

208 PLANNING IN THE POTOMAC RIVER BASIN:

The Key to the Clean Water Act or More Plans for the Shelf?

-A 1979 Report-

by Keith M. Brooks

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PLANNING

We must plan our civilization or we perish.

-Harold Joseph Laski

It is a bad plan that admits no modification.

-Publilius Syrus

Make no little plans.

-Daniel Burnham

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THE CLEAN WATER ACT-SECTION 208

With the passage of the Federal Water Pollution Control Act Amendments in 1972 (P.L. 92-500), the focus of water quality changed throughout the nation. By addressing water pollution control in a comprehensive manner, the law intended to allocate resources and manpower in the broadest manner with the greatest benefit. The Clean Water Act of 1977 (P.L. 95-217) added, modified, and to some extent complicated a number of provisions of the earlier law. Generally speaking, however, the extension of deadlines and the inclusion of a greater emphasis on rural clean water programs were the most important changes from 1972.

Perhaps the greatest promise in the Clean Water Act was in the now famous and much maligned "Section 208." The purpose of this section was to encourage a comprehensive approach to water quality problems, control measures and effective implementation. Under this section, the Congress gave the 208 program, administered by the Environmental Protection Agency (EPA), a very broad charge in 1972. The 208 program was really the first attempt to interrelate, on a massive planning basis, areawide wastewater management concerns with concerns for drinking water quality, for recreation, and for sound land-use planning and management. Land-use management through a water pollution law was, and is, perhaps the most significant aspect of the entire Clean

Water Act. Land-use planning on the national level has always met with resounding defeat. Some felt that 208 offered the mechanism to implement land-use planning on a large scale. This shift from the purely water-related and quality-oriented aspects of water resources was a slow process which accelerated quickly after 1970. In addition to the emphasis on total areawide planning, a parallel shift occurred with state and local initiative moving to that of federal dominance. Congress, the federal courts and federal agencies have acted together in a fundamental change in governmental duties. Prior to P.L. 92-500, direct federal jurisdiction was, for the most part, limited to navigable waters of the United States. By P.L. 92-500, Congress extended federal authority to all waters of the United States and EPA gave this language the broadest possible definition under the commerce clause and the courts have more often than not interpreted decisions based on broad definitions.

Federal agencies have been given at least concurrent charge of a variety of day-to-day activities in what was once considered local government affairs. Of course, P.L. 92-500 did not produce a savior or monster, depending on one's view of the Act, from scratch, but certain aspects were new. The Section 208, as was stated earlier, was perhaps the most significant.

The purpose of Section 208 was that of encouraging and facilitating the development and implementation of areawide waste treatment management plans.

•Any plan prepared under the 208 process was to include, but not be limited to the following:

- a. The identification of treatment works necessary to meet the anticipated municipal and industrial waste treatment needs of the area over a twenty-year period. In addition, this identification will be annually updated, including the analysis of alternative waste treatment systems, including any requirements for the acquisition of land for treatment purposes, the necessary waste collection and urban runoff systems. A program to provide the necessary financial arrangements for the development of such treatment works and an identification of open space and recreation opportunities that can be expected to result from improved water quality.
- b. The establishment of construction priorities for treatment works and time schedules for start-up and completion of any treatment works.
- c. The establishment of regulatory programs to implement the waste treatment management requirements of Section 201(c); regulate the location, modification and construction of any facilities within such area which may result in any

discharge in the area and assure that industrial or commercial waste discharges meet applicable pre-treatment requirements.

d. The identification of those agencies necessary to construct, operate and maintain all facilities required by the plan.

e. The identification of the measures necessary to carry out the plan.

f. A process to identify agriculturally and silviculturally related nonpoint sources of pollution, and to set forth procedures and methods to control these types of pollution.

g. A process to identify, if appropriate, mine-related sources of pollution and set forth methods for control.

h. A process to identify construction related activity sources of pollution and set forth procedures to control to the extent feasible.

i. A process to identify, if appropriate, salt water intrusion into rivers, lakes and estuaries and set forth procedures and methods to control such intrusion.

j. A process to control the disposition of all residual waste generated in the area which could affect water quality.

k. A process to control the disposal of pollutants on land or in subsurface excavations within such area to protect ground and surface water quality.

This has been referred to by many state and local officials as the "a-k wish list."

WATER QUALITY MANAGEMENT REGULATIONS

40 CFR Parts 35, 130, 131

These regulations of May 23, 1979 govern the water quality management program of the Environmental Protection Agency. EPA has its authority under Sections 106, 208, and 303 of the Clean Water Act.

Through the Water Quality Management (WQM) program, grants and other assistance are provided to states, interstate and areawide agencies for the development and implementation of programs to abate and control both point and nonpoint sources of water pollution. Specific program activities include the identification of water pollution problems; the assignment of responsibilities for problem solving to federal, state, interstate, areawide and local government agencies; and the development and implementation of solutions to the problems.

Four earlier sets of regulations for implementation of Sections 106 (grants to states and interstate agencies for water pollution control programs), 208 and 303 (water quality standards and implementation plans) have been replaced by these new regulations. EPA combined the regulations into one and tried to eliminate, simplify and consolidate the numerous programs. These consolidated

regulations were first proposed in the Federal Register on September 12, 1978. The rules became effective on May 23, 1979.

The regulations do not contain major changes in the goals and objectives of the Water Quality Management program. The adjustments occur in the management and structure of the program. The regulations were revised in order to set forth necessary requirements for the continuing planning and implementation phase of the program. The initial 208 planning period for grantees (usually three years) had ended or was soon to end.

During the continuing planning phase, pollution problems that were not addressed by the initial plans will be covered. Over time, as resources are available, WQM plans which cover all pollution problems will be completed.

The water quality management process is a series of steps, according to EPA, beginning with the water quality assessment process. Water quality conditions and problems are identified in the water quality assessment process. Activities that comprise this process have been performed by state and areawide agencies under existing Section 208, Section 106 and Section 314 programs. Results of assessment activities are reflected in the WQM plans and the Section 305(b) water quality status reports.

States must have a five-year strategy which establishes a general framework of priorities and approaches to resolving the water quality problems identified in the water quality assessment process. The state strategy is updated annually and must set forth water quality problem-solving goals for the strategy period.

Section 303(e) of the Clean Water Act requires that states submit to EPA for approval a Continuing Planning Process (CPP) document. The CPP document describes the procedures for the state WQM process. All states now have approved CPP documents. EPA views that the document need only be revised when there are fundamental changes in the state's WQM Program.

THE POTOMAC RIVER BASIN

In the Potomac River basin, as in the rest of the country, 208 planning has been approached in different ways. Basically, the two most prominent approaches are: (1) looking at 208 as the planning for water quality management which deals with nonpoint sources of pollution only. This technique generally includes a broad discussion of problems in the state and the writing of techniques and management practices which cover the Best Management Practices (BMP's) for alleviating the impacts of nonpoint pollutants. The addressing of the point sources in the plan is minimal with the rationale these are addressed under other authorities, such as Section 402 National Pollutant Discharge Elimination System permits and 303(e) WQM planning which was done earlier. (2) the second approach is a more comprehensive technique in that each of the plans for different areas of the state include a great deal of discussion on point sources and techniques which may be used to alleviate these problems. The nonpoint impacts are addressed in the same volumes and 208 is viewed in a broader context than only the identification and presentation of some techniques to control nonpoint pollution.

In the Potomac River basin, the two techniques are both used and the success of either approach will only be visible

over time. Also, the only designated area under 208 is the Washington, D.C. Metropolitan area with the Council of Governments the agency responsible for the planning efforts for the District of Columbia, Prince Georges and Montgomery Counties in Maryland and Fairfax, Loudoun and Prince William Counties in Virginia.

In the other areas of the Potomac River basin, the states have the mandate and are engaged in the 208 planning process.

As for the two techniques, the states of West Virginia and Virginia have opted for the alternative of viewing 208 planning as nonpoint pollution planning and prepared handbooks for the analysis and presentation of the Best Management Practices.

The states of Maryland and Pennsylvania and the Metropolitan Washington Council of Governments have chosen the combination of point and nonpoint sources. The plans vary significantly from state to state and this grouping is more for illustrative purposes than anything else.

In the area of point source control the states of Pennsylvania, Virginia, and Maryland have the authority to issue and enforce NPDES (National Pollutant Discharge Elimination System) permits. West Virginia and the District

of Columbia have not assumed responsibility for this activity, with the EPA issuing the permits and enforcing them in these jurisdictions.

The 208 plans must be certified by the governor before submission to the Environmental Protection Agency before they will be approved. This process is currently under way in the Potomac River basin states as well as in the nation, as a whole. The Potomac River basin provides an interesting example of both designated and non-designated areas under 208 and how states and regional agencies have differed in their approaches to water quality management.

STATE OF MARYLAND

In the non-designated areas of the state of Maryland, (the Baltimore metropolitan region and the Washington D.C. metropolitan area have been designated), twelve river basin documents have been prepared under the 1976 Section 208 grant given to the Water Resources Administration of the Department of Natural Resources. In the Potomac River basin, 4 plans have been prepared: Lower Potomac, Middle Potomac, Upper Potomac and the North Branch Potomac River areas.

The 1977 Clean Water Act Amendments to the Federal Water Pollution Control Act required that all initial plans be certified to EPA not later than three years after the initial EPA 208 planning grant. For Maryland, the deadline was June 1979.

The state of Maryland explains three basic ways to use the river basin plans prepared to comply with the 208:

1. As a management plan for the basin presenting water quality management needs, recommendations, and strategies for the basin.
2. As an information and reference source.
3. As an information source for water quality management policies.

Each of the Maryland river basin plans follows a similar format and addresses both point and nonpoint sources of pollution. A water quality assessment is included, as are chapters on point sources and nonpoint sources. The remainder of the plan includes information on residuals management, groundwater, institutional arrangements and public participation.

Some controversy has arisen over the final plans since a new state policy has directed that only strategies and policies which have been funded or have been designated as fundable should be placed in the plan. Previously, suggestions for studies and pilot projects were included in the plan, but this has been regarded as being unwise in the event that a program is not funded, thereby making the plan appear unrealistic and lacking any capacity for implementation.

--The Water Quality Assessment chapters of the plans describe the water quality conditions and the existing data base, as well as existing water quality studies.

--The Point Source chapters describe the location of discharges within the basin, their permits, and wasteload allocations. Within these chapters are the on-going 201 facilities planning activities located within the basin showing the municipal wastewater treatment facilities

status.

--The Nonpoint Sources chapter provides a general description of nonpoint pollutants within the basins and references the Statewide Agriculture Water Quality Management Program for Sediment and Animal Wastes which has been adopted. (See description at end of this section)

--The Residual Management chapter deals with the status of residual control, including all non-liquid wastes, in the basins and explains some of the background on the Resource Conservation and Recovery Act of 1976.

--Groundwater is described in general terms only.

The water quality management plans provide good inventory data for the river basins in Maryland. They are "comprehensive," in that they provide information on total water quality management (i.e.: including point, and nonpoint sources of pollution as well as residual management and groundwater concerns). The recommendations for future actions to satisfy the goals of the Clean Water Act are relatively few, based on the management decision to only include those strategies which had funding available. The state believes that the opportunity for action and real implementation of water quality improvement programs lies in other programs, in addition to the 208, and these will be

given greater emphasis in the overall state strategy. The 208 plans have been submitted to EPA, Region III and the process for approval by that agency is currently under way.

An example of supplementary programs would be the plan for agricultural practices which has been adopted. This Statewide Agriculture Water Quality Management Program for the Control of Sediment and Animal Waste is a supplementary plan to the basin plans which addresses in greater detail the agricultural concerns of water quality. Included in the plan are implementation and institutional mechanisms. These types of topics discussed make this plan much more than an inventory or status report. A major emphasis in the program is the designation of critical areas, those regions with the worst potential problems, in both sediment and animal waste. This delineation will be performed by state and federal agencies and the private landowners. In addition, the critical areas will be ranked for severity throughout the state by the State Soil Conservation Committee.

Since most Maryland farms will not be located within a critical area designation, the agricultural handbook does not apply to the majority of farms. If, however, a certain farm is cited by the Maryland Water Resources Administration (WRA) as a water pollution problem, then a water quality plan will have to be prepared to address the problem. For

those farms within a critical area, the program will attempt to correct the situation in a practical and cost-effective manner. The impetus for development of this program lies within Section 208(j) which authorizes the U.S. Secretary of Agriculture to administer a program to enter into long term agreements with rural landowners providing for incorporation of Best Management Practices. Technical assistance and cost sharing are included to assist in the implementation of the rural clean water aspects of the Act.

The plan to be developed to address a critical area is termed a Soil Conservation and Water Quality Plan (SCWQP) and is viewed as being less complex than many traditional conservation plans which have been used for years and this will increase the potential for successful implementation of the program.

STATE OF WEST VIRGINIA

The state of West Virginia has followed the route for 208 Water Quality Management Planning of drafting documents which address the nonpoint pollution problems of the state. Point source control programs have, according to state publications, "been well established in the state to a large extent since the inception of the 1972 Act." Since these point sources were well established, the nonpoint sources were to be investigated and plans developed to deal with these problems.

The Department of Natural Resources (DNR) was delegated the responsibility of establishing the program in October, 1977. The strategy developed by the Division was to obtain the expertise of state agencies who dealt with the categories of nonpoint sources in the state which were deemed most significant: mining, construction, agriculture and silviculture (listed in the "a-k" list). Working with these agencies of the state and input from federal agencies, private industry, environmental groups and concerned citizens, DNR prepared four handbooks.

--The Construction Water Quality Management Plan was assigned to the West Virginia Department of Highways as the lead agency in developing a plan to control and/or eliminate water pollution from the various types of construction

activities. An advisory committee was established to provide assistance and comment during the development of the present plan. Construction activities had been classified into the following sub-categories: land development, transportation and communication networks, water resource facilities and others. The methodology of the plan was first to define the problem, then develop criteria for evaluation of the problem, develop a framework for public participation and finally develop implementation programs for the policies. Possibilities for future research were also included. Since the exact amount of improvement from the nonpoint source Best Management Practices is for the most part unknown, the program has the flexibility to update the management practices when new information becomes available. The plan, itself, identifies the problem within the area of interest and describes some of the best management alternatives available for improvement of water quality impacted by the nonpoint sources. A chapter then deals with implementation of the BMP's. Construction, by its nature, is a temporary condition and priority areas have little meaning.

--Mining: The work plan for mining activities in West Virginia was developed by an outside consultant, Green International, Inc. for the Department of Natural Resources.

The mining activities vary from limestone, sand and gravel to the more prominent and devastating coal mining in West Virginia.

The 208 mining work plan's purpose was to overview the existing data with the objective of identifying several priority areas for mine drainage abatement. The plan identifies existing data, defines the extent and magnitude of the problem, identifies data gaps and conflicts, determines contributions from active and inactive mines, determines the sources and amounts of pollutants (estimating pollutant loads) and establishes a priority determination of watersheds in the state.

--The forestry portion of the 208 water quality management plan for West Virginia was prepared by the 208 Silviculture Technical Action Committee which included the Department of Natural Resources Soil Conservation Districts, environmental organizations, state agencies, and federal agencies.

The document provides an inventory of the forest lands in West Virginia and present some suggested Best Management Practices for reducing the impacts of logging and forestry practices. The inventory includes number of mills, amount of lumber production and the level of pulpwood production. Soil erodibility and land use are given to present the need

for BMP's in certain areas. Priority areas are based on a generalized Land Resource Area (LRA). These regions are large geographic areas with distinctive qualities (such as climate, soils, topography and other physical parameters). Five LRA's are described in the forestry handbook for the entire state of West Virginia. Two of the areas were suggested as having priority in any accelerated implementation of Best Management Practices within the state.

--The Agricultural Water Quality Management Plan was prepared by the West Virginia State Soil Conservation Committee and the Department of Natural Resources. Described are the areas of agriculture in the state, with a major emphasis on some of the Potomac basin counties because the land in the Eastern Panhandle is some of the most productive agriculture land in the state. Of the top five counties for cropland use, four are in the Potomac River basin (Jefferson, Berkeley, Hardy and Pendleton).

Some best management practices are provided as well as the designation of priority areas within the state. Two areas in the state had been designated priority areas, one being a 218,000-acre drainage area located along the South Branch in Hardy, Hampshire and Grant Counties from near Romney to Petersburg. The priority area includes an

assessment of the potential agricultural pollution source, and a listing of the BMP's for certain acreages. The designation of the priority areas indicate those areas where work should start first.

Implementation responsibilities were included within the plan as well as comprehensive inventories of land use, agriculture potential and Best Management Practices.

COMMONWEALTH OF PENNSYLVANIA

Pennsylvania has approached the 208 planning process in a different manner than the other basin states. By beginning their water quality management planning process prior to the passing of P.L. 92-500 and subsequent regulations, Pennsylvania incorporated the 208 process into its ongoing planning for water quality named COWAMP (Comprehensive Water Quality Management Program). The state is divided into 9 regions for purposes of water quality management with the Potomac basin being in 2 of these 9. The vast majority of the basin lies in Region 5, the Turnpike Area WQMA, including the counties of Somerset, Bedford, Fulton, and Franklin. Region 3 includes Adams County and part of Franklin County.

The COWAMPs include both point and nonpoint sources of pollution and are extensive in their information. The progress of the plans is somewhat more advanced than other states in the nation, accountable in some extent to the fact that the COWAMP program predated the passage of the Clean Water Act. COWAMP was developed in response to federal regulations on WQM planning issued in 1970 by the newly formed Environmental Protection Agency (18 CFR 601). By starting the planning process earlier than others, Pennsylvania was able to proceed when others were waiting.

Problems arose in the early stages, however and the program is almost three years behind its initial timetable. The COWAMP incorporated activities under a variety of state and federal laws into the program so it tends to be more comprehensive than plans which simply address the requirements of Section 208 of the Federal Water Pollution Control Act Amendments of 1972 and its subsequent amendments in 1977.

COWAMP is an attempt by the state to provide the planning tools to carry out a program of comprehensive water quality management. After the plan is approved by the state legislature, it will become the master plan for sewerage programs in the COWAMP region. If a local initiative is not in compliance with the plan, it will not be eligible for funding assistance.

COWAMP addressed the need for nonpoint research and analysis early on in the planning process. Therefore, Pennsylvania became one of the lead states in discovering the inherent difficulties in nonpoint source abatement and analysis. Nonpoint pollution control, however, received much less attention than did facilities planning for point source control. The nonpoint source (NPS) and intermittent point sources (IPS) were discussed together and included acid mine drainage, agricultural runoff, urban runoff, and

combined sewer overflows, on-lot sewage disposal, landfill leachate and construction site runoff.

The COWAMP when completed will contain thirteen chapters for each of the 9 regions within the state. The plan will include information on public participation, environmental characteristics, population, land use, existing water quality conditions, existing water uses, projected future conditions, the development of water quality management alternatives, and a recommended water quality management plan based on the collected data and analyzed in economic and environmental terms.

The development of water quality management alternatives was undertaken in the summer of 1979.

In an early publication by the Pennsylvania Department of Environmental Resources an important question was raised on the cover: "Is COWAMP just another collection of data to gather dust on the shelf?" The reports are not complete at this time, but there has been some evidence that the material obtained in the COWAMP program has been used.

COMMONWEALTH OF VIRGINIA

As part of Virginia's initial statewide planning efforts, for the non-designated areas of the states, a major involvement has been in the development of handbooks outlining Best Management Practices to control nonpoint sources of pollution. Nonpoint source pollution is described as any pollution whose specified point of generation cannot be traced to any discrete, identifiable facility and whose exact point of entry into a watercourse cannot be defined.

One of the most significant aspects of the approach to nonpoint pollution is the total voluntary nature of control. All BMP's are without mechanisms for requiring their adoption, although mining BMP's are required under other laws and regulations. The BMP's are subject to revision as a better understanding of nonpoint source controls and their effectiveness is achieved.

In Virginia, BMP handbooks have been written for Agriculture, Forestry, Surface Mining, Urban Areas, Hydrologic Modifications and Sources Affecting Groundwater. Each handbook was prepared by a technical advisory committee of state and federal agencies and a citizen advisory committee. The State Water Control Board supervised the development of all the handbooks, but a separate lead agency was responsible for writing each one.

The Lead Agencies were:

- Agriculture Soil and Water Conservation Commission
 Department of Agriculture and
 Consumer Services
- Forestry Division of Forestry
- Surface Mining Division of Mined Land Reclamation
- Urban Soil and Water Conservation
 Commission
- Hydrologic
 Modifications State Water Control Board
 Marine Resources Commission
 Department of Highways and
 Transportation
- Sources
 Affecting
 Groundwater State Water Control Board

AGRICULTURE

Agricultural nonpoint sources are the crop and animal production systems that result in diffuse runoff, seepage or percolation of pollutants to surface and groundwaters. The handbook lists categories of activities which have the potential for impacting water quality via nonpoint pollution

from crop and animal production. The pollutants which are generated by agricultural practices are sediment, high nutrient concentrations, pesticides and organic material. The handbooks present measures for reducing the nonpoint pollutant entering the watercourses of the state.

FORESTRY

The principal pollutants generated by silvicultural activities are sediment, organic material, and chemicals including fertilizers, pesticides and fire retardants. Sediment is the greatest source of pollution, by quantity, during forestry operations. The measures which can be applied for control of nonpoint forestry pollution are divided into two general categories: (1) management decision measures and (2) structural measures. Management decision measures are the incorporation of practices which consider water quality as an important aspect of forestry. The structural methods imply a more intensive approach to reduction of nonpoint pollutants.

SURFACE MINING

The practices listed in the Surface Mining Handbook conform to all federal and state regulations regarding mining. The mining activities which produce nonpoint pollution are exploration, construction, runoff and seepage, and the unsuccessful reclamation of stripped lands. The

primary pollutants of surface mining are sediment, acidity and heavy metals. The measures which can be applied to surface mining activities to prevent or reduce the pollutant loadings are classified into two general categories: (1) mechanical or structural practices and (2) vegetative measures. The mining BMP handbook is different from the other handbooks, because these practices are required by laws, although not 208. In order to receive a permit to mine from the Division of Mined Land Reclamation, an operator must include the Best Management Practices which will be used in the mining operation. Alternate practices can be substituted only if a licensed professional engineer certifies that those practices will accomplish the same purposes. The Best Management Practices are part of the Drainage and Sediment Control Handbook which accompanies the state regulation on mining of coal and other minerals.

URBAN

Nonpoint pollution from urban areas occurs when precipitation flushes the land and carries pollutants to receiving waters. The four major sources of nonpoint pollutants in urban areas are fallout from the air, residues from transportation, litter, and runoff from construction sites. The principal pollutants which may be generated by urban activities include sediment, organic matter, nutrients, pesticides, heavy metals and microorganisms. The BMP's may be classified as either source management or

collection system management. BMP's for erosion and sediment control of construction projects are addressed in the Virginia Erosion and Sediment Control Handbook and requires implementation of local erosion control ordinances. The Urban BMP handbook addresses those nonpoint sources not included in the construction ordinances.

HYDROLOGIC MODIFICATIONS

Control practices are provided for channel modifications, dredging and dredged material disposal and impoundment operations. The primary pollutants of hydrologic modifications are sediment, thermal increases and increased turbidity. Dredge, fill or construction activities must have permits for such activities within the waters and wetlands of the Commonwealth of Virginia from the Corps of Engineers, the state and from local wetland boards.

GROUNDWATER

This Best Management Practice Handbook concentrates on saltwater intrusion as a nonpoint source degrading groundwater. Other groundwater pollution is addressed in other handbooks dealing with the various land use techniques to improve the quality of runoff from land surfaces which may enter the groundwater.

METROPOLITAN WASHINGTON, D.C.

Planning under Section 208 was begun in 1975 after the Council of Governments was assigned responsibility by the Environmental Protection Agency to carry out the requirements of areawide water quality planning. The effort was directed by the Water Resources Planning Board. Members of the Board are representatives from local governments, the state of Virginia and Maryland, the District of Columbia (acting as a state), the Interstate Commission on the Potomac River Basin, and the Northern Virginia Planning District Commission. The Board is assisted by a Technical Advisory Committee, a Citizen Advisory Committee and other special committees and subcommittees.

The draft initial plan was formally presented to the public in March 1978 and was approved by the local governments in June 1978 and forwarded to the states, but with several key issues unresolved. The interjurisdictional problems prevented the resolution of many of the more difficult aspects of the water quality plan such as sludge disposal and location of future sewage treatment capacity. The states delayed action on certification for over a year until June of 1979. At this time, the three jurisdictions conditionally certified the plan before it was submitted to the EPA in Philadelphia. (See more detailed description at

end of this section.)

The Plan has 4 general purposes:

- (1) to lay out the process for cleaning up the area's waters-going beyond conventional sewage treatment;
- (2) to assure adequate capacity for the future growth of the area;
- (3) to evaluate ways to control the rising costs of pollution control; and
- (4) to reassess the past planning decisions in light of new information.

Each chapter of the plan contains, where applicable, the major findings, recommendations and a discussion of continuing planning activities. The chapters include water resources and the environment (an overview), existing water quality, future water quality, water resources management, point sources, residuals management, nonpoint sources of pollution, and continuing planning and implementation.

In addition to the text, a glossary is included as are extensive appendices. Perhaps, the most unique appendix is the Citizen Advisory Committee's response to the Plan. The CAC summarized their response in this manner: "The Water Resources Citizen Advisory Committee has worked for two and

one-half years in a good faith volunteer effort to help develop an implementable 208 plan to clean up the Potomac River and to protect the use of regional waters. In reviewing the draft plan, we are disappointed to find that several key elements of the section 208 regulation have been inadequately addressed." Each chapter in the plan met with a response from the CAC. Other appendices include an impact assessment of recommendations, existing water quality conditions, on-site handling systems, financial strategies and a variety of other topics.

Under these circumstances, the plan was forwarded to the states of Virginia and Maryland and to the District of Columbia for state certification of the regional water quality management plan. The delay of over one year finally resulted in the conditional certification of the plan. This type of certification, as outlined in the federal regulations, means that the plan must satisfy a variety of conditions for it to become the official water quality management plan for the state areas covered by the 208 designation. The conditional certification of the plan permits EPA to initiate its official review.

A memorandum from the Director of the Water Resources Department in May 1979 described an update of the plan due in late summer of that year to address the inadequacies of

the initial plan. The schedule for this updating was extended six months (until March 1980) to allow for the reissuance of the NPDES permit for the Blue Plains Wastewater Treatment Facility, the largest point source in the metropolitan area. This new permit became effective on August 18, 1979. The principals of the 1974 Blue Plains Agreement (Montgomery, Prince Georges, and Fairfax Counties and the District of Columbia) have taken the lead through their Chief Administration Officers (CAO's) and the Blue Plains Technical Committee in resolving issues related to point sources which hadn't been adequately addressed in the 208 plan. The Council of Governments is providing support staff to provide technical assistance in the endeavor. The issues being analyzed include capacity sharing, infiltration/inflow reductions, load allocations and sludge management. The 208 updated plan is expected to incorporate the recommendations from the Technical Committee and include appropriate sections from the EPA Potomac Strategy which coordinates EPA-funded studies into a comprehensive program regarding waste load allocations, outfall evaluations and biological studies.

GENERAL ANALYSIS OF 208 PLANNING DIFFICULTIES

The inability of Section 208 to produce both fishable and swimmable lakes and rivers by 1983 throughout the nation is assured. This failure, though, cannot be fairly viewed without taking into context the entire Clean Water Act and what was demanded of a planning process which was untested and unclear when it commenced. The problems of 208 have been varied and each areawide plan has experienced some difficulties unique to it. A variety of the setbacks are inherent in the 208 process and these will be discussed in this general analysis. The specific basin state and COG regional plans will be discussed in a later chapter.

Perhaps, the first and foremost factor in 208 is the very nature of the section in the Clean Water Act. Whether realizing it or not, the drafters of the law created a water quality management planning device which could by-pass the states and was without precedent in the United States and which imposed an impossible timeframe for many areas with special concerns and problems. In addition to the demands and requirements of the "a-k list," the concept of areawide management was foreign to many of the state and local decision-making agencies who would be the vehicles for implementation of the areawide plan. There exists an underlying and, at times, overt fear of loss of local

autonomy and power when a formerly local issue is taken over by an areawide agency and regulated by federal authorities. Although this issue may be of a theoretical or conceptual nature, it has surfaced and will continue to plague plans which cannot address the loss of autonomy to the satisfaction of those who have the ability to implement policy.

After the conceptual questions, the management of the program becomes the concern of high priority. By management, this implies the direction of the program dictated from EPA, as well as general regulations promulgated to carry out the intent of the law. The 208 plans were required to be completed in three years from the date that the grant was issued. According to even the EPA officials, the time frame has proven to be insufficient to carry out the complete requirements of the Section. The planning agency must identify, address and solve point and nonpoint sources of pollution within three years. The mere identification of the problem could take that long, especially when some of the agencies charged with 208 had to hire staff, obtain equipment and shift emphasis to begin a new direction in regional planning.

In addition to the time frame, the management of the program delayed start-up of the project and caused the

resultant products to be less than what was desired by the writers of the law. Direction was generally perceived by the agencies doing the planning as confused from the top and only until recently has the direction become more clear.

The other problem which arose was of a technical nature and was, perhaps, equally significant. 208 was to address both point and nonpoint sources of pollution. The question, of necessity, was where to allocate the effort and expertise. The point source pollution control mechanisms were much more documented and results were far more evident. The nonpoint sources still have not been shown to be effectively controlled by the various Best Management Practices. It may be an untenable position for a planning agency or decision-maker to require a technique for pollution control which has not been proven to be effective. Controlling of the point source pollution has proceeded steadily because of existing scientific and technological knowledge in the field. Control of nonpoint pollution depends on a far more untried science base. In the early days of the 208 program, the annual budget for construction grants had been funded annually in the billions of dollars, whereas the funding of nonpoint demonstration projects and basic research have been funded at a much more modest level. At the time of the 1972 Act, research and demonstrations would have been the logical and cost-effective path to

follow. In 1979, the question becomes increasingly difficult as secondary treatment is becoming extensive and the construction grants monies are to be channeled into either AWT or nonpoint projects. The purely voluntary BMP's for nonpoint control when contrasted with the authoritarian permit system provides yet another difficulty faced in producing a plan to clean up both point and nonpoint sources of pollution.

A third difficulty with the 208 process deals with the institutional arrangements. The authority of many of the designated planning agencies is limited to planning, with implementation the role of one or more other agencies. Planning and implementation agencies are not required to work closely together, nor is there a tendency to do so by nature. 208 planning was also viewed by many of the local authorities as a one-time planning effort, rather than as a continuing planning exercise as envisioned by the drafters of the Act. In many plans, there was no effort to include an ongoing planning program into the original plan. This one-shot perception was advanced further by the method of financing which granted 100 percent of the costs for the first three years only. After that, the EPA could grant 75 percent of the cost of updating plans to agencies whose plans it had approved. No federal funding is expected for 208 planning activities after 1983. For areas which were

not enthusiastic about the 208 process when funding was total, the appropriation of 25 percent of the funds after three years and 100 percent after 1983 was often a difficult demand on limited local monies. In the fiscal area, the agencies were expected to develop effective methods of financing the ongoing implementation process. According to EPA, 208 grants were never expected to be used for implementation of water quality management plans.

The Section 208 and subsequent regulations required such financial planning, but this has seldomly occurred throughout the nation. A prevalent feeling expressed is that if the federal government mandates ongoing planning for water quality, then the federal government should finance it as well. This perception is either a distorted or very limited view of planning. In addition to these problems, the bottom line was often the fact that the federal government had few effective sanctions which could be imposed on state and areawide planning agencies that failed to implement effective ongoing planning. The specter of halting construction grant funding for areas without an approved plan exists, but it has not been used at this time.

PLAN ANALYSIS

To analyze or examine the 208 plans in the Potomac basin, and plans in general, a few fundamental questions should be raised for each to ascertain their quality:

1. Does the plan comply with the 208 requirements of such plans as listed in Section 208 of P.L. 92-500?
2. Has useful information been compiled and/or new data generated? If so, what types? Any demonstration projects?
3. Is there a viable continuing planning process? Where does the areawide management go from the time of plan approval or submission to EPA?
4. Has the plan addressed the mechanisms for implementation of its recommendations? Is implementation possible?
5. If, indeed, the plan is instituted, what types of benefits will be achieved?
6. Will local funding carry on the 208 planning process over time? If so, what are incentives for local governments to continue?

Each of the Potomac basin plans does address each of the above questions to some extent. However, all do fail in some respects to fulfill the requirements of the Act. (As

previously discussed, this is due to a variety of circumstances, including some goals which were not possible in certain areas).

No plan in the Potomac River basin has been approved by the Environmental Protection Agency, at this time. Most of them are under consideration, but the final decision from that agency probably will occur sometime in 1980. The EPA must review various plans, presented in different ways, and then compare what the plans contain to what is perceived to be the intent of the law. This decision will not come easily and it is generally assumed that deficiencies in the plans may be addressed during the continuing planning process. This will be subject to EPA approval.

Maryland

The state of Maryland's approach to 208 planning was an attempt at producing a document which would satisfy all the requirements of the law. The product which evolved, was largely an inventory of existing conditions, facilities and institutions. As inventories, the plans are quite good. They provide information in a manner which may be readily located for a specific purpose. The description of the point source pollution control facilities was an excellent capsule summary of the various facilities planning areas. The description of the 201 process and priority list

complemented the description of the treatment plants. In the area of nonpoint pollution, a capsule summary is included for the various types of diffuse pollution and programs are included which may alleviate the problem. These programs are existing ones already in operation in the state. Residual management, groundwater and institutional arrangements all follow in a similar fashion--that being a description of the current situation.

The state's rationale for describing existing programs and providing a status report was if a program was recommended which hadn't been funded, or was in the process of such funding, then the total plan would be seriously weakened and perhaps jeopardized. It was assumed that a plan which included recommendations which couldn't be carried out would appear simply as wishful thinking with little regard to the actual situation.

With that direction, the planning process in Maryland has become largely a status report. As an inventory, it should be repeated, the plan is extremely helpful. No compilation of this data was available in a previously readable form.

The introduction of all the plans would make one believe that the volume contained more than a reporting of the water quality management in various subbasins in the

state. The first use of the plan was a management plan for the basin "presenting water quality management needs, recommendations, and strategies for the basin." The other two uses for the plan are satisfied that of being an information and reference source. In addition, the introduction proceeds further to state that "this 208 document, which once certified by the Governor and approved by the EPA, will provide direction and policy guidance for federal, state and local water quality management efforts in the basin." This goal of the document cannot be satisfied by the current 208 plans. Many of the alternatives and direction are provided in other programs in the state (such as the County Ten Year Water and Sewer Plans), but 208 was the vehicle to produce a "comprehensive water quality management program." Whether the continuing planning process will be able to provide a more comprehensive direction or strategy will remain to be seen. Credit must be given to the state for attempting to satisfy the a-k wish list, but as described in the previous chapter, Maryland suffered the fate of many 208 planning agencies.

Virginia and West Virginia

The plans which have addressed only the nonpoint sources of pollution by describing Best Management Practices (Virginia and West Virginia) are necessarily lacking in

conformance with the elements required in the plans as described in Paragraph (b)(2). Nonpoint identification and prescription of remedying practices disregard the elements dealing with treatment works and facility construction items. (In the above paragraph described, items a through e). As the plans have stated in their prefaces, these issues have been covered sufficiently under other programs and laws. If that is true, it still would be difficult to coordinate a total areawide waste management program if nonpoint sources are covered according to 208 and the point sources are a separate entity. The purpose of 208 was to provide a comprehensive water quality plan incorporating all the vital aspects of water degradation and improvement. It may be possible to promote wise areawide planning through the various planning devices, but it will take much work and an enlightened state agency to promote such progress.

The handbooks produced may satisfy the remainder of the plan requirements, however implementation of Best Management Practices are far from secure when they appear as a voluntary alternative. This lack of regulatory powers is probably wise at this time, but the efficacy of the practices will be difficult to assess. The BMP's are of great importance to water quality and the quantification of their effectiveness will be established only over a long time period.

Virginia

The Virginia Best Management Practice Handbooks are the most comprehensive in the Potomac basin. They were viewed by the state as an integral part of the statewide 208 program. In addition to the technical handbooks described in the preceding chapter, the Commonwealth is preparing a handbook concerned with implementation of the BMP's since the Clean Water Act emphasized quite strongly the need for implementation of the management practices. This Management Handbook outlines implementation procedures for the technical areas of concern. The strategy presented is flexible and includes general analysis of institutional and financial arrangements. Regulatory authorities and certain incentives are also presented. By preparation of an abbreviated implementation handbook, the BMP's are more likely to succeed than an open-ended best management practice system with no strategy presented.

The six handbooks which covered the nonpoint areas are described as being tailored for the soil, climate, and topography of Virginia. Very little of the handbooks described special areas which are of primary concern and would logically be attacked first. The general nature of the practices could be employed anywhere. It would have been instructive to show on a statewide basis which areas

are especially affected by the various nonpoint pollutant. The handbooks provide information on techniques used to control nonpoint source pollution including definitions, scope, design criteria, and maintenance concerns.

//The handbooks do repeatedly state that the individual practices shown for alleviating a nonpoint pollution source is only the basic element and combination of techniques will generally be necessary to control runoff. In addition, the statewide 208 process and plan, including the handbooks, is scheduled to be reviewed frequently and the BMP's, financial and institutional aspects will be updated when necessary. With an evolving state-of-the-art in nonpoint pollution control, this will be absolutely essential.

As with any 208 plan which addresses nonpoint pollution by best management practices, Virginia could not achieve the requirements of the Section which deal with treatment facilities and residual management. Perhaps a related issue is the status of the 303(e) plan, which was completed for the Potomac-Shenandoah basin in 1975 has never been adopted by the Commonwealth.// This failure to adopt the 303(e) plan does not provide the state with an approved plan for deciding where facilities will be placed. The material, however, in that plan is used often for decisions, but there is no existing overall plan for treatment facilities with

projections for the future (as described in Section 208).

Virginia's handbooks should be viewed as being a reasonably good start towards nonpoint control, but the coordination with point source control will be more difficult. The NPDES and 201 facilities planning portions of the Federal Clean Water Act lie with the Commonwealth, but the comprehensive nature that was required by the law does not seem to be addressed.

In addition to the description of the best management practices, each handbook contains chapters describing various alternatives and an evaluation of cost-effectiveness. Since cost-effectiveness is dependent on local conditions, the analysis is written as a general guideline only to give an estimate of the cost-benefit relationship without citing specific cases. Costs are not constant in all areas of the state and under different physical (topographic, climatic, etc.) conditions, so the cost analysis necessarily must be illustrative rather than definitive. The emphasis in the handbook cost section is largely that effectiveness and cost must be viewed simultaneously. In a voluntary program, a cost without observable benefits, either short or long term will not be employed. One of the difficulties inherent with cost-benefit relationships in the environmental field is the well documented problem of setting a price on a social or

environmental benefit. No way has been established that is universally accepted. (Nor is there a likelihood that one will develop.)

In some of the handbooks an added feature is a presentation of a case study or studies which demonstrate the process of implementing best management practices. These examples will serve a valuable explanatory role for readers of the handbooks and landowners who are concerned.

West Virginia

The West Virginia handbooks provide a brief summary of existing conditions in the four general areas of nonpoint pollution concern--mining, construction activities, agriculture, and silviculture. Included in each handbook are descriptions of the problem and graphic displays to highlight the areas of primary concern. This enumeration of significant areas prioritizes the areas and recommends the emphasis of state programs to be channeled first into these premier areas. Level of detail varies significantly between the handbooks, often depending on what information was readily available through published sources. The 208 process in preparation of these handbooks did not allow time or funding for generation of data. Each of the manuals, however, does develop various Best Management Practices after a description of land use and physical factors which

affect runoff characteristics.

The Best Management Practices specify the problems which exist and provide guidelines and various alternative approaches for abatement. In addition to the recommendations, the West Virginia Handbooks all contain a chapter on implementation including the designated management agency. The recommended mechanisms are presented in a most general manner, with some of the handbooks including some specifics. These devices include education programs, providing technical assistance, financial incentives (especially important in agriculture) and increasing water quality planning efforts in the designated priority areas. Recommendations always include the need for further investigation, including statewide sampling and monitoring, as well as periodically analyzing the Best Management Practices for their effectiveness in controlling or alleviating some of the nonpoint pollution aspects of water quality degradation.

The handbooks, as general reviews of the state-of-the-art nonpoint pollution control, are largely successful. As fulfillment of a comprehensive areawide waste management plan, the BMP's do not seem to fulfill the intent or the requirements of the Act. Coordination of the nonpoint management voluntary program with an enforceable NPDES

permitting program for point source control will be an extremely arduous task. Since the management agencies for each of the handbooks is different, although all are coordinated with the Department of Natural Resources, even more problems may arise. This inherent problem may not be insurmountable, but the task is substantial. Whether or not this coordination is possible will only become clear over the next few years during the implementation of various practices described in the handbooks.

Pennsylvania

As described in the chapter highlighting each of the states' plans, the Commonwealth of Pennsylvania approached comprehensive water planning in a different manner. COWAMP predated the passage of P.L. 92-500 and then incorporated the requirements of that Act into their on-going planning program. In the Potomac basin, the Pennsylvania plans appear to be quite successful in providing alternative future waste management solutions to current problems. The plans include a variety of alternatives, financial aspects and institutional analyses, as well. This type of in-depth investigation and excellent presentation satisfies to a large degree the requirements of Section 208 in relation to point sources and facilities planning. Included in the analysis are projections for the next twenty years (as

required). The alternate waste management approaches even includes an investigation of innovative and alternative types of treatment, although in the Potomac regions of Pennsylvania, this is often precluded by limestone in the Cumberland Valley and the associated high water table.

Of the expected thirteen chapters in the completed COWAMPs, little attention has been paid to the nonpoint sources of pollution, especially in the Potomac portion where mining is not a factor (In basins with mining, more detail is given to this activity and practices to abate pollution). In a contrast to the states of West Virginia and Virginia who spent their efforts on Best Management Practice Handbooks and a description of the nonpoint sources, Pennsylvania has only devoted a brief portion of its plan to this area. The state contends that the nonpoint pollution sources will be adequately covered in other state and federal programs. For example, erosion and sediment control for earth disturbing activities, including agriculture, is required under the Clean Streams Law of Pennsylvania and Department of Environmental Resources rules and regulations. The nonpoint issue is raised and a description of Best Management Practices is contained in summary form. Each COWAMP is expected to become the state master plan for sewer and water planning in that specific region. Since Pennsylvania started the COWAMP program with

the desire to make for more efficient water and sewer planning, the plan probably will be successful in this aspect. In the broader context of a total areawide waste management plan, including nonpoint sources, the COWAMP may not satisfy a more comprehensive definition.

Implementation of the plan may prove to be a difficult task since many of the municipalities in the state, although small, have incorporated and possess home rule. The counties in Pennsylvania are weak and the regional aspects of long term plans are difficult to initiate. Many special concerns of boroughs and cities interested in local problems cannot be solved without agreements between themselves and other jurisdictions.

Washington, D.C. Metropolitan Area

As the Potomac basin's only designated 208 agency, the Washington Metropolitan Council of Governments began their planning prior to the state planning for nondesignated areas. By beginning early, it was anticipated that the Metro Area plan would be submitted to the EPA prior to the state plans. Amidst local controversies and long certification delays by the governors of the states, the plan was not submitted to EPA until over a year after it was presented to the public. The plan attempted to include point and nonpoint source analyses, as well as all the other

requirements of the Act. The inadequacies of the plan included lack of consideration of projected municipal and industrial flows, the possibilities and requirements for capacity sharing, sizing, location, and time frame for treatment facilities. Also lacking was a detailed description of residual waste sludge management, presentation of nonpoint source assessment, the designation of agencies to implement the recommendations and a total comprehensive environmental assessment. As a status report the COG plan was quite good and provided valuable information. The governors of Maryland and Virginia and the mayor of the District of Columbia believed that "a good foundation for continuous planning and eventual development of a complete plan" was the product of the effort. They further stated that the plan, however, did not contain any "significant plan elements ready for state adoption." This indictment of the plan was somewhat harsh, but no less harsh than had been the response from most interested parties. The failure to include specifics in the plan was especially of concern. Often, the report simply provided a description of the existing institutions or programs with no specific alternatives beyond broad generalities. The bottom line of opinion may be represented by the following Washington Post editorial of April 7, 1978 which expressed the feeling that the "\$3 million effort to define the region's future water

pollution control policies looks as though it's going to be a bust. The draft being circulated for review amounts to a two-inch thick status report." The scathing review by the Post was only one of the many comments produced by the release of the plan, but all had similar concerns that the difficult issues which were, hopefully, to be addressed by the plan were left out. As a regional water quality management plan, total water quality and quantity issues must be addressed. Without specific courses of action which may be necessary to "plan" for the Metropolitan area, the 208 report will remain merely a status report. The continuing planning process of the Council of Governments Water Resources Board will attempt to solve the inadequacies of the plan. The staff of the Department of Water Resources Department has been cut back severely due to decreased EPA grants and now is engaged in providing staff support to the Blue Plains Principals and Technical Committee with regard to point source pollution in the Washington area. Nonpoint source pollution is being addressed to a greater extent by COG with designation of critical watersheds, BMP selection, modification of the Dynamic Estuary Model and continuing work performed under the National Urban Runoff Program (NURP).

Progress has been evident since the time the plan was submitted to the governors and the time they had consented

to conditionally certify the plan for EPA's review. The 208 plan update will include the products of the Blue Plains Technical Committee and the results of the ongoing nonpoint programs.

With all the negative remarks raised after the plan was presented, it is important to accept the original plan's serious limitations and commend some of its important contributions. The nonpoint source project, a pilot demonstration in the Occoquan watershed, has been a leader in the nation in research in nonpoint pollution and effectiveness of BMP's. The Sewer Evaluation Simulation (a computer model) for treatment capacities and sewer line constraints is quite useful and has received favorable comment from many sources. These parts of the plan and others suggest that the future outputs of the 208 planning process will be received with greater enthusiasm and provide more useful input and alternatives for important decisions in the next twenty years.

Conclusions

With the completion of the 208 plans in the Potomac basin, the initial phase of the planning for water quality management has ended. This report has attempted to present the plans in an unbiased fashion indicating both the problems and promises of each. An even more formidable task now awaits the drafters of these documents--that of implementing the programs and practices suggested. As presented throughout this paper, the plans vary in quality and quantity of information, but all do provide some useful information, especially for the agencies themselves. The accumulation of the data and presentation in a workable form was a necessary first step. To make the continuing planning process a success, it will require more effort and innovation than was necessary during the entire first phase.

The emphasis during the coming years will be with nonpoint pollution control and the best means of implementation of management practices. All the Potomac plans addressed nonpoint pollution to some degree, but improvement of the quality of waters by nonpoint measures still remains an untested art and science. Few expect the goals of the Federal Clean Water Act, those of swimmable and fishable waters, to be achieved everywhere, but there are encouraging signs which indicate the goals may become more realistic.

Whether the 208 planning process could have been better coordinated and administered is probably indisputable at this time. However, progress has been made nationally and in the basin states and some of these successes have been discussed in earlier chapters in this report. The 208 planning process is anticipated to increase emphasis on providing solutions to site-specific problems in each planning area. Those areas who provided general best management practices in handbooks will shift the emphasis to areas which had been deemed most critical. In addition, the early phases of 208 began detailed monitoring in some areas which will provide useful data for testing the effectiveness of certain practices.

The incentive for areas to continue the 208 planning derives from the requirement that after November 1979 all construction grants and NPDES permits must be in conformance with an approved 208 management plan. An approved plan must provide a continuing planning process as a prerequisite to obtaining the EPA grants and permits.

In retrospect, the years since FY 1974 have witnessed state and areawide agency efforts which have identified water quality problems, developed solutions for the less complex problems and, in few instances, identified financial and institutional arrangements for implementation. The

expectations in FY 80-83 are based on the premise that the effort to date has been a strong start and the completion of certain deficiencies will be accomplished in this time frame. By 1984, according to EPA, the water quality management agencies will have gained a great deal of knowledge in regard to both problem-solving techniques and future program needs. Attainment of fishable and swimmable water throughout the nation will vary depending on prevailing local conditions. The strategy from EPA is regarded by many as being more organized and reasonable than was the effort in the early days.

Some major obstacles will remain during the next phase of water quality planning. These problems are twofold: (1) absence of an in-depth data base showing the cause/effect relationship between nonpoint pollution sources and total water quality and (2) the implementation of programs based on this sketchy data. A voluntary program, without financial incentives, which is dependent on less than proven technologies and benefits does not have a high probability for success.

Coordination with other water programs is absolutely essential for 208 to reach its stated goals. As indicated throughout this report, water quality management planning cannot be interpreted as being comprehensive at this time. A concerted effort by the WQM agencies to coordinate the activities and programs will be fundamental for substantial quality improvements in the future.

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