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ENVIRONMENTAL PROTECTION AGENCY
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HOUSE DISTRICT COMMITTEE
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I am very grateful to the House District Committee's Subcommittee on the Bicentennial, the Environment and the International Community for giving the Environmental Protection Agency this opportunity to discuss our activities involving the preservation of the water supply and water quality aspects of the Potomac River. The Environmental Protection Agency has dedicated an immense amount of manpower effort in the areas of planning, enforcement of standards, and interagency coordination, in the Potomac River Basin. We have complemented this effort with the expenditure of a great deal of federal funds in the form of construction grants for municipalities, and program grants to fund various State and interagency planning and regulatory programs. Although EPA has a large pollution abatement task still ahead of us, especially related to the control of nonpoint sources, I wish to use the opportunity provided by this hearing to publicly display what I feel is a very comprehensive and to date, successful program to clean up the Potomac River.

To fully understand the current water quality and water supply problems of the Potomac River, a short summary of the history of the Basin might prove helpful. When Captain John Smith explored the Potomac River in 1608, the waterway was virtually in a pristine state with abounding fish life. The crude and limited agricultural activities of the indigenous Indian tribes had little impact on the aquatic environment. Even after colonial development, as late as the 1790's, it was reported that President Adams swam in the Potomac Estuary near Washington, D. C. It was also about this time that canals were carved along the river and large scale commercial shipping activities commenced in the Estuary. As the population in the Washington Metropolitan Area grew, so did water pollution problems in the Potomac Estuary. The dumping of raw municipal wastes into the river became so extensive that by the early 1860's President Lincoln frequently was forced to leave the White House at night due to objectionable sewage odors. Following the Civil War, the sewage situation worsened to the point that President Harrison ordered a system to be devised to convey all sewage to a point in the river downstream of Washington, D. C.; thus collection and transfer of the problem became the first solution to the municipal waste dilemma. It was not until 1938 that sewage treatment measures were employed in the Estuary area, but by this time water quality problems had become quite evident. Even though sewage treatment measures

were actively implemented, excessive population growth more than offset pollution abatement efforts.

Historically, and to this day, the primary cause of water pollution in the Potomac Estuary is municipal waste. Additionally nonpoint sources of pollution, including agricultural runoff, stormwater loadings, and acid mine drainage, also contribute significant amounts of pollutants when the entire Potomac River Basin is considered.

The same water quality problems of the Potomac Estuary that are present in varying degrees today, became acute in the 1950's and 1960's. Because of a rapidly expanding population in the Washington Metropolitan Area, the sewage treatment facilities had become inadequate in size and treatment efficiency. Furthermore, the facilities were also overburdened by large quantities of storm water which entered the sewage treatment plants through a combined sewer system. The water quality problem of the Potomac River was compounded by the fact that inadequately treated wastes were being discharged to a River with a relatively small flow during critical periods. Water quality problems were further magnified during periods of low flow and warm weather when the nutrients added to the Estuary from the domestic wastes contributed to algal blooms and a eutrophic condition, with a resulting secondary demand on the oxygen resources of the Estuary. Table I indicates the Wastewater Loading trends in the Washington Metropolitan Area.

On August 22, 1957, the Surgeon General of the U. S. Public Health Service, who at that time was responsible for the Federal Water Pollution Control Program, called a conference on the pollution of interstate waters of the Potomac River in the Washington Metropolitan Area. A second session of the Conference held on February 13, 1958 resulted in recommendations that called for 80% BOD removal and the disinfection of sewage, when necessary, at the Blue Plains Sewage Treatment Plant, future installation of secondary treatment facilities at Blue Plains, and construction of remedial facilities to handle storm water overflows. In April and May of 1969, the third session of the Potomac River Enforcement Conference convened. Major pollution sources were identified at this conference and limitations were recommended for BOD-5, phosphorus and nitrogen. However, most of the sewage treatment facilities were unable to attain the pollutant levels recommended by the Conference within the time period specified. Although the Enforcement Conferences provided a forum to lay the groundwork for an overall solution to the Metropolitan pollution problem, the Conference procedure was ineffective as an enforcement measure to insure satisfactory compliance with the numerous recommendations made by the Conferees.

On October 18, 1972 the Federal Water Pollution Control Amendments (Act) became law. This Act gave the Federal and State regulatory agencies the enforcement tools needed to implement the many planning measures previously discussed but never pursued.

Before discussing in detail the current status of EPA's and the State's planning and enforcement programs under the Act, I would like to evaluate the present water quality problems of the Potomac River. Table II lists the various reaches of the River and the general type and cause of the water quality degradation in that reach. Although the acidic and high bacterial conditions of certain areas of the River are of great concern, probably the best known and most visible water quality problem is the algal blooms which persist in the Estuary. As previously stated, the increased wastewater loadings to the upper Potomac Estuary have resulted in excessive amounts of nutrients and consequently the occurrence of massive, undesireable algal blooms.

Under summer and fall conditions, large populations of blue-green algae (pollutant tolerant), mainly Anacystis sp., are predominant in the freshwater portion of the Estuary. These algae are not grazed by higher tropic forms and are therefore useless in the food chain. When excessive mats of these blooms expend their life cycle and decay, dissolved oxygen in the water is

reduced below acceptable levels to sustain fish life. In the saline portion of the Estuary, growth of marine phytoplankton known as "red tides" proliferates, aggravated by the high nutrient content in the water. These have been known to assume forms toxic to fish life.

The overall effect of increases in nutrient loadings since 1913 (Table I) on dominant plant forms in the upper estuary has been continuous and dramatic. Figure III visualizes the successive domination of various plant forms leading to the present state of persistent summer blooms of the blue-green algae, Anacystis, in nuisance concentrations of greater than 50 micrograms per liter from the metropolitan area downstream as far as Maryland Point. This condition still persists and will probably increase in intensity unless the nutrient discharges are significantly reduced.

EPA is actively pursuing programs to control both the point and nonpoint sources of pollution which are presently degrading the Potomac River. I will discuss EPA's current effort concerning the nonpoint source problem later in my testimony. At this time, I would like to expound upon Region III's comprehensive point source control program accomplished through implementation of the enforcement and grant mechanisms provided in the Federal Water Pollution Control Act Amendments of 1972, I feel that the point source pollution problem in the Potomac River will be completely under control by 1983. By this I mean

that all point sources will be meeting the required effluent criteria needed to protect the water quality of the Potomac River.

The Federal Water Pollution Control Act Amendments of October 18, 1972 established the National Pollutant Discharge Elimination System (NPDES) program for regulating pollutant levels discharged. Under this program, dischargers must obtain a permit in order to discharge to navigable waters. The permit requires the discharger to attain by July 1, 1977, pollutant levels consistent with the application of best practical control technology currently available (BPCTCA) and water quality standards, and by July 1, 1983, pollutant levels consistent with the application of best available technology economically achievable (BATEA). The technology required by these permits, and the pollutant levels expected to be achieved through its use are described in development documents, effluent guidelines for different industries, and other appropriate regulations.

The NPDES permit may also contain a compliance schedule specifying dates when a discharger is expected to complete various phases of construction, eventually culminating in the completion of treatment facilities that will enable him to attain the final pollutant levels imposed by the permit. The discharger must submit a progress report for each milestone date of the compliance schedule. Of course if the discharger already has the appropriate treatment technology installed at the time of permit issuance, BPCTCA limitations may

be imposed from the effective date of the permit, and no compliance schedule is needed for the first of this discharger's five year NPDES permits.

The Potomac River Basin drainage area includes parts of Maryland, Virginia, Pennsylvania, West Virginia and the District of Columbia. The Federal Water Pollution Control Act Amendments provide for the delegation of authority related to the NPDES program from the Federal to the State level. Therefore the states may assume the primary responsibility of preventing, reducing, and eliminating pollution within their respective territories. Over 95% of the municipal and industrial dischargers in the Potomac River Basin are located in Maryland and Virginia, two States which have been delegated the NPDES program.

Presently, there are 827 municipal and industrial dischargers in the Potomac River Basin. These have been classified as either major or minor dischargers according to the significance and quantity of pollutants being discharged. Fifty-five municipal dischargers and fifty-two industrial dischargers have been identified as majors, and will have been issued NPDES permits by June 30, 1976. Of the remaining 720 minor municipal and industrial dischargers, NPDES permits have currently been issued to 431.

One of the main concerns of the Federal Environmental Protection Agency is insuring that the discharger complies with the effluent limitations and the compliance schedule dates specified in his NPDES permit. The permittee is required to monitor his discharges and submit a detailed monitoring

report quarterly. Any excursions from the allowable pollutant levels specified in the permit must be reported within 5 days from occurrence. Failure to meet a milestone date in the compliance schedule must be reported within 14 days from that date. Failure to report violations makes the discharger subject to legal action. Periodic inspections and discharge analyses are also conducted by EPA and the States.

Thirty-two of the major industrial permits issued to dischargers in the Potomac River Basin have compliance schedules requiring, between now and July 1, 1977, the construction of treatment facilities capable of achieving BPCTCA limitations. Only three dischargers have failed to meet some construction phase of their schedule. Ten of the maior industrial permits issued have final BPCTCA limitations currently imposed. Four of the dischargers are not in compliance with these limitations. EPA actions concerning these violations have ranged from approving the need to revise certain portions of the permit, to issuing an order requiring the discharger to comply with the provisions of the permit as written. Table IV gives a status of permit issuance and compliance for all major industrial dischargers in the Potomac River Basin.

A great many of the major municipal dischargers in the Potomac River Basin presently provide secondary treatment, but as a result of the stringent water quality standards in the basin, they will also be required to install

advanced waste treatment (AWT) facilities. For most of the municipal discharges, the installaton of AWT facilities and compliance with the stringent water quality standards will not be attained by July 1, 1977. Although there are a number of reasons for this, a major cause can be attributed to the delay in awarding construction grants, the money for which has just been released in the last few years. It is projected that the 55 major municipal dischargers will be able to comply with the AWT limitations during the next seven years as follows:

Year	Number of Municipalities in Compliance With Final Effluent Limits
1976	11
1977	20
1978	40
1979	46
1980	51
1981	53
1982	55

Tables V (a-e) give, by State, the status of Major Municipal Dischargers in the Potomac River Basin. As compliance by these sources depends so much on EPA's construction grant program, I would like to summarize, at this time

our present program outputs in this area. As you are aware, the EPA construction grant program is a cooperative Federal, State and local effort. The Federal Water Pollution Control Act Amendments of 1972 give the U. S. Environmental Protection Agency the authority to make grants of 75% of the allowable costs to municipalities for the construction of publicly owned wastewater treatment works, including interceptor sewers and collection systems in existing communities.

Report VI gives a status of construction grant awards for all the major municipal dischargers in the Potomac River Basin. This report can be used to supplement and document the compliance projection made in Table V. Table VII gives a summary of all completed, active, and proposed (FY 76) wastewater treatment grants in the Potomac River Basin. As can be discerned from this table, EPA will be allocating over $750 million in Federal funds to construct needed wastewater treatment facilities through the entire Basin.

This chart shows a detailed map of the existing and proposed wastewater treatment facilities in the Washington Metropolitan area. Table VIII gives the status of the major construction grant awards in the D. C. area. I would like to point out that of the $502 million spent to date on projects in the River Basin, $493 million has involved D.C. metro projects.

Of major importance in the development of any pollution abatement program, whether it be point or nonpoint, is the impact the pollution has on the multiple

uses of the river. With regard to the Potomac Basin, the importance of the River is magnified due to the critical nature of its uses, i.e., water supply, navigation, commercial fishing, industrial, waste assimilation and recreation. I will discuss each of these uses separately and the impact EPA's pollution control program has upon each individually.

The greatest industrial usage of the River is primarily for cooling water and waste assimilation. The upper reaches of the River do contain many industries which discharge process wastes, but as previously explained, by July 1, 1977 their effluents must comply with the required water quality protective limits established in their NPDES permits. Therefore these industries will, in the future, be discharging treated wastewater which will not tax the assimilative capacity of the River.

In the Washington Metropolitan Area, the amount of water used for manufacturing is insignificant. The major industrial use is as cooling water. The following chart gives an indication of the magnitude of usage for cooling water purposes:

Facility	Water Usage (mgd)	Receiving Water	Remarks
PEPCO at Benning Rd. (Washington, D.C.)	568	Anacostia River	Also Uses Cooling Towers

PEPCO, Buzzard Point (Washington, D.C.)	570	Anacostia River	
Virginia Heating (Arlington, Va.)	40	Boundary Channel of Potomac Estuary	
PEPCO Generating Station (Alexandria, Va.)	450	Potomac Estuary	
VEPCO, Possum Point	400	Potomac Estuary	
PEPCO, Morgantown	720	Potomac Estuary	Ultimate Usage
TOTAL	2,748		

Thermal pollution problems are primarily the responsibility of Region III's Enforcement Division through implementation of the National Pollution Discharge Elimination System (NPDES) permit process under the Act. Most of the attention on power plant discharges has focused on the facilities at Station Road in Alexandria, Virginia and Buzzard Point and Benning Road Power Stations in the District of Columbia. Of these three permits, the Station Road facility has been issued an NPDES permit by EPA and permits for the other two plants were issued recently by the State delegated agencies.

Power plant discharges are regulated by the effluent limitations promulgated in response to the Federal Water Pollution Control Act Amendments of 1972. (Power Plant Guidelines published in the October 8, 1974 Federal Register.)

The permits impose by July 1, 1977, pollutant limitations consistent with the application of best practical control technology currently available (BPCTCA). In addition, the effluent limitations reflect the water quality standards of the District of Columbia. Currently, the Buzzard Point and Station Road plants meet the D.C. thermal Water Quality Standards. The Benning Road discharge will be required to meet the thermal standard through the permit process, or proof will have to be provided by the company that no adverse impacts result from its present discharge.

The permit for the Station Road facility will shortly be the subject of an adjudicatory hearing. The issue under appeal in the permit, concerns the present thermal limitation. The hearing is presently scheduled for August, 1976, and the hearing process will result in either the present limitation being upheld, or the incorporation into the permit of any revisions deemed necessary as a result of testimony presented at the hearing.

Sand and gravel mining is also a water related industrial use of the Estuary bed. Currently, dredging for this purpose is being conducted in the Estuary below Indian Head, Maryland.

Navigational use of the Potomac Estuary waters is primarily to provide commercial transport via river barges. Two commercial firms presently transport various petroleum products from tank farms located in the lower Potomac and in the Chesapeake Bay proper to the Washington Metropolitan Area.

Recreational facilities on or near the Potomac Estuary include a national park, three state parks, seven fish and game areas, and 226 county recreational sites. A study by the Bureau of Outdoor Recreation indicated that the recreation potential of the 637 miles of shoreline has barely been developed. Of course, as EPA's pollution control programs begin to show further results, the benefits of increased fish populations, a reduced number of nuisance algal blooms, and a reduction in bacterial and virus contamination will be enjoyed by recreational enthusiasts throughout the Potomac River Basin.

The dockside value of fish, crabs, clams, and oysters taken from the Potomac tidal system is about $5 million annually. Sport fishing contributes more than $0.6 million per year. There are approximately 95 marina facilities in the tidal Potomac which accommodate over 5,200 recreational water craft. EPA Laboratories at Deluth, Minnesota, Narragansett, Rhode Island, and Gulf Breeze, Florida along with the Fish and Wildlife Service conduct the intensive biological research work needed to determine the impact of pollutant loadings on aquatic life. All biological data requires evaluation and correlation with factors such as season, flows, bioaccumulative capacities, migratory habits of test species, lipid content of test species, and many other factors.

The use of the River for its assimilative capacity with respect to pollutant loadings is a factor which is well researched by EPA's Annapolis Field Office Laboratory. The Annapolis Field Office currently monitors the Potomac Estuary on a monthly basis. The sampling survey consists of 26 stations (Figure IX) from Point Lookout to Chain Bridge. Analyses are conducted for pertinent chemical and biological parameters related to the hyper-eutrophic conditions existing in the Estuary. Various intensive surveys dealing with specific problems in the Potomac, have been documented in the past few years.

The Annapolis Field Office began conducting monitoring studies in the Potomac River Basin as early as 1964. The surveys have varied in duration, scope, and intensity but, collectively, have provided an essential data bank for evaluation of the quality of the Potomac River system. Over 150 stations have been sampled over the years.

Surveys have been designed to assess chemical, bacteriological, and eutrophic conditions of the Potomac and to evaluate pollutant loadings from various sub-basins feeding to the mainstem of the Potomac. Monitoring continued through the late 1960's, with the 1969-70 period being the time frame of the most intense surveillance efforts. Since 1971, monitoring has continued on a monthly basis even though our laboratory has an increased commitment of resources to various phases of EPA enforcement programs.

Monitoring continues today in cooperation with the State of Maryland's Department of Natural Resources. This State agency aids EPA by sharing the large monitoring workload.

In Calendar Year 1977 our monitoring efforts will be intensified in order to evaluate the impact of the Advanced Waste Treatment (AWT) process being installed at the Blue Plains waste treatment facility. These studies will determine the response of the Potomac River to initiation of AWT practices and will investigate the need for further expansion of treatment capabilities, namely, denitrification facilities. The advanced waste treatment capabilities being installed at the Blue Plains facility are state-of-the-art treatment processes and their impact on the water quality of the Potomac system has implications of national significance.

Another important program conducted by the Annapolis Field Office is the prediction of the assimilative capacity of the Potomac Estuary through a mathematical model. Since its inception in 1964, mathematical modeling of estuarine systems has been an important and ongoing function of EPA Region III. The Potomac Estuary is a notable case where models of varying sophistication have been applied over the last decade. These models have had a major impact on the wastewater treatment decision making process, especially these decisions involving the Federal Enforcement Conferences. The major contribution of these models was the

establishment of nitrogen, phosphorus, and oxygen demand loadings for the upper Potomac Estuary.

The Potomac model has continued to be an invaluable tool and has frequently provided vital inputs to activities concerned with water quality planning in the Basin. The original version of the Dissolved Oxygen model has been moderately refined during the past year, and a complete reverification has been performed utilizing better estimates of input data and reaction rates. Since this model addresses an enforceable water quality standard, its use has been widespread. During a series of runs performed in October 1974 in conjunction with the Blue Plains decision, the model demonstrated the need to maintain a high degree of removal of unoxidized nitrogen and BOD if the DO standard was to be met in the Potomac Estuary. The model was then used to isolate the degree of sensitivity associated with various inputs, which, given some hypothetical future situation, are almost impossible to define. More recently, this model was used to evaluate the effects of a major discharge to the upper Estuary via Rock Creek (Montgomery County STP) and another in the vicinity of Piscataway Creek (Piscataway STP). Various consultants studying the Potomac Estuary have, over the past few years, either used the DO model themselves, with some consultation, or have requested that EPA Region III personnel perform the runs for them.

The need for mathematical models having predictive reliability has not lessened in the Potomac in the recent past; if anything, it has intensified. This has stemmed from a recent EPA decision to defer denitrification at Blue Plains for a two-year period.

The Washington Metropolitan Area is a rapidly growing region with an ever increasing need for safe potable drinking water. The current demand for drinking water is seriously taxing the present sources of supplies. It is very possible that a drought could recur as in the mid 1960's when Metropolitan water supplies were seriously depleted. Such an occurrence could prove the Metro water supply to be inadequate since the maximum demand of record has exceeded the recorded minimum flow, though fortunately not at the same time. As the Corp of Engineers has already testified on the water supply issue, I would only like to add my endorsement of the proposed pilot water treatment plant in the Potomac Estuary. The proposed plant, which would be located in the Estuary opposite the Blue Plains Wastewater Treatment Facility, would provide valuable data regarding the feasibility of treating Estuary water to a degree where it could be used for drinking water purposes.

I would now like to turn my discussion to the measures EPA is taking to insure the safety of the water supply source for drinking water purposes. On December 24, 1975, EPA promulgated National Interim Primary Drinking Water Standards which denoted the maximum allowable limitations in drinking water for nine elements (including selected heavy metals) and selected organic chemicals. Data obtained from EPA and State records reveal that no heavy metals were found to be in excess of applicable drinking water standards in the D.C. water supply. Data collected from the Washington Aqueduct is part of our Interstate Carrier Water Supply sampling program. The WSSC is not an Interstate Carrier; therefore EPA does not have similar data on this supply. However, the State monitors this source and confirms that it is of comparable quality to the Washington Aqueduct source. With regard to organics, the Washington Aqueduct's finished water was recently sampled for pesticides as part of a national pesticide survey. Although the final results of this survey are not yet available, I am pleased to report that the preliminary findings do not indicate any serious problems exist at this source.

From the available data, the Washington Metropolitan Area drinking water purveyors are producing drinking water which meets State and Federal drinking water quality standards. This does not necessarily indicate that

the point and nonpoint discharges in the Basin are not having any impact on the drinking water supplies. I think the level of treatment and monitoring now necessary at the water treatment plants indicate just the opposite; that is, there is a significant impact on the WMA drinking water supplies by point and nonpoint discharges in the Basin.

Nonpoint sources from agricultural runoff in the upper Basin contribute nutrients from the fertilizers, and chlorinated hydro-carbons from the pesticides and herbicides. The nutrients in themselves do not significantly affect the water supplies, but the algal blooms as a result of the nutrients can cause severe taste and odor problems for the water treatment plants. In addition, certain pesticides and herbicides when ingested in sufficient quantity could create a possible health hazard.

Another area of nonpoint source pollution impacting the water supply of the WMA is urban runoff and stormwater discharges. This has been a problem in the Basin for many years causing severe sedimentation in the streams. With respect to water supply, the sedimentation causes severe turbidity problems at the water intakes. The high turbidity, in turn, causes treatment difficulties, due to shorter filter runs and decreased disinfection efficiency. In addition, at times of high urban runoff, the bacterial counts increase significantly.

The municipal sanitary waste discharges, including combined sewer overflows, contribute to the nutrient level of the streams which in turn can create taste and odor problems at the water intakes due to algal blooms. Of course, the most important and dangerous impact from municipal wastewater, result from the addition of organics, bacteria and viruses. All three contaminants significantly impact the quality of the water supply in the Washington Metropolitan Area. In attempts to remove the viruses and bacteria by break-point chlorination, it is suspected that the treatment facilities may create a reaction between the chlorine and the organics to form chloroform. Modifications in treatment methods at water treatment plants can lower the possibility of this reacton occurring, but the ultimate solution is the elimination of the organics from the raw water intakes.

The water supply situation in the Washington Metropolitan Area has been further complicated by the Montgomery County decision to construct a municipal sewage treatment plant discharging to the Potomac River above the Metropolitan water intakes at Great Falls. Various decisions pertaining to this proposal are still undecided, namely siting, plant design/capacity, degree of treatment required, and most important, its effects on the water supply of metropolitan Washington.

Although the WMA is not highly industrialized, industrial wastes presently contribute to the total load of organics and heavy metals which the water supply facilities must monitor and remove.

I would now like to discuss EPA's effort in an area which is attracting much more concern in recent years, that of nonpoint source control. After a great deal of expenditures in both time and money, we are finally starting to see the light at the end of the tunnel in our point source pollution control program. However the victory over pollution will be only partial unless we can also plan and implement methods to control the large yet less defined nonpoint source pollution problem.

The available information on nonpoint source pollution is concentrated in three general areas: (a) sediment and pesticides, (b) acid mine drainage, and (c) storm water runoff.

a) Sediment and pesticides - An estimate based on analysis conducted in the 1960's was that 2.5 to 2.9 million tons of sediment annually reaches the Potomac Estuary as a result of upstream runoff. Various yields of sediment per square mile are found along the Potomac River depending on the particular land use. This sediment runoff could contain absorbed particles of various materials, including pesticides. In a report done by the Interstate Commission on the Potomac River Basin, four areas of the Potomac River were identified as having pesticide-related water quality problems. These were the Potomac mainstem, the Estuary, Conoccocheaque Creek, and Antietam Creek. The study did not give any specific information on any particular types of pesticides.

b) Acid Mine Drainage - The mine drainage problems of the North Branch are identified as having direct effects on aquatic life until approximately ten miles upstream of Cumberland, Maryland. Particular problem concentrations of iron, aluminum, sulfate and calcium are present in addition to the acidic condition of the River.

c) Storm water- Urban runoff is a major problem through both direct runoff and combined sewer overflows. Table X gives an indication of how serious this problem is by comparing the pollutant load from street runoff to the effluent of an efficient secondary treatment plant in a hypothetical city.

EPA is attacking these sources of nonpoint solution on many different fronts. EPA's general program for nonpoint source control places its emphasis on "Best Management Practices". We are researching the techniques required to prevent nonpoint source (NPS) pollution rather than attempting to treat them. EPA's philosophy is for the states to develop NPS programs, with EPA providing the needed technical input. As part of our overall NPS program, EPA is soliciting the involvement of organizations that have considerable experience in sediment control such as the Department of Agriculture, Soil Conservation Service.

A major problem impeding EPA's national effort in the NPS area is the lack of regulatory power to control sources. Since a program to control various sources would entail the establishment of land use measures and the

federal government has no direct authority in this area, the regulatory function falls within the jurisdiction of State and local governments. Another problem regarding the NPS program involves defining the magnitude of this type of pollution. This evaluation is further complicated by the lack of sufficient existing data thereby preventing correlations between NPS pollution levels and expected water quality impacts. Thus far I have been referring to EPA's national NPS control program. This chart lists EPA's past and current activities in the nonpoint source control effort in the Potomac River Basin. Of course EPA is involved with a study of this problem for the Metropolitan D.C. area through the current Council of Government's 208 planning study. I plan to discuss this program in detail later in my presentation.

There has been a great deal of local and State progress in the control of soil erosion. The Enforcement Conference included as one of its recommendations, that a soil erosion control program should be implemented by the Conferees. A listing of the programs adopted by certain State and local government entities follows:

Maryland Sediment Control Law signed April 22, 1970 requiring the counties and municipalities to adopt grading and building ordinances and "before the land is cleared, graded, transported, or otherwise disturbed, . . . the proposed earth changes shall first be submitted to and approved by

the appropriate Soil Conservation District or the Department of Natural Resources". In April 1971, the Maryland Attorney General ruled that protective storm water measures may also be imposed by the Soil Conservation District under the 1970 Sediment Control Law.

Montgomery County, Maryland has been a leader in the adoption of sediment control programs, beginning as early as 1965.

Virginia passed an Erosion and Sediment Control Law in March 1973. Local control programs consistent with State developed guidelines, standards, and criteria are to be adopted and approved by the State. All of the Potomac Basin counties have approved programs except Arlington, which is expecting final approval by June 30, 1976.

Fairfax County has been a leader in the State for establishing sediment control programs, beginning as early as 1962.

EPA is also nationally researching possible solutions to the urban runoff problem through selected projects such as Chicago's underground tunnel system, the New York City Spring Creek project, and the Seattle metro computerized system. EPA is also researching some less sophisticated systems to control urban runoff in combined systems such as equalization basins and regulating flows within the existing sewerage system so as not to exceed the treatment capacity of the plant.

The largest source of urban runoff to the Potomac River is from the Washington Metropolitan Area. This problem is compounded by the fact that the D.C. area is serviced by a combined sewer system. The District published in March 1973, a reconnaissance study on the combined sewer problem. EPA will soon be awarding a Step I grant to fund a one year investigation of this problem. This study will be coordinated with the existing work being done in this area by the 208 agency. I would like to qualify my above statement on control of urban runoff by alerting the committee to the extremely high estimated costs of its solution. A recent needs survey was conducted by the States in order for EPA to evaluate the overall cost of soliving the municipal storm and sanitary wastewater problem. Over $300 billion in estimated costs would be required to control the urban runoff and combined sewer problems as compared to an estimated $60 billion needed for the construction of separate sanitary sewage facilities.

Before leaving this topic, I would like to acknowledge that EPA, through our grant and enforcement programs have effectively eliminated the 7 million gallons per day of recurring raw sewage bypasses that plagued the Potomac River in the D. C. area for the past ten years.

The acid mine drainage problem is another hard to define and expensive to control nonpoint source. EPA is presently controlling the dischargers from active surface and deep mines in the Upper Potomac Basin through the NPDES

permit system. The problem arises with the abondoned mines which were not closed down and/or revegetated properly. The States are actively working on this problem, but due to the immense costs of such a rehabilitation program the lack of funding has caused the programs progress to be very slow.

EPA nationally sponsors a research and development program to fund certain acid mine drainage projects and has administered funds in the effected area. EPA is currently sponsoring the Deer Park daylighting project in Garrett County, Maryland involving several abandoned deep mines that are heavy contributors of acid mine drainage to the Potomac River. These are mainly shallow mines, just below the surface of the ground and above the water table. Mines of this kind are difficult to deal with using conventional control measures. This daylighting method being demonstrated requires the systematic and careful removal of all materials to a specified depth with removal of the recoverable resources, thus offsetting, at least partially, the cost of the project. After each section of the mine is stripped, the latest reclamation methods are used to recontour the watershed, ultimately eliminating mine drainage and restoring the land. The total cost of this project is $858,000, of which EPA is funding $550,000.

The Committee requested that I address the interagency efforts underway to integrate effective management of air, water, and land resources in the Basin.

The Environmental Protection Agency is responsible for a wide range of program activities related to the planning and management of the water and land resources of the Potomac River Basin and the Washington Metropolitan Area. More so than almost any other agency of the Fedral establishment, EPA's programs and authorities cover more interacting resource areas, ranging from water supply and wastewater to solid wastes, air quality, pesticides, radiation, noise, and the all encompassing involvement with the environmental, social, and economic impact assessment process of the National Environmental Policy Act. Therefore, the Environmental Protection Agency can and should be expected to exhibit a posture of leadership in the sense that integration of its efforts should be of paramount concern and emphasis.

In the Basin and in the Metropolitan Area, Region III of EPA has established means for continuing involvement and input to the governmental programs of state and local governments. The Regional Director is a member of the Interstate Commission on the Potomac River Basin, representing the Federal government. For some five years, the Regional Office has been represented in the Washington Metropolitan Area by a staff coordinator, located in Arlington. The office of the Washington Metro Coordinator has established contacts with officials of state and local governmental agencies and citizens groups, as well, as other interest groups.

Membership on technical committees and close working relationships with efforts of the Council of Governments and its staff are also reflective of the intent to coordinate with and establish a degree of program integration.

Section 208(j) of PL 92-500 directs EPA to enter into agreements with the Secretary of Agriculture, the Secretary of the Army, and the Secretary of the Interior to provide for the maximum utilization of other agencies' authorities for the purpose of achieving and maintaining water quality through appropriate implementation of plans approved under Section 208. Such an agreement was effected November 1973.

Specific interagency agreements for the coordination of planning have also been signed between EPA and:

1. Department of Housing and Urban Development (HUD)
2. NOAA/Coastal Zone Management (CZM)
3. National Association of Conservation Districts (NACD)
4. Bureau of Land Management (BLM)
5. Corps of Engineers (CORPS)
6. Fish and Wildlife Service (FWS)
7. Agricultural Stabilization and Conservation Service (ACS)
8. U. S. Forest Service (USFS)
9. U. S. Geological Survey (USGS)

Some specific examples of interagency cooperation in the D.C. Metropolitan area involve the Corps of Engineers, U. S. Department of Agriculture, the National Park Service, Council of Governments, the Inter-State Commission on the Potomac River Basin, and the applicable State and local pollution control agencies.

I would like to take some time to expand upon our support of the activities on the Interstate Commission on the Potomac River Basin (ICPRB). The ICPRB interacts with EPA primarily through their role as a coordinator of planning and monitoring activities of the five basin States (including D.C.). ICPRB reviews and comments on basin plans, has established a basin water quality trend analysis, and has been a contract officer for basin wide EPA funded studies. Under separate contracts with the State of Maryland and D.C., ICPRB has prepared Section 305(b) Water Quality Reports and Section 303(e) River Basin Plans. They currently have a proposal before EPA to coordinate the monitoring of the Potomac Estuary in order to further evaluate the need for nutrient control.

ICPRB is funded by EPA thru our Section 106 program grant. FY 1976 funding was approximately $114,000. In addition, ICPRB is supported by direct state funding and, until recently, direct congressional appropriation. They are also funded by EPA for the administrative costs of being project managers on specially funded EPA contracts. EPA Section 106

funds are used by ICPRB to coordinate the basin State's water quality monitoring programs and basin water quality management plans, to provide technical assistance to the States, and to develop a public information program for basin residents.

Before leaving the area of interagency cooperation, I would like to discuss a problem which will require the efforts of EPA, NPS, the Department of Agriculture, D.C. area Counties, and the State Agencies. I am addressing the prevailing sludge deposition problem at the Blue Plains Sewage Treatment Plant. The majority of the sludge is currently being processed under a 1974 agreement between Montgomery and Prince George's Counties through land disposal by the trenching method. However, selected Federal agencies are looking for supplemental alternatives to this practice by researching the use of composting at the Beltsville Agricultural Research Lab. Additionally, EPA is investigating with the National Park Service the possible use of Oxon Cove for a sludge demonstration project. Only through the cooperation of federal agencies, can pilot projects such as this be demonstrated to the public, in hope that the land disposal and composting of sludge will be accepted on a large scale basis in the future.

I would now like to address the concerted 208 planning effort now ongoing in the Washington Metropolitan Area. On June 16, 1975, EPA awarded

the Metropolitan Washington Council of Governments (COG) a $3.55 million dollar grant for a 208 planning study in the defined area. Table XI outlines the major outputs that can be expected from the COG 208 study.

The progress of the study is slower than we optimistically would like, but is not too far behind schedule. The major obstacles encountered to date are the development and approvals of major contracts. However, this problem is being solved, and we expect all the major contracts to be approved in the near future. EPA anticipates that the delays in commencing certain phases of the study will likely lead to future requests for extension of the expiration date beyond the mandated two year effort now planned to end in 1978.

The Metro Washington Council of Governments has been effective to date in formulating many interagency agreements to aid in their work. By obtaining the cooperation of the involved States and Counties, the Washington Area Association of Conservation Districts, the U.S. Soil Conservation Service, EPA, HUD, and the Department of Transportation. The COG has helped to insure that needed input and expertise will be available to make the study a success.

An interesting and welcomed facet of the Washington Metro 208 study is the established strong constituency and political involvement in this

process. As a result of the large citizen participation program, it is likely that there will be a corresponding strong interest in implementing the recommendations of the 208 plan.

EPA expects the final plan to be comprehensive and provide for effective implementation in the areas of nonpoint source control, regional planning projections, projected wastewater treatment needs, and sludge disposal.

A significant factor in COG's regional planning projection program is the coordination with other regional comprehensive planning efforts. Air quality maintenance area plans, transportation studies, and HUD's 201 housing program's are all being considered in the COG 208 study. The major basis for the interagency coordination is the development of the cooperative forecasting program. This program will develop regional planning projections that in the future will be used in all comprehensive planning studies. This Comprehensive Forecasting Program, which was jointly funded by EPA, DOT, and HUD, should be one of the major outputs of the 208 study.

In the area of nonpoint source control, a major portion of the 208 study involves a major field data-gathering program in the Occoquan and Four Mile Run Watersheds. Sediment problems will be analyzed from a construction, agricultural, and residential perspective. The data gathered will be inputed to a model prepared for the Occoquan. This model will subsequently provide an analysis of the water quality effects of changing land

uses in the area. The study for the monitoring work has already been awarded. Additionally, the overall Occoquan comprehensive study will be forwarded to EPA for our review shortly. The projected time period for the entire program is eighteen months.

As an outgrowth of the Occoquan Study, Montgomery County is proposing a Transferability Study in coordination with the Occoquan field investigations for nonpoint sources. Two Montgomery County watersheds, Seneca and Watts Branches, will be analyzed to evaluate the correlations developed from the Virginia field work. These Watersheds have been chosen because of the various land uses in their basins and the available data base from recent hydrological modeling efforts. Also in the nonpoint source area, Montgomery County is expected to be awarded an on-site sediment control contract to conduct a field investigation of control measures needed to reduce nonpoint source pollution loadings.

Although the 208 nonpoint source program is comprehensive in nature, it is not likely that the studies will lead to many definite enforcement recommendations. However, it must be understood that as a prerequisite to the development of an effective enforcement program, a sufficient data base is needed to support any enforcement actions that may be required. While COG's activities will greatly augment the amount of available data, it is realistically felt that an essential 1½ year study may not yield

enough definite information to develop an effective nonpoint source enforcement program. To reiterate, EPA expects that important recommendations will result from the COG study, but that an additional effort will be required to implement an effective enforcement program.

I would now like to address the Subcommittee's question on how EPA uses the provisions of NEPA in our mandated programs.

NEPA is a very essential and integral part of EPA's Construction Grant Program. Final Regulations (CFR 40 Part 6) dated April 14, 1976, mandated EPA's procedures for compliance with NEPA and other environmental legislation for all EPA actions. Special attention is directed to the Construction Grant and Facilities Management Programs as their corresponding regulations also reflect the importance of compliance with environmental legislation. These regulations require that an applicant for construction grant funds make the Environmental Assessment Process (EAS) an integral part of any planning process and that an EAS be made part of his grant application. Of primary importance is that the applicant consider all feasible alternatives and identify and evaluate the resultant environmental impacts - direct and secondary. Using this and other data, EPA conducts an Environmental Review of the applicant's proposal to determine: 1) if the project is environmentally acceptable; and 2) if an EIS is required.

EPA has initiated the EIS process on four major wastewater treatment facilities in the Washington Metro Area: Blue Plains, Piscataway, Montgomery County AWT, and Piscataway Regional. A Final EIS on Blue Plains was issued in May, 1974; a supplement to that EIS is pending concerning sludge disposal. A Final EIS on Piscataway was issued in November, 1974; a supplement to that EIS is also pending concerning sludge disposal. The Montgomery County AWT Draft EIS is under preparation. A Notice of Intent was issued on the Piscataway Regional Facility in May, 1975. EPA has contracted an environmental consultant to prepare this EIS and initiation of preparation is pending local agreements.

A primary result of EPA's EIS Involvement has been public participation and disclosure of pending federal actions. Furthermore, substantial economic and environmental savings can be experienced from the EIS process. For example, EPA anticipates substantial monetary savings in both Federal and local dollars through the Montgomery County AWT EIS process.

I would now like to address the Subcommittee's request for EPA's views on the impacts the recent economic and energy conditions have had on the effective implementation of our mandated programs. I firmly believe that the energy crisis is the most significant event to occur in the 200 year history of our country. We have now crossed the bridge

from being a country with limitless resources whose major problems dealt with the exploitation of those resources for the economic good of the people to a nation which must live with a finite resource base. Our problems are now the problems of resource conservation and the optimum use of these resources to provide the maximum national economic benefit. Nowhere is this change more apparent that in implementation of an approved wastewater management plan.

The wastewater management philosophy that grew up during the 60's called for the construction of large regional plants with miles of sewers and numerous pumping stations. The wastes were treated with energy intensive mechanical processes, relying on enormous quantities of chemicals to settle out wastes from the effluent streams. The settled-out waste products were then incinerated with an additional substantial input of energy required to drive off the water from the sludge which is only a 20% solid. Post-energy crisis economics require the re-evaluation of many of our past decisions to insure that we are not saddling the public with expensive dinosaurs under the guise of a wastewater management program. One example of this heightened concern for cost-effectiveness in light of post-energy crisis economics can be seen in our recent re-evaluation of the Proposed Dickerson Sewage Treatment Plant for Western Montgomery County.

In 1972, the cost of this plant was estimated at 124.5 million dollars. By 1976, capital cost estimates have increased to a figure in excess of 435 million dollars. The high cost of this proposal is due to the need to pump or transport sewage 25 miles uphill and to provide extremely high levels of treatment (through the addition of massive doses of chlorine) because the plant discharges above the water supply intakes for the Metro Washington area.

Our studies have indicated that it might be possible to save as much as 200 million dollars by selecting a point of discharge below the water supply intakes and permitting the sewage to flow downhill through the existing Potomac interceptor system. The energy differential between Dickerson and a lower cost down-river alternate is 134.6 million kilowatt hours per year. This is enough energy to supply electricity for 16,298 residences, based on the 1974 average annual usage of a typical Montgomery County home. This figure is equivalent to approximately 9,912,000 gallons of fuel oil per year, enough fuel to operate 12,400 automobiles yearly at 12,000 miles per year and 15 miles per gallon average fuel consumption. The State of Maryland and Montgomery County have challenged EPA's cost-effectiveness study of the Dickerson Sewage Treatment Plant. Administrator Train has promised a final decision on this matter after reviewing the input from the Maryland jurisdictions and thoroughly evaluating the other alternatives that provide the capacity needed by Montgomery County to alleviate the crippling impact of a sewer moratorium.

Considerable strides have also been made to more precisely define water quality criteria and look at the cost-effectiveness of treatment processes designed to achieve these criteria. In February of 1975, EPA suggested the deferral of the 100 million dollar denitrification process scheduled for construction at Blue Plains pending a thorough evaluation by our Annapolis Field Station of the need for nitrogen removal. A considerable body of scientific opinion holds that phosphorous removal or mineral addition alone may be sufficient to retard the growth of blue-green algae. If our ongoing extensive data-gathering effort proves out this hypothesis, the dentrification system will not have to be built with a considerable savings, of capital and energy costs.

We also made major strides in looking at perhaps the key element of the wastewater management problem in the Metro area: sludge disposal. With considerable assistance from Maryland Environmental Services and the Beltsville Agricultural Research Center, composting has now been developed as a process which promises a low energy - low cost alternative to old-fashioned sludge incineration. The compost is itself a product which can be substituted for petroleum-based soil conditioners, thus realizing a further energy saving. Experimental work is now going on at Blue Plains with a Japanese filter press, which can produce a 40% solid sludge. At this solid level, combustion can be generated with a minimum input of additional fuel

Our Wastewater Management Planning Program in the Metro area has stressed the development of low-capital cost and low-energy usage alternatives to more traditional treatment processes. The developments of this program will yield substantial savings to the consumers of this area over the next fifty years.

Economic and energy conditions have also had a substantial impact on our drinking water supply program. Since the New Orleans study performed by EPA's Cincinnati Research Laboratory disclosed high levels of chlorinated organics in the New Orleans water supply system, EPA has become increasingly sensitive to the complexity of insuring safe drinking water supplies. Drinking water surveys conducted since 1974 of major water supply systems, have disclosed the presence of pesticides, metals, and rare chemical contaminants. A recent finding of polio virus in the Fairfax County water supply at Occoquan is one local example of this type of discovery. A safe drinking water supply can be assured at a low cost, only if we coordinate our waste water management and water supply programs. If we insist upon using our rivers increasingly as conveyances for all types of waste, then a safe drinking water supply can be insured only at a high capital and energy cost for the needed fail-safe water supply systems. Prudence suggests that, wherever possible, sewage treatment plants should be located below water supply intakes.

I would now like to discuss the effects of recent economic and energy considerations on other EPA programs. EPA has a very limited regulatory role in both the noise and solid waste areas. Our agency is responsible for setting noise standards for newly manufactured transportation and industrial equipment. Additionally, EPA has done noise monitoring and has taken a strong position on noise pollution from the Concorde. Clearly, the present high level of concern over the economic impact of all government regulations has set back efforts to aggressively attack the noise problem. More information must be assembled on the medical and economic effects of noise pollution. I am convinced that when we know the full extent of economic loss due to noise pollution, a more aggressive national program will be enacted by Congress.

In the solid waste field, EPA has a limited technical assistance responsibility. Through our Research and Development Program, we have funded solid waste and energy conversion systems like the Union Electric demonstration project in St. Louis and the pyrolysis plant recently completed in Baltimore. These systems should demonstrate the capability of using our waste products to generate energy and industrial gases. This concept both defers cost of solid waste disposal and provides a national energy benefit.

As the Chairman of the Federal Regional Council, I am constantly brought into contact with local governmental leaders from city and county government. Solid waste disposal is perhaps the most pressing problem

confronting local units of government. One example of this is the difficulty Montgomery County has had in establishing a landfill or setting up an effective rail-haul program to transport solid waste to disposal sites in Western Maryland or West Virginia. Communities are reluctant to invest in new solid-waste-to-energy-conversion technology because of the high capital cost involved. An expanded program by the Energy Research and Development Administration to provide for the development of solid-waste-to-energy-conversion technology and a federal guarantee for local communities willing to move forward in this direction could do a great deal to conserve energy and eliminate our national solid waste problem.

I have saved one of your most controversial questions until last, that of land use control. Land use and development are the critical factors behind almost all environmental problems in the Washington Metropolitan area. Sprawl development in the Baltimore-Washington and Washington-Richmond corridors has produced an automobile-related air pollution problem. The large population increase in the 50's and 60's was responsible for the waste water management problems we are now trying to work our way out of. There can be little doubt that land use decisions affect either positively or adversely the quality of the environment.

EPA is a regulatory agency whose authority stems from specific Acts of Congress, like the Federal Water Pollution Control Act and the Clean Air Act. Implementation of the agency's programs have an impact on

land use. This is particularly true with respect to decisions concerning the size and location of sewerage treatment facilities. EPA's regulatory functions under these two pieces of legislation cause us to deal with many land-use related problems. In looking at nonpoint source problems under the areawide planning requirements of Section 208 of the Federal Water Pollution Control Act, and in designing transportation control plans to deal with automobile emissions under Section 110 of the Clean Air Act, EPA must interface with other federal agencies, as well as state and local agencies who have responsibility for land-use related decisions. These Acts are not substitutes for some kind of comprehensive land use planning and decision-making framework. There are many parameters in addition to air and water pollution effects that must be taken into consideration in making a land use decision. These parameters include transportation and economic considerations. Where the agency has approached critical land use decisions through the regulatory framework of these two Acts, we have encountered considerable resistance. In my view, there is great public resistance to federal land use legislation, because it is conceived as being synonymous with federal control. Yet, federal agencies, particularly in the transportation and other infra-structure fields, have a tremendous impact on land use patterns. The challenge is to develop a land use decision-making framework which recognizes the predominate position of local units of government in deciding what is best

for them, but which also provides some means of influencing federal and state infra-structure bureauacracies to make decisions in accordance with local desires and sound land use planning principals.

EPA Administrator Train has established the Office of Land Use Coordination within EPA to provide across-the-board coordination of EPA's many programs. This coordination is essential since decisions made in one environmental program area will often produce a definite impact in another. The Office of Land Use Coordination reviews existing EPA policies in various programs and seeks to make them consistent with long-range and effective land use planning goals.

We at Region III have had considerable experience in using the NEPA process to surface future land use and environmental problems. The EIS process has been used to change the design of sewage treatment plants to bring them into conformity with local land use plans and population projections, where this was not initially the case. Another example of the effect of the EIS process was to require various units of local government, which are part of the Valley Forge Sewer Authority, to adopt sedimentation and flood plain control ordinances. These ordinances were developed during the Environmental Impact Study process and considered desireable to avoid flooding and excess sedimentation problems due to the development likely to be induced by the increased capacity of the sewerage treatment plant.

The complexity of the intergovernmental relationships in the Metro Washington area does not make it the most suitable area for the development of cooperative land-use-oriented strategies. The outstanding progress that has been made so far is due largely to the efforts of the Metro Washington Council of Governments. Two states with a variety of state agencies, the government of the District of Columbia, and numerous county governments must all approve an action before it can be pursued. It is much easier to develop innovative strategies in areas where only a few units of local government and a single responsible state agency are involved.

Table I

WASTEWATER LOADING TRENDS
WASHINGTON METROPOLITAN AREA

Year	Population Served	Flow[1 (mgd)	Untreated 5-Day BOD (lbs/day)	Removal 5-Day BOD %	Treated 5-Day BOD (lbs/day)	Ultimate[2 Car. BOD (lbs/day)	Ultimate[4 Nit. BOD (lbs/day)	Total Ultimate BOD (Car. + Nit.) (lbs/day)	Total Nitrogen (lbs/day)	Total Phos. as P (lbs/day)
1913	320,000	42	58,000	0	58,000	84,000	29,000	113,000	6,400	1,100
1932	575,000	75	103,000	0	103,000	149,000	52,000	201,000	11,400	2,000
1944	1,149,000	167	235,000	40	141,000	205,000	105,000	310,000	23,000	4,000
1954	1,390,000	195	280,000	28	200,000	290,000	145,000	435,000	31,700	5,500
1957	1,600,000	210	305,000	33	204,000	297,000	153,000	450,000	33,500	8,600
1960	1,800,000	222	370,000	70	110,000	160,000	170,000	330,000	37,200	10,000
1965	2,100,000	285	417,000	70	125,000	182,000	192,000	384,000	42,000	16,800
1968	2,415,000	310	428,000	70	130,000	188,000	226,000	414,000	50,000	20,100
1969	2,480,000	320	439,000	71	129,000	186,000	222,000	408,000	55,000	21,100
1970	2,535,000	322	484,000	71	141,000	204,000	254,000	456,000	60,000	24,000

1. Includes estimated sewer overflow loadings
2. Ultimate carbonaceous BOD = 1.45 x 5-day BOD
3. Ultimate nitrogenous BOD = 4.57 x unoxidized nitrogen

TABLE II

WATER QUALITY PROBLEMS

POTOMAC RIVER BASIN

Reach	Major Type of Pollution	Major Source of Pollution
North Branch Potomac	(1) Acid mine drainage (2) Oxygen demanding wastes	Active & abandoned mines Municipal & industrial facilities
Williamsport to Point of Rocks, Md.	Occasional high bacterial densities	nonpoint source
Point of Rocks to Chain Bridge(D.C.)	Generally good water quality; some nonpoint source problems from runoff; few isolated bacteriological problems	
Chain Bridge to Hains Point	Frequently high bacterial counts	Overloaded sanitary sewers and combined sewer overflows
Hains Point to Piscataway Creek	Low-dissolved oxygen concentrations	Effluents from wastewater treatment facilities
Piscataway Creek to Maryland Point	Nuisance algal growths	Nutrients in wastewater discharges
Anacostia Tidal River	Frequently high bacterial counts and low-dissolved oxygen concentrations	Combined and sanitary sewer overflows
Lower Potomac Estuary	Satisfactory water quality with occasional algal blooms	

TABLE III

WASTEWATER NUTRIENT ENRICHMENT TRENDS AND ECOLOGICAL EFFECTS

UPPER POTOMAC TIDAL RIVER SYSTEM

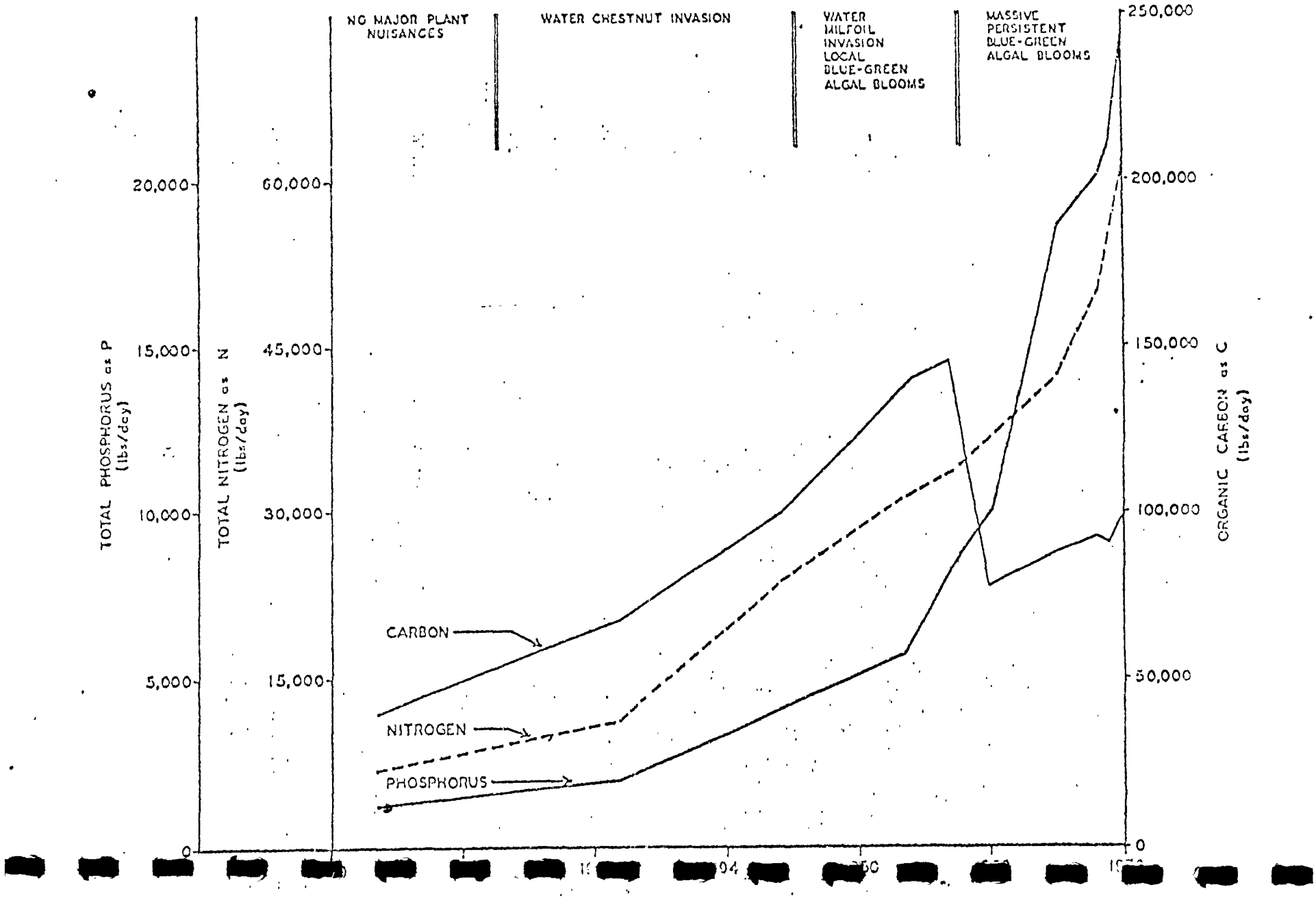


Table IV

Status of Permit Issuance and Compliance for Major Industrial Dischargers in the Potomac River Basin

Major Discharger	NPDES Number	Permit Issued	Has Compliance Schedule	Meeting Compliance Schedule	Final Effluent Limitations in Effect	Meeting Effluent Limitations	Actions Taken
Kelly Springfield	MD 337	Yes	Yes	Yes	7/1/77	N/A	N/A
W.D. Byron	MD 434	Cancelled					
Potomac-Edison P.Smith	MD 582	Yes	Yes	Yes	7/1/77	N/A	N/A
Fairchild Republic	MD 973	Yes	No	N/A	Now	No	Revision
Westvaco Corp.	MD 1422	Yes	Yes	Yes	7/1/75	Yes	N/A
Andrews Air Force Base	MD 2208	No	N/A	N/A	N/A	N/A	N/A
Alumax of Maryland	MD 2429	Yes	Yes	Yes	Now	No	Revision
Pepco Dickerson	MD 2640	Yes	Yes	Yes	7/1/77	N/A	N/A
Pepco Chalk Pt	MD 2658	Yes	Yes	Yes	7/1/77	N/A	N/A
Pepco Morgantown	MD 2674	Yes	Yes	Yes	7/1/77	N/A	N/A
Naval Ordinance	MD 3158	No	N/A	N/A	N/A	N/A	N/A
Naval Ordinance Lab.	MD 2283	No	N/A	N/A	N/A	N/A	N/A
Mineral Pigments	MD 2435	Yes	Yes	Yes	7/1/76	N/A	N/A
Anchor Coal Co.	MD 24503	Yes	Yes	Yes	7/1/77	N/A	N/A
Hampshire Mining	MD 51483	Yes	Yes	Yes	7/1/77	N/A	N/A
Old Virginia	VA 1741	Yes	Yes	Yes	6/30/77	N/A	N/A
Shen Valley Meat	VA 1791	Yes	Yes	Yes	2/22/77	N/A	N/A

Table IV - Cont'd

Major Discharger	NPDES Number	Permit Issued	Has Compliance Schedule	Meeting Compliance Schedule	Final Effluent Limitations in Effect	Meeting Effluent Limitations	Action Taken
Rockingham Poultry	WV 5495	Yes	No	N/A	Now	No	Order
Martein Marietta	WV 5533	Yes	Yes	Yes	7/1/77	N/A	N/A
Island Creek-Alpine	WV 5541	Yes	Yes	Yes	Now	Yes	N/A
Island Creek-N. Branch	WV 5606	Yes	Yes	Yes	Now	Yes	N/A
Lowengart	WV 5631	Cancelled					
U.S. Veternans Admin.	WV 20061	No	N/A	N/A	N/A	N/A	N/A
Dupont Explosives	WV 5509	Yes	Yes	Yes	7/1/77	N/A	N/A
Halltown Paperboard	WV 5517	Yes	No	N/A	Now	No	Revision
Vepco Mt. Storm	WV 5525	No	N/A	N/A	N/A	N/A	N/A
Hess Oil	DC 51	No	N/A	N/A	N/A	N/A	N/A
Washington Gas Light	DC 60	Yes	Yes	Yes	7/1/77	N/A	N/A
Bolling Air Force Base	DC 78	Yes	Yes	Yes	7/1/77	N/A	N/A
Pepco-Benning	DC 94	Yes	Yes	Yes	7/1/77	N/A	N/A
Pepco Buzzard Pt	DC 108	Yes	Yes	Yes	7/1/77	N/A	N/A
Loewengart & Co.	PA 9521	Yes	Yes	No	7/1/77	N/A	Order
Letterkenny Army Depot	PA 10502	Yes	Yes	Yes	7/1/77	N/A	N/A

Table IV - Cont'd

Major Discharger	NPDES Number	Permit Issued	Has Compliance Schedule	Meeting Compliance Schedule	Final Effluent Limitations in Effect	Meeting Effluent Limitations	Actions Taken
Thikol Fibers	VA 1856	No	N/A	N/A	N/A	N/A	N/A
Aileen Inc.	VA 1864	No	N/A	N/A	N/A	N/A	N/A
Crompton-Shenandoah	VA 1899	Yes	No	N/A	Now	Yes	N/A
Rocco Farms	VA 1902	Yes	Yes	Yes	6/1/76	N/A	N/A
Potomac-Edison-Riverton	VA 1937	No	N/A	N/A	N/A	N/A	N/A
Rockingham Broadway	VA 1961	Yes	Yes	Yes	2/1/77	N/A	N/A
Rockingham Poultry	VA 2011	Yes	Yes	Yes	12/30/76	N/A	N/A
Vepco Possum Pt	VA 2071	Yes	Yes	Yes	7/1/77	N/A	N/A
Schwarzenbach-Huber	VA 2127	Yes	No	N/A	Now	Yes	N/A
National Fruit	VA 2143	Yes	No	N/A	Now	Yes	N/A
Dupont du Nemours	VA 2160	Yes	Yes	Yes	6/30/76	N/A	N/A
Merck & Co.	VA 2178	Yes	Yes	No	6/30/77	N/A	Revision
FMC Corp.	VA 2208	Yes	Yes	Yes	7/1/77	N/A	N/A
Virginia Oak Tannery	VA 2267	Yes	Yes	Yes	7/1/77	N/A	N/A
Bowman Apple	VA 2291	No	N/A	N/A	N/A	N/A	N/A
Wampler Foods	VA 2313	Yes	Yes	No	8/30/76	N/A	Revision
Heinz	VA 2356	Yes	No	N/A	Now	Yes	N/A
Potomac Electric	VA 2488	Yes	Yes	Yes	7/1/77	N/A	N/A
U.S. Marine Corps.	VA 28363	No	N/A	N/A	N/A	N/A	N/A

Maryland
Major Municipal
Potomac River Basin Dischargers

Table V (a)

NPDES Number	Facility Name	Meeting Final Limits Now?	Expected to Meet Final Limits By:
MD0021598	Cumberland	Yes	---
MD0021687	Upper Potomac River Comm.	No	1977
MD0021831	Westminster	No	1977
MD0021865	Mattawoman	Future Discharge -	1977
MD0021580	Frederick County	Future Discharge -	1978
MD0021610	Frederick City	No	1981
MD0021822	Frederick County	Future Discharge -	1977
MD0021121	Thurmont	No	1978
MD0021491	Seneca	Yes	---
MD0021041	Montgomery Village	No	1977
MD0021733	Horsepen	No	1978
MD0021741	Western Branch	No	1978
MD0021725	Parkway	No	1978
MD0021539	Piscataway	No	1978
MD0021059	Landover Mall	No	1977
MD0021776	Hagerstown	No	1981
MD0021008	Greenbrier	Yes	---
MD0020877	Fort Detrick	Yes	---
MD0021300	Andrews Air Force Base	No	1980
MD0021296	Andrews Air Force Base	No	1976

Virginia
Major Municipal
Potomac River Basin Dischargers

Table V (b)

NPDES Number	Facility Name	Meeting Final Limits Now?	Expected to Meet Final Limits By:
VA0025186	Ft. Belvoir	No	1978
VA0025160	Alexandria	No	1978
VA0025143	Arlington	No	1979
VA0024724	Dale Service Corp #1	Yes	---
VA0024678	Dale Service Corp #2	Yes	---
VA0025381	Fairfax Co.-Dogue Cr.	No	1979
VA0025372	Fairfax Co.-L. Hunting Cr.	No	1979
VA0025364	Fairfax Co.-Lower Potomac	No	1979
VA0025399	Fairfax Co.-Westgate	No	1978
VA0025119	Harrisonburg	No	1976
VA0025321	Prince William Co.	No	1978
VA0025224	Staunton	No	1979
VA0025151	Waynesboro	No	1980
VA0025135	Winchester	No	1980
VA0025089	Neabsco	No	1978
VA0025074	Front Royal	Future Discharge -	1978
VA0021377	Leesburg	Yes	---
VA0025071	Featherstone	No	1978
VA0025062	Belmont	No	1978
VA0025097	Dumfries	No	1978
VA0025313	Westgate	No	1978
VA0026345	Luray	No	1977
VA0025101	Potomac Regional	Future Discharge -	1978
VA0024988	Upper Occoquan	Future Discharge -	1978
VA0060640	Harrisonburg -Rockingham	Future Discharge -	1976

West Virginia
Major Municipal
Potomac River Basin Dischargers

Table V (c)

NPDES Number	Facility Name	Meeting Final Limits Now?	Expected to Meet Final Limits By:
WV0024970	Franklin	No	1980
WV0024392	Keyser	No	1978
WV0023167	Martinsburg	No	1977
WV0027707	Warm Springs PSD	No	1977
WV0021792	Petersburg	No	1980
WV0024775	Shepherdstown	No	1978

Pennsylvania
Major Municipal
Potomac River Basin Dischargers

Table V (d)

NPDES Number	Facility Name	Meeting Final Limits Now?	Expected to Meet Final Limits By:
PA0020621	Waynesboro	No	1982
PA0021563	Gettysburg	No	1982
PA0026051	Chambersburg	Yes	---

Table V (e)

Status of Permit Issuance and Compliance for Major Municipal Dischargers in the Potomac River Basin

NPDES Number	Facility Name	Meeting Final Limits Now?	Expected to Meet Final Limits By:
DC0021199	Blue Plains STP	No	1979

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region III – 6th & Walnut Sts.
Philadelphia, Pa. 19106

SUBJECT: June 18, 1976 House Oversight Hearings on the Potomac River Basin

DATE: June 11, 1976

FROM: John Potosnak, Chief
Delaware/Maryland/D.C. Section
Facilities Management Branch

TO: Joseph A. Galda, Chief
Facilities Management Branch

Attached are the coded sheets for the status of major municipal dischargers in each section's area of responsibility. The attachments contain the list of the municipal dischargers that are not meeting final limits now and those that will have future discharges.

The code scheme used is shown below:

Code Number	Description
1	Discharge to terminate.
2	Active grant project (including in-house applications) with an eligible project cost of $_____ will result in compliance.
3	FY'76 Priority list grant project with an eligible cost of $_____ will result in compliance.
4	Not an eligible grant applicant - status unknown.
5	No project being developed.
6	Future Projects

VIRGINIA
MAJOR MUNICIPAL
POTOMAC RIVER BASIN DISCHARGERS

NPDES NO.	FACILITY NAME	CODE	ELIGIBLE PROJECT COST/REMARK
VA0025186	Ft. Belvoir	1	To Lower Potomac STP
VA0025160	Alexandria	2	80,027,350 - does not incl DeNit.
VA0025143	Arlington	2	62,358,300 - does not incl DeNit.
VA0024724	Dale Service Corp.#1	4	
VA0024678	Dale Service Corp.#2	4	
VA0025381	Fairfax-Dogue Creek	1	To Lower Potomac STP
VA0025381	Fairfax-L.Hunting Cr.	1	To Lower Potomac STP
		6	$14,000,000 Est.
VA0025364	Fairfax-Lower Potomac	2	$76,111,317
VA0025364	Fairfax-Lower Potomac	6	$30,600,000
VA0025399	Fairfax-Westgate	1	To Alexandria STP
VA0025119	Harrisonburg	1	To Harrisonburg-Rockingham STP
VA0025321	Pr.Wm.Co.-Old Centreville	1	TO UOSA STP
VA0025224	Staunton	2	$128,400
VA0025224	Staunton	6	$ 5,032,000
VA0025135	Winchester	2	$146,000 Step 1
VA0025135	Winchester	3	$1,800,000 Step 2
VA0025135	Winchester	6	Step 3
VA0025089	Neabsco	1	To Potomac Regional STP
VA0025097	Dumfries	1	To Potomac Regional STP
VA0025313	Westgate	1	To UOSA STP
VA0026345	Luray	2	$236,400 Step 2

VA0026345	Luray	3	$776,000 Step 3
VA0026345	Luray	6	$735,800 Step 3
VA0025101	Potomac Regional	2	$24,396,270
VA0024988	Upper Occoquan	2	$72,694,250
VA0060640	Harrisonburg-Rockingham	2	$16,030,100
VA0025151	Waynesboro	2	$62,500 Step 1
VA0025151	Waynesboro	6	$3,500,000
VA0025074	Front Royal	2	$251,300
		6	$6,400,000
	Alexandria Combine Sewer Study	2	$181,500
VA0021377	Leesburg	2	$66,300 - Step 1
VA0025071	Featherstone	1	To Potomac Regional STP
VA0025062	Belmont	1	To Potomac Regional STP

Code 6 - Future Projects Not on FY 76 Priority List. Estimated Cost is $_____

WEST VIRGINIA - MAJOR MUNICIPAL
POTOMAC RIVER BASIN DISCHARGES

PERMIT #	NAME	CODE	ELIGIBLE PROJECT COST/REMARKS
WV0024970	Franklin	2 3	$38,100 - Step 2 in Progress $810,000 - Est. cost of construction.
WV0024392	Keyser	2 3	$332,000 - Step 1 cost $3,000,000 - Estimated construct cost from Step 1.
WV0023167	Martinsburg	2	$45,700 - Step 1 just awarded.
WV0027707	Warm Springs	3	$2,200,000 - Priority List for Collectors and STP
WV0021792	Petersburg	2	$20,000 - Step 1 in Progress.
WV0024775	Shepherdstown	2	$1,748,000 - Step 3 in progress

Pennsylvania

Major Municipal

Potomac River Basin Dischargers

NPDES Number	Facility Name	Code	Meeting Final Limits Now?	Expected to Meet Final Limits By:
PA0020621	Waynesboro	6	No	1982 Step II grant application to be submitted to Penna DER shortly; proposed plan is for abandonment of existing plant; new plant is still planned for discharge to Rock Creek Potomac River
PA0021563	Gettysburg	6	No	1982 Plant recently expanded to 1. mgd. When it reaches hydraul capacity sometime in the fut the plant flow will be divert to the Washington twp plant (C-420865-01).

Maryland

Major Municipal

Potomac River Basin Dischargers

NPDES Number	Facility Name	Code	Eligible Project Cost/Remarks
MD0021687	Upper Potomac River Comm.	4	
MD0021831	Westminster	2,3	$240,000; $200,000
*MD0021865	Mattawoman	2,3	$18,000,000; $9,662,100
*MD0021580	Frederick County	3	$1,300,000
MD0021610	Frederick City	1	June 1980, Completed Federal Projec
*MD0021822	Frederick county	2	$4,782,600
MD0021121	Thurmont	2	$112,250
MD0021041	Montgomery Village	4	
MD0021539	Piscataway	2	$29,499,000
MD0021776	Hagerstown	2	$13,978,000
MD0021300	Andrews Air Force Base	4,1	
MD0021296	Andrews Air Force Base	4,1	
MD0021199	Blue Plains	2	$482,000,000
Combined Sewer Studies			
DC0021199	District of Columbia	2	$600,000
MD0021598	Cumberland	2	$187,500
MD -	Frostburg (George's Creek)	3	$425,000

*Future Discharges

CONSTRUCTION GRANTS PROJECTS IN THE POTOMAC BASIN
(JULY 1956 THRU MAY 1976)

State	Auth	Step**	Complete No.	Complete Amt.($M)	Active No.	Active Amt.($M)	Priority (FY 76 Funds) No.	Priority (FY 76 Funds) Amt($M)	Regio No.	Total Amt.($M)
D.C.	84-660	N/A	20	9.3	4	43.1	N/A	N/A	24	52.4
	92-500	1	0	0	0	0	1	0.4	1	0.4
	92-500	2	0	0	0	0	1	21.0	1	21.0
	92-500	3	0	0	1	111.1	1	16.1	2	127.2
	92-500	3 NUC	N/A	N/A	0	0	N/A	N/A	0	0
		TOTAL	20	9.3	5	154.2	3	37.5	28	201.0
Md.	84-660	N/A	59	14.4	12	63.9	N/A	N/A	71	78.3
	92-500	1	0	0	1	0.4	28	9.4	29	9.8
	92-500	2	0	0	0	0	11	9.4	11	9.4
	92-500	3	0	0	11	111.9	29	116.4	40	228.3
	92-500	3 NUC	N/A	N/A	1	0.1	N/A	N/A	1	0.1
		TOTAL	59	14.4	25	176.3	68	135.2	152	325.9
Penna.	84-660	N/A	3	0.4	0	0	N/A	N/A	3	0.4
	92-500	1	0	0	0	0	2	0.1	2	0.1
	92-500	2	0	0	0	0	0	0	0	0
	92-500	3	0	0	2	0.6	2	4.7	4	5.3
	92-500	3 NUC	N/A	N/A	0	0	N/A	N/A	0	0
		TOTAL	3	0.4	2	0.6	4	4.8	9	5.8

CONSTRUCTION GRANTS PROJECTS IN THE FUTURE LABEL
(JULY 1956 THRU MAY 1976)

State	Auth.	Step**	No.	Amt. ($M)	No.	Amt. ($M)	No.	($M)	No.	Amt ($M)
Va.	84-660	N/A	62	9.8	9	26.8	N/A	N/A	71	36.6
	92-500	1	0	0	5	0.4	5	1.4	10	1.8
	92-500	2	0	0	7	2.2	4	0.6	11	2.8
	92-500	3	0	0	6	142.9	7	24.0	13	166.9
	92-500	3 NUC	N/A	N/A	1	0.3	N/A	N/A	1	0.3
		TOTAL	62	9.8	28	172.6	16	26.0	106	208.4
W.Va.	84-660	N/A	5	0.3	2	1.0	N/A	N/A	7	1.3
	92-500	1	0	0	0	0	2	0.1	2	0.1
	92-500	2	0	0	0	0	3	0.6	3	0.6
	92-500	3	0	0	0	0	6	7.3	6	7.3
	92-500	3 NUC	N/A	N/A	0	0	N/A	N/A	0	0
		TOTAL	5	0.3	2	1.0	11	8.0	18	9.3
Reg.III	84-660	N/A	149	34.2	27	134.8	N/A	N/A	176	169.0
	92-500	1	0	0	6	0.8	38	11.4	44	12.2
	92-500	2	0	0	7	2.2	19	31.6	26	33.8
	92-500	3	0	0	20	366.5	45	168.4	65	534.9
	92-500	3 NUC	N/A	N/A	2	0.4	N/A	N/A	2	0.4
		TOTAL	149	34.2	62	504.7	102	211.5	313	750.4

*Priority (FY 76 Funds) includes 76.6 M for WSSC/Montgomery County Project
**Step 3 Projects not under construction designated as NUC

CONSTRUCTION GRANTS PROJECTS IN THE METRO D.C. AREA/POTOMAC BASIN
(JULY 1956 THRU MAY 1976)

State	Auth.	Step**	Complete No.	Complete Amt.($M)	Active No.	Active Amt.($M)	Priority(FY76 Funds) No.	Priority(FY76 Funds) Amt.($M)	Regional Total No.	Regional Total Amt.($M)
D.C.	84-660	N/A	20	9.3	4	43.1	N/A	N/A	24	52.4
	92-500	1	0	0	0	0	1	0.4	1	0.4
	92-500	2	0	0	0	0	1	21.0	1	21.0
	92-500	3	0	0	1	111.1	1	16.1	2	127.2
	92-500	3 NUC	N/A	N/A	0	0	N/A	N/A	0	0
		TOTAL	20	9.3	5	154.2	3	37.5	28	201.0
Md.*	84-660	N/A	23	6.3	9	51.2	N/A	N/A	32	57.5
	92-500	1	0	0	0	0	3	8.5	3	8.5
	92-500	2	0	0	0	0	2	6.8	2	6.8
	92-500	3	0	0	5	105.6	15	94.1*	20	199.7
	92-500	3 NUC	N/A	N/A	0	0	N/A	N/A	0	0
		TOTAL	23	6.3	14	156.8	20	109.4	57	272.5
Va.	84-660	N/A	34	7.9	6	14.6	N/A	N/A	40	22.5
	92-500	1	0	0	1	0.1	0	0	1	0.1
	92-500	2	0	0	2	1.6	2	0.3	4	1.9
	92-500	3	0	0	5	141.8	2	18	7	159.8
	92-500	3 NUC	N/A	N/A	1	0.3	N/A	N/A	1	0.3
		TOTAL	34	7.9	15	158.4	4	18.3	53	184.6

CONSTRUCTION GRANTS PROJECTS IN THE METRO D.C. AREA/POTOMAC BASIN
(JULY 1956 THRU MAY 1976)

State	Auth.	Step**	Complete No.	Complete Amt($M)	Active No.	Active Amt.($M)	Priority(FY76 Funds) No.	Priority(FY76 Funds) Amt.($M)	Regional Total No.	Regional Total Amt.($M)
Reg.III	84-660	N/A	N/A	23.5	19	108.9	N/A	N/A	96	132.4
	92-500	1	0	0	1	0.1	4	8.9	5	9
	92-500	2	0	0	2	1.6	5	28.1	7	29.7
	92-500	3	0	0	11	358.5	22	128.2	29	486.7
	92-500	3 NUC	N/A	N/A	1	0.3	N/A	N/A	1	0.3
		TOTAL	77	23.5	45	469.4	31	165.2	138	658.10

*Priority (FY 76 Funds) includes 76.6 M for WSSC/Montgomery County Project
**Step 3 Projects not under construction designated as NUC

TABLE VIII

STATUS OF MAJOR CONSTRUCTION GRANT PROJECTS IN D.C. METROPOLITAN AREA

DISTRICT OF COLUMBIA

Project	Grant Amount	Description	Status & Comp. Date
C-110022-01	$ 6,579,000	Blue Plains Primary	Virtually Complete
C-110023-01	12,955,000	Blue Plains Solids	Solids Processing Bldg. Complete...Incinerator Postponed. Alternatives being studied.
C-110024-01	14,794,000	Blue Plains Secondary	Scheduled for Completion by June 76.
C-110025-01	4,453,000	Portland Street Outfall Relief Sewer	Grant Recently Awarded
C-110026-01	8,793,000	Blue Plains Excavation	Virtually Complete.
C-110027-01	111,056,000	Blue Plains AWT	Scheduled for completion by Jan. 79...Denitrification postponed.

FUTURE PROJECTS

C-110027-01	$ 9,365,000	Blue Plains AWT (Future Amendments)	Complete by Jan. 79 Denitrification postponed.
C-110030-01	450,000	Combined Sewer Overflow Study (Step 1)	Grant Application under review.
C-110030-01	769,500,000	Combined Sewer and Storm Sewer Detention Facilities (Steps 2 & 3 Work)	Priority Questionable.

MARYLAND

Project	Grant Amount	Description	Status & Comp. Date
C-240231-01 & 02	$ 13,401,500	Anacostia F.M. (First Four Contracts)	Under Construction... Balance of Line from FI- Funds.
C-240233-01	5,092,960	Piscataway-30 MGD Secondary	Construction Complete... 90% Payment Complete.
C-240283-01	4,720,130	Blue Plains Primary	Virtually Complete.
C-240296-01	10,912,970	Blue Plains Sludge	Solids Processing Bldg. Complete. Incinerators Postponed...Alternatives being studied.
C-240297-01	8,505,860	Blue Plains Excav.	Virtually Complete.
C-240299-01	11,533,550	Blue Plains Secondary	Complete by June 76.
C-240304-01	2,700,000	WSSC Share Portland St.	Grant Recently Awarded
C-240309-01	71,052,000	Blue Plains AWT	Complete by Jan. 79 Denitrification Postponed and not funded.
C-240325-01	16,500,000	Western Branch - Phase I	Scheduled for completion by 3/76.
C-240329-01	5,619,000	Piscataway Outfall	Under construction.
C-240331-01	23,880,000	Piscataway 30 MGD AWT	Under construction.
C-240332-01	1,814,620	Anacostia Relief Sewer	Under construction.
C-240580-01	1,067,250	Beltsville Composting (Step 1)	Operation Begun
C-240231-01	11,101,500	Anacostia Pumping Station	Application-Under Review

FUTURE PROJECTS
(From FY 76 PRIORITY LIST)

C-240309-01	$ 19,887,000	Blue Plains AWT	Complete by Jan. 79 Denitrification Postpone and Not Funded.
C-240341-01		Montgomery Co. AWT (First Phase)	Application in Region Office. EIS Holdup Capacity Question.

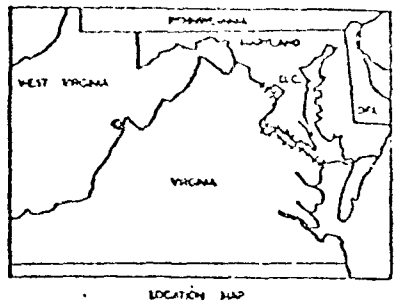
MARYLAND
(Cont'd)

Project	Grant Amount	Description	Status & Comp. Date
C-240392-01	$ 5,775,000	Design Piscataway Regional (Step I)	No Application EIS Holdup - Capacity Question.
C-240397-01	2,625,000	Design Potomac F.M. (Step I)	No Application EIS Holdup - Capacity Question.
C-240366-01	8,142,750	Western Branch - Phase II	Application Under Review

FUTURE PROJECTS - LONG RANGE

Construct Piscataway Regional	$106,275,000 @ 65 (?) MGD	FY-77
Construct Potomac FM	$28,575,000 @ 65 (?) MGD	FY-77
Balance of Anacostia FM	$14,817,000	FY-77
Construct Montgomery Co. AWT	$97,674,000	FY-77 & Later ?
Construct Western Branch AWT	?	?
C-240309 - Blue Plains - Denitrification	$35,000,000	

Figure IX



LEGEND

- O MAJOR WASTE TREATMENT PLANTS
- △ GAGING STATION – WASHINGTON, D.C.
- A DISTRICT OF COLUMBIA
- B ARLINGTON COUNTY
- C ALEXANDRIA SANITATION AUTHORITY
- D FAIRFAX COUNTY – WESTGATE PLANT
- E FAIRFAX COUNTY – LITTLE HUNTING CREEK PLANT
- F FAIRFAX COUNTY – DOGUE CREEK PLANT
- G WASHINGTON SUBURBAN SANITARY COMMISSION – PISCATAWAY
- H ANDREWS AIR FORCE BASE – PLANTS ONE, FOUR
- I FORT BELVOIR – PLANTS ONE, TWO
- J PENTAGON
- K FAIRFAX COUNTY – LOWER POTOMAC PLANT

POTOMAC ESTUARY

TABLE X

COMPARISON OF POLLUTIONAL LOADS
FROM HYPOTHETICAL CITY -
STREET RUNOFF vs GOOD SECONDARY EFFLUENT

	CONTAMINANT LOAD ON RECEIVING WATERS STREET SURFACE RUNOFF (lb/hr)	EFFLUENT FROM GOOD SECONDARY TREATMENT PLANT (% removal)[a]	(lb/hr)[b]	RATIO (STREET/SEWAGE)[c]
Settleable + Suspended Solids[d]	560,000	90	130	4,500
BOD[d]	5,600	90	110	51
COD[d]	13,000	90	120	110
Total Coliform Bacteria	40×10^{12} Organisms/hr	99.99	4.6×10^{10} Organisms/hr	870
Kjeldahl Nitrogen[d]	880	90	20	44
Phosphates[d]	410	95	2.5	180

(a) Typical removal efficiencies for waste treatment plants.
(b) Loadings discharged to receiving waters (average hourly rate).
(c) Ratio of loadings: street runoff, sanitary discharge.
(d) Weighted averages by land use, all others from numerical means.

TABLE XI

Major Outputs Expected from 208 Program

1. Cooperative Forecasting Program

   a. Adoption of Regionwide Population, Employment Projections through 1995.
   b. Adoption of Regionwide Wastewater Flow Projections

2. Water Supply Activities

   a. Water Conservation Analysis
   b. Water Supply Construction Priorities Identified *
   c. Adoption of Water Supply Emergency Plan *

   * non-208 funded

3. Nonpoint Source Investigations

   a. Detailed field monitoring in Occoquan and Four Mile Run Watersheds
   b. Analysis of transferability of Virginia correlations to Maryland watersheds
   c. Creation of Stormwater Task Force
   d. Coordination with District on combined sewer study
   e. Field study of control measures for sediment control

4. Point Source Need Analysis

   a. Analysis of short-term and long-range facility needs beyond currently programmed facilities
   b. Analysis of alternatives to conventional treatment measures
   c. Development of short-term and long-range sludge disposal needs.

5. Impact Assessment of Proposed Program

   a. Socio-economic
   b. Environmental
   c. Institutional