing the water and environmental resources in the Potomac Basin.

Ohio River Valley Water Sanitation Commission (ORSANCO)

The Ohio River Valley Water Sanitation Commission (ORSANCO), established by compact in 1948 to control and abate pollution in the Ohio River Valley, is an interstate commission representing eight states and the federal government. Member states are: Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia and West Virginia. The Commission operates programs to improve water quality in the Ohio River and its tributaries, including setting waste water discharge standards, performing biological assessments, monitoring for chemical and physical properties of the waterways, and conducting special surveys and studies. It also coordinates emergency response activities for spills or accidental discharges to the river, and promotes public participation in programs, such as the Ohio River Sweep and River Watchers Volunteer Monitoring Program.

Susquehanna River Basin Commission (SRBC)

All of the Commission's activities originate from the Susquehanna River Basin Compact, Public Law 91-575, which was signed into law on December 24, 1970. Under the provisions of the Compact, the Commission may undertake or contract for investigations, studies and surveys pertaining to existing water quality, effects of operations on water quality, new compounds and materials, and probable future water quality in the basin. The Commission is directed to promote sound practices of watershed management in the basin, including projects and facilities to address nonpoint source pollution. The Commission may also acquire, construct, or operate projects and facilities to manage water quality, prevent and control erosion, and promote land reclamation and sound land and forest management.

Since 1990, SRBC has conducted sediment and nutrient monitoring on the main stem and major tributaries of the Susquehanna River to support efforts to improve water quality in the basin and downstream in the Chesapeake Bay. On a ten-year cycle, SRBC conducts water quality and biological surveys of the basin's six subbasins.

IV. REGULATORY PROGRAMS

Federal Clean Water Act

The Clean Water Act (CWA) is the cornerstone of surface water quality protection in the United States. The statute employs a variety of regulatory and nonregulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water."

For many years following the passage of CWA in 1972, EPA, states, and Indian tribes focused mainly on the chemical aspects of the "integrity" goal. During the last decade, however, more attention has been given to physical and biological integrity. Also, in the early decades of the Act's implementation, efforts focused on regulating discharges from traditional "point source" facilities, such as municipal sewage plants and industrial facilities, with little attention paid to runoff from streets, construction sites, farms, and other "wet-weather" sources.

Starting in the late 1980s, efforts to address polluted runoff have increased significantly. For "nonpoint" runoff, voluntary programs, including cost-sharing with landowners are the key tool. For "wet weather point sources" like urban storm sewer systems and construction sites, a regulatory approach is being employed.

Evolution of CWA programs over the last decade has also included something of a shift from a program-by-program, source-by-source, pollutant-by-pollutant approach to more holistic watershed-based strategies. Under the watershed approach equal emphasis is placed on protecting healthy waters and restoring impaired ones. A full array of issues are addressed, not just those subject to CWA regulatory authority. Involvement of stakeholder groups in the development and implementation of strategies for achieving and maintaining state water quality and other environmental goals is another hallmark of this approach

http://www.epa.gov/region5/water/cwa.htm

Clean Streams Law

The Pennsylvania Clean Streams Law, originally passed in 1937, is intended to "preserve and improve the purity of the waters of the Commonwealth for the protection of public health, animal and aquatic life, and for industrial consumption, and recreation…" Many of Pennsylvania's environmental regulations impacting water quality originate under this statute. Title 25 of the Pennsylvania Code covers many water resource issues including among them: NPDES permitting, Water Quality Standards, Erosion Control, Dam Safety and Waterway Management and Stormwater Management

http://www.dep.state.pa.us/eps/default.asp?P=fldr2002aea3947001

Pennsylvania Nutrient Management Act

On October 1, 1997, the regulations of the Nutrient Management law, which passed in 1993, went into effect in Pennsylvania.

The act requires farms with two or more animal equivalent units per acre annually, to prepare and implement nutrient management plans. Existing operations were required to

have plans by one year after the date regulations became effective (October 1, 1997). Plans must be carried out within three years of approval. This deadline may be extended an additional two years under certain circumstances as defined in the act. The State Conservation Commission was given responsibility for developing regulations establishing minimum criteria for nutrient management plans that incorporate best management practices. The commission can turn enforcement authority over to local conservation districts.

The act directs the State Conservation Commission to provide financial assistance such as loans, loan guarantees, or grants for implementing nutrient management plans. Financial assistance depends on the availability of funds at the state level.

The act requires the Department of Environmental Protection to assess the impacts of diffuse nonagricultural sources of water pollution. All farms classified as certified animal operations must have a nutrient management plan developed by a Certified Nutrient Management Specialist and approved by a public Nutrient Management Specialist employed by a conservation district or State Conservation Commission Staff. Certified Animal Operations are farms with an annual density greater than two animal units per acre. In addition to farm identifications, a plan summary, and an implementation schedule, all plans must include: (1) information on nutrient allocation and use, (2) excess manure utilization plans, (3) plans for best management practices to protect water in animal concentration areas, and (4) storm water runoff controls to address critical problem areas

- Legislation entitled Act 6 of 1993 was passed in May 1993. The major provisions of the Act include: Regulating high density livestock farms.
- Requiring the development and implementation of nutrient management plans.
- Providing a nutrient management specialist or "planner" certification program.
- Providing financial assistance for nutrient management plan implementation.

Regulations regarding nutrient management can be found in Title 25, Chapter 83 (Conservation Commission Subchapter D, Nutrient Management). The program is administered by the State Conservation Commission (SCC) and program administration may be delegated to conservation districts. Full implementation began on October 1, 1997. Agricultural operations defined as a Concentrated Animal Operation (CAO) are required to develop and implement nutrient management plans. A CAO is defined as an operation where the animal density exceeds 2,000 lbs. of live animal weight per acre suitable for manure application. This includes only agricultural production animals. Other farming operations (nonCAO's) may choose to voluntarily follow provisions with the Act. This enables such operations to be eligible for limited liability protection and financial assistance funding under the Act.

http://www.agriculture.state.pa.us/conservation/cwp/view.asp?a=3&Q=118688&conservationNav=|

http://www.dep.state.pa.us/dep/deputate/watermgt/wc/subjects/cdnm/default.htm#nutrientmgmt

Concentrated Animal Feeding Operations (CAFO) Strategy

The Department of Environmental Protection (DEP) has adopted a strategy for Concentrated Animal Feeding Operations (CAFO's). CAFOs are defined under the strategy as operations with either more than 1,000 animal equivalent units, or operations with 301 to 1,000 animal equivalent units which have the potential to discharge to surface waters. CAFOs are growing in size and number in Pennsylvania. The strategy integrates tools that are already in place to control excess nutrient runoff, such as the Nutrient Management Act (Act 6), with the Chesapeake Bay Program's experience with the new permitting requirements. It is the intent of the strategy to ensure that all CAFOs are constructed and managed in an environmentally sound manner while also ensuring agricultural production that is profitable, economically feasible, and based on sound technology and practical production techniques. The final strategy for meeting federal requirements for controlling the water quality impacts of concentrated animal feeding operations is available on the department's Website at: http://www.dep.state.pa.us.

In compliance with the provisions of the Federal Clean Water Act, The Clean Streams Law (35 P.S. §§ 691.1-691.1001) and sections 1905-A, 1917-A and 1920-A of The Administrative Code of 1929 (71 P.S. §§ 510-5, 510-17 and 510-20), the Department of Environmental Protection (Department) has announced the availability of the Final Strategy for Meeting Federal Requirements for Controlling the Water Quality Impacts of Concentrated Animal Feeding Operations (CAFO Strategy) and the related administrative and permit documents supporting this CAFO Strategy.

http://www.dep.state.pa.us/dep/deputate/watermgt/wqp/wqp_wm/cafo_home.htm

http://cfpub.epa.gov/npdes/afo/info.cfm

Erosion and Sedimentation Control

The Commonwealth has a well-established and nationally recognized Erosion and Sediment Pollution Control (E & SPC) Program. Pennsylvania's E & SPC Program is administered by the Department and county conservation districts coordinated through a delegation of the Department's authorities to county conservation districts. Joint responsibilities for program implementation include the processing and issuance of permits, complaint investigations, site inspections, compliance and enforcement. BMPs are reviewed for design and performance effectiveness through permit plan reviews and periodic site inspections at the construction site.

Standards and criteria for minimizing erosion and preventing sediment pollution are contained within the Department's Chapter 102 rules and regulations as authorized under the Clean Streams Law. These regulations apply to any earth disturbance activity including land development; and road, highway and bridge construction. Chapter 102 requires that an erosion and sediment pollution control plan be developed and implemented for earth disturbance activities. Each plan must specify the control measures and facilities (BMPs) that will be used to minimize erosion and prevent sediment pollution from the earth disturbance activity. The NPDES (National Pollutant Discharge Elimination System) Permit Program for Stormwater Discharges from Construction Activities integrates the Commonwealth's Erosion Control requirements.

Both the Department and county conservation districts facilitate implementation of BMPs by conducting numerous training seminars and workshops for persons, municipalities and other parties engaged in undertaking earth disturbance activities. The Department provides direct support, training and financial assistance to county conservation districts to maintain their proficiency and program involvement.

Stormwater Management

The Bureau of Watershed Conservation administers Pennsylvania's stormwater management program mandated by the Storm Water Management Act, 32 P.S. 680.1 *et seq.* The Act requires counties to prepare watershed stormwater management plans for designated watersheds. The plans consider hydrologic and hydraulic effects of changes in land use and the quantitative and qualitative impacts on receiving streams. Nonpoint source pollution may be considered as one of the components in a plan. The specific issues addressed are: a. identification of critical NPS sub-watersheds based on annual loadings; b. estimation of annual pollutant loadings under existing and future land use conditions; c. application of water quality modeling techniques to derive standards and criteria for use by municipalities; d. identification of Best Management Practices (BMPs) applicable to the watershed; and e. evaluation of the effectiveness of BMPs. These water quality issues and associated BMPs are generally addressed as the counties carry out the planning process.

- When a water quality component is considered, the watershed plan will provide standards and criteria for the nonpoint source water quality controls associated with new development activities. Applicable structural and nonstructural BMPs are recommended within those plans which are unique to the watersheds. The standards and criteria in the plan are implemented by local municipalities through their codes and ordinances. If local governments desire, they may undertake construction projects to minimize water quality degradation of the receiving streams as recommended within the plan.

Stormwater Management Act

Act 167, the Stormwater Management Act, regulates stormwater runoff from land alteration through stormwater management plans developed by the county governments

and implemented through local municipal ordinances. The watersheds designated by Act 167 encompass a main stream and all of its tributaries and may encompass several hundred square miles. In a watershed having an approved Watershed Stormwater Management Plan, anyone engaged in the alteration or development of the land which promotes earth disturbance or alters the stormwater runoff characteristics, must comply with the requirements Act of 167. Where there is no approved plan, the regulation of stormwater is under the authority of the Municipalities Planning Code and the applicable level class code.

National Pollutant Discharge Elimination System (NPDES)

The State of Pennsylvania received delegation of the NPDES Permit Program from the U.S. Environmental Protection Agency (EPA) on June 30, 1978. The federal Clean Water Act, Sections 301, 302 and 402 define the National Pollutant Discharge Elimination System (NPDES). Article III of Pennsylvania's Clean Streams Law deals specifically with industrial waste. Chapter 92 of the Department's Rules and Regulations, sets forth the provisions for administration of the National Pollutant Discharge Elimination System (NPDES) program within Pennsylvania. It establishes criteria for the content of NPDES permit applications, effluent standards, monitoring requirements, standard permit conditions, permit conditions, public notification procedures, and other requirements pertaining to the NPDES program. As part of the plan to integrate the NPDES program into the existing state permit system, a two-part permitting process was instituted. The following sections describe these two state issued permits.

- Water Quality Management Part I - NPDES Permit

  Any person or facility which discharges pollutants into **surface waters** within Pennsylvania must obtain a WQM Part I NPDES permit. Included are those facilities that discharge **stormwater associated with industrial activity** as defined by 40 CFR 122.26(b)(14). The purpose of this permit is to establish appropriate effluent limitations, monitoring and reporting requirements, and schedules (as required) for complying with the terms and conditions of the permit. This permit has a fixed life not exceeding five years.

- Water Quality Management (WQM) Part II - Permits

  The WQM Part II permit provides for the approval of plans and specifications for waste treatment facilities and the construction and operation of these facilities, including manure storage facilities. Treatment facilities which discharge directly to surface or indirectly to groundwaters of the Commonwealth are required to obtain this permit.

- The Bureau of Water Quality Protection addresses land disposal of wastewater in several different ways. The Onlot Sewage Program requires each municipality in the state to develop and implement an official plan dealing on new system designs as well as creating facilities for local municipalities and the public.

Biosolids:

The Commonwealth has regulated biosolids since 1977. Nearly 2.2 million tons are generated yearly in the state. Pennsylvania has approximately 270 wastewater treatment plants. About 50 percent of biosolids are land applied. Pennsylvania has 15 biosolid composting sites and nearly 400 sites in the state are permitted for biosolid application. Persons seeking to land apply biosolids must obtain a Land Application of Sewage Sludge Permit. Only Pennsylvania certified persons may apply biosolids.

V. Federal Consistency with Pennsylvania's Nonpoint Source Management Program

For almost a decade, the Pennsylvania Department of Environmental Protection has employed an effective mechanism in reviewing federal projects for consistency with Pennsylvania's environmental protection programs. Environmental reviews are coordinated through the Department's Project Review and Evaluation Program (PREP). This program provides a centralized review of projects which are required by federal and state statutes to be reviewed for their potential impact/s on Pennsylvania's environment. The PREP Program outlines a detailed description of the project review process within the Department. The PREP Program is administered by the Department's Office of Policy which is responsible for resolving conflicts, coordination, and developing a unified Departmental position on all comments, approvals and project recommendations. This process involves coordination with all six of the Department's regional offices. Working in this manner, specialized field staff can provide input into projects where their expertise and experience is invaluable.

Pennsylvania has little federally owned land and a good working relationship with our federal land management agencies. The management plans for federal lands in Pennsylvania are consistent with the Pennsylvania Nonpoint Source Management Program. Federal lands in Pennsylvania are managed by the United States Department of Agriculture's Forest Service, the Department of Interior's National Park Service and the Department of Defense

Allegheny National Forest

The U.S. Forest Service is responsible for managing the forest resources within the Allegheny National Forest, located in northwestern Pennsylvania. Silviculture activities

within the forest are closely administered for compliance with nonpoint source pollution controls. The nonpoint source activities are implemented through actual timber sale contract provisions, which are administered and inspected weekly for compliance.

To address the concern of road runoff and sedimentation to streams, eight surveys were conducted in 1994 to determine the effectiveness of filter strips between forest roads and streams (one area was associated with oil and gas development). The streams are either first- or second-order perennial streams

National Park Service Sites in Pennsylvania

The U.S. Department of the Interior, National Park Service manages 14 national park units within the Commonwealth, comprising approximately 41,260 federally owned acres. Each unit is managed according to its enabling legislation under the direction of a park superintendent. The basic servicewide document used to interpret statutes and other guidance affecting various facets of administration and management is the 1988 edition, Management Policies, which is updated and revised as necessary. Within each park, the superintendent is responsible for water resources management.

Department of Defense Sites in Pennsylvania (Map)

On July 4, 1998, the Pennsylvania Department of Environmental Protection and the Army, Navy, Air Force and Defense Logistics Agency entered a cooperative long-term cooperative Agreement linking the federal government's Defense Environmental Restoration Program with Pennsylvania's Land Recycling Program. The structure of the agreement is modeled on Pennsylvania's successful Multi-Site Agreement approach to voluntary cleanups which prioritizes, consolidates, and schedules all the work so that it can be completed sooner and much more cost-effectively. All branches of the armed services are represented in the partnership with PA DEP, thereby streamlining the state-federal relationship and facilitating long-term planning/budgeting.

All military properties which are, or in the past have been, subject to environmental evaluations and/or remediation, have been listed in an inventory of approximately 1,076 total sites. The locations of the sites are identified on the accompanying map. The primary goal of the Cooperative Multi-Site Agreement is to have all sites evaluated and a cleanup program in place at those sites in need of work by September 30, 2010. The agreement will use flexible cleanup standards and site-specific, risk-based approaches, plus other features of the Pennsylvania Land Recycling Program, to provide a "faster track" approach to better protect the environment, and return properties to productive use.

VI. PUBLIC PARTICIPATION

In updating Pennsylvania's NPS Management Program, the PADEP has considered the input from state, federal and local agencies, as well as, from the general public.

The Commonwealth annually solicits 319 Grant Project Proposals through public notice in the Pennsylvania Bulletin, the DEP Update, on the web, as well as, through mailings to people who have requested to be on our mailing list. Information on all 319 Projects is also posted on the web.

Education and Outreach

In an effort to obtain suggestions from the public and to make information accessible, the Department of Environmental Protection (DEP) has developed:

The Update Newsletter, a free weekly publication available on DEP's web site and via postal delivery.

World Wide Web Site on the Internet at www.dep.state.pa.us.

Infrastructure Support

Governor's Green Government Council (GGGC)
The Governor's Green Government Council's mission is to cooperatively put environmentally sustainable practices into state government's planning, policymaking and regulatory operations, while striving for continuous improvement in environmental performance.

DEP's Office of Pollution Prevention and Compliance Assistance (OPPCA)
Pennsylvania's Department of Environmental Protection recognizes the value of pollution prevention through its Office of Pollution Prevention and Compliance Assistance (OPPCA). Pollution prevention (P2) is important to nonpoint source management because it involves preventing pollution from occurring at its source, before it is generated and has to be disposed of or cleaned up. In the action plans for each NPS category, milestones involving pollution prevention are identified by the symbol ❖ .