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STATE OF MINNESOTA

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RM-00062-01

Minnesota Pollution Control Agency

March 1976

To the Citizens of Minnesota:

Fiscal year 1976 is the ninth year of operations for the Minnesota Pollution Control Agency. Since July, 1967, the Agency has grown substantially in personnel, budget, and authority. This report "MPCA: 1967-1976 and the Future" was prepared by the MPCA staff as an historical and perspective document, both to summarize the Agency's operations to date and to suggest areas and issues of Agency involvement over the next decade.

Upon my appointment as Executive Director in June, 1975, it became apparent that no document existed reporting the history of pollution control efforts in Minnesota up to and including the present operations and programs of the MPCA. This report was prepared to that end. Equally important, we have suggested where the MPCA is going over the next ten years, as the Agency continues to meet the challenges of restoring and preserving Minnesota's environment.

This report was prepared to assist the general public, interest groups, local governmental officials, the Legislature, and the media to gain a better understanding of the Minnesota Pollution Control Agency: past, present, and future. I hope you find it informative and useful.

Sincerely,

Peter L. Gove
Executive Director

PLG:mlf

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MINNESOTA POLLUTION CONTROL AGENCY
1967-1976 . . and the Future

A Report to the Citizens
of Minnesota

Minnesota Pollution Control Agency
1935 West County Road B2
Roseville, Minnesota 55113

March 1976

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CHAPTER I

HISTORY OF POLLUTION CONTROL IN MINNESOTA

The Early Years

During the early settlement and initial development of the state, as elsewhere in the United States at that time, little thought was given to the concept of pollution control in Minnesota. Many communities and industries discharged raw wastes to our streams and lakes.

In the late 1800's, however, a number of severe water-borne epidemics occurred and the danger to public health from contaminated water supplies was recognized. In 1872 the state Board of Health was created by the State Legislature and in 1885 legislation was passed to prevent pollution of the state's rivers and other sources of potable water supplies. This responsibility was given to the Board of Health. For the next 60 years responsibility for dealing with pollution problems was vested in the Board of Health, except for pollution harmful to fish or other aquatic life, which was the responsibility of the Game and Fish Department and later the Department of Conservation -- both predecessors of the present Department of Natural Resources.

It was not until 1917 that the Board required municipalities to submit plans for sewage treatment facilities.

In 1927 the Legislature specifically charged the State Department of Health with the administration and enforcement of all laws relating to pollution of the waters of the state. Little was accomplished, however, because of limited statutory authority, beyond providing some protection to water supplies. Adequate provisions for the effective enforcement of the laws or for a constructive, large scale water pollution control program did not exist. The Department of Health did, however, carry on a limited but persistent campaign in the improvement of disposal facilities by some municipalities, state institutions and industries. The staff at that time did make a number of pollution surveys of major streams and lakes. As a result of efforts by the Department of Health, a number of treatment plants were constructed which provided primary treatment.

During the depression years of the 1930's and extending to the beginning of World War II, federal grants and work programs were used by many municipalities to construct needed municipal sewer systems and treatment facilities. This

program ended abruptly with the beginning of World War II leaving many facilities uncompleted. This was particularly the case with treatment facilities, leaving numerous sewer systems discharging raw wastes. No construction took place during the war.

After World War II, it was evident that the pollution load was certain to increase and not only public health, but other interests such as agricultural, industrial, recreational, fish and wildlife, etc. would be affected. It was evident that an extensive reorganization and expansion of the state's pollution control program was necessary.

Creation of the Water Pollution Control Commission

Various state agencies, including the Department of Agriculture, the Livestock Sanitary Board, the Department of Conservation and the Department of Health realized the need for comprehensive legislation on water pollution control and a separate agency to carry out the resultant responsibilities. These agencies, working with the Attorney General's Office, prepared a bill combining the best features of similar legislation in other states and ideas gained from their own experience and submitted it to the 1945 session of the Legislature.

The bill, with some amendments, was passed in 1945 and became known as the Water Pollution Control Act (MS 115). It provided the legal authority for a greatly expanded water pollution control program in Minnesota.

The act created the Water Pollution Control Commission (WPCC) which consisted of the administrative officers of the Departments of Health, Agriculture, Conservation, the Livestock Sanitary Board, and one member representing the general public appointed by the Governor. In 1951 the act was amended to provide for two additional members appointed by the Governor, one of whom was to be experienced in municipal government and the other experienced in industry.

The act directed the WPCC to administer and enforce all laws relating to the pollution of the waters of the state. The most important powers given the WPCC were the following:

1) To issue orders for the abatement of pollution;

2) To require the submission of plans for sewage or waste disposal systems;

3) To issue, continue in effect, or deny permits for the discharge of sewage, industrial waste, or other wastes; or for the installation or operation of sewage or waste disposal systems; and to revoke or modify such permits when necessary to prevent or abate pollution.

The Legislature realized that the most critical problems of water pollution were those affecting public health and that the programs related to this field, conducted by the Department of Health, would be needed by the new Commission. Therefore, to avoid unnecessary duplication of work and facilities, the act provided that the Department of Health furnish the Commission with those services required to administer the act, including the designation of a qualified and experienced sanitary engineer to act as the Commission's Executive Engineer. The personnel for the WPCC were to be housed in the Department of Health.

The Executive Engineer of the Commission also served as the Chief Engineer of the Section of Water Pollution Control in the Division of Environmental Sanitation in the Department of Health. The Department of Health also furnished laboratory, library, accounting and all other administrative services to this section.

At the time of the creation of the WPCC in 1945, the Section of Water Pollution Control consisted of four professional positions and one clerical position.

The first appropriation specifically for water pollution control was made for Fiscal Years 1948 and 1949 and amounted to $75,000 for each year. The Legislature gradually increased the appropriation and complement for the Commission until the appropriation for Fiscal Year 1967 was $294,127 plus an additional allotment of $80,800 in federal program grant funds. The staff complement was authorized at 40.

The following table, showing the extent of municipal sewage treatment facilities, indicates what was accomplished by the Department of Health prior to 1945 and what the WPCC accomplished by the time it was abolished in 1967. For purposes of later discussion, figures as of July 1, 1975 are included.

	1945	1967	1975
Total State Population	2,702,300	3,413,864	3,805,069
Population in Municipalities	1,787,653	2,731,755	2,942,895
Population Served by Sewers without Treatment	242,274 13.5%*	19,718 0.7%	5,140 0.2%
Population Served by Primary Treatment	1,070,636	253,804	124,196
Population Served by Secondary Treatment	326,450 18.2%*	2,299,255 84.1%	2,543,669 95.5%
Population in Municipalities not Served by Sewers	148,293 8.2%	158,978 6.7%	100,027 3.4%
Number of Municipalities with Treatment Facilities			
Primary	111	62	30
Secondary**	100	389	537

*Percentages are based on the population in municipalities.
**Existence of a secondary treatment facility does not necessarily mean the effluent is in compliance with applicable standards.

Comparing the number of treatment plants which were adequate at any one time accomplishes little as the standards changed and the treatment technology improved.

Industrial waste treatment in 1945 was limited. In 1945 approximately 700 industrial plants discharged wastes directly to surface waters with approximately 34 percent or 240 having some form of treatment or control. Few of these had satisfactory treatment. No construction grants were available to industries. No construction of treatment facilities took place during World War II.

Recognizing that water pollution control was, in part, an interstate and national problem, the Congress, in 1956, passed the Federal Water Pollution Control Act. This was the first instance that federal grants were available to assist in the financing of the construction of wastewater treatment works. Initially, these grants amounted to 30 percent of the total cost or $250,000, whichever was smaller. These grants were changed from time to time increasing the percentage as well as the total amount that could be received. Other grant programs of other federal agencies such as the Federal Housing Authority (FHA) and Housing and Urban

Development (HUD) were later begun but were small compared to the Water Pollution Control Act funds.

It became apparent that to properly control water pollution and to have published desirable goals for surface waters, it would be necessary for the WPCC to promulgate stream classifications and standards.

Because of the concentration of population and industry in the Twin Cities area and the condition of the river in the area, the first classification and standards adopted by the Commission (Regulations WPC 1, 2 and 3) applied to the Mississippi River from the mouth of the Rum River to Lock and Dam No. 2 near Hastings. These were adopted in 1963. A total of 17 regulations were adopted by the WPCC and, with one exception, all are concerned directly with surface waters.

Public Law 89-234, passed by Congress in 1965, required that states adopt criteria for the classification of interstate waters and the establishment of standards regulating quality and purity, thus insuring that all states have comparable, but not necessarily identical regulation.

Creation of the Minnesota Pollution Control Agency in 1967

It became increasingly apparent that the Commission, which held half-day meetings quarterly in its formative years and later held full-day meetings every month with occasional special meetings, was overburdened, especially since a majority of the members were ex officio with growing departmental responsibilities. It also became apparent that there were pollution problems beyond that of water.

In 1965 efforts were made in the Legislature to create a Water Pollution Control Agency replacing the Water Pollution Control Commission. These efforts failed during the waning hours of the session.

Again, in 1967, efforts were made in the Legislature to replace the Commission, including increasing sentiment to create a companion commission for air quality as well. A study by the Governor's Committee on Air Resources, which was financed by a legislative appropriation of $5,000 to the Department of Health and a $10,000 grant from the U. S. Public Health Service, was completed in 1966. This study recommended specific legislation in the field of air pollution control. Interest was also evident in solid waste disposal and land use planning and controls.

During the session it became apparent that the responsibility for air, water, and solid waste pollution could be placed in one agency. In 1967 the Minnesota Pollution Control Agency was created and the WPCC was abolished (MS-116).

Originally, the Agency was made up of seven citizen members appointed by the Governor, with the advice and consent of the Senate. Later the membership was enlarged to nine. The terms of appointment of the Agency members are staggered four-year terms. The members are to be broadly representative of the skills and experience necessary to effectuate a policy of pollution control. Present membership is representative of various interests, including conservation, labor, industry, local government, agriculture, law, medicine, commerce, and communications. The Agency's Executive Director, appointed for a four-year term by the Governor with the consent of the Senate, is Executive Secretary and Chief Executive Officer of the Agency.

The Agency in 1967 was given all of the powers and duties of the old WPCC relating to water pollution control. In addition, it was directed to establish air quality standards for submission to the Governor and Legislature by February 1969 and to study and make recommendations on solid waste disposal and land use by the same date.

On July 1, 1967, the staff of the Section of Water Pollution Control of the Division of Environmental Health of the Department of Health was transferred to the new agency. The transfer consisted of 40 professional, technical, and clerical positions, 26 of which were filled at the time. No transfers were made for air pollution control and solid waste personnel as there were no comparable programs in the Department of Health or elsewhere. The present staff consists of 176 complement positions, about 40 additional full-time professional, technical and clerical persons and some part-time positions funded by federal programs to administer federal water pollution programs.

In 1969 the Legislature increased the Agency's water pollution control authority, more fully described the Agency's air pollution standards and permit authority, and gave it authority to adopt standards and regulations for the collection, transportation and disposal of solid waste. Over the years additional responsibilities have been added, such as noise pollution, the control of packaging and toxic and hazardous waste disposal. (See Appendix B for major legislation relating to the Agency.)

The Agency originally was organized into three divisions. These were Water Quality, Air Quality, and Solid Waste. In 1971 the Division of Special Services was created, which conducted long-range planning and research on environmental impacts not explored by the other divisions, developed plans and new programs and was responsible for special pollution problems. This division was terminated

in 1975, and all personnel responsibilities are being absorbed by the other divisions with the exception of the Public Information Office and special appropriation-authorized positions for environmental impact statements which are under the direction of the Assistant Director.

In 1972 five regional offices were created and in 1975 a sixth region, to serve the Minneapolis - St. Paul area, was established. The sixth (Metropolitan) regional office has since been closed and the responsibilities delegated to the appropriate divisions in the central office. Legal counsel is provided to the Agency by the Attorney General. There are presently seven attorneys who maintain offices at the Agency headquarters. See Figure 1.

The first biennial budget for the Agency, in Fiscal Year 1968 and 1969, totaled approximately $1,085,000 of which approximately $298,000 came from federal program grants and $300,000 was placed in a contingency fund by the Legislature for use by the Agency if needed.

The appropriations for the Agency have been increased by the Legislature each two years. The appropriation for Fiscal Year 1976 and 1977 is $6,469,669, plus additional funds for special studies and programs and approximately $1,800,000 per year in federal program assistance. The Agency administers several grant programs which will be discussed in subsequent chapters. (See Appendix A for details on Operation Appropriations and Complement of the Minnesota Pollution Control Agency.)

The accomplishments of the Agency have been numerous over its eight years of existence. Only those considered major will be noted here. These and others will be discussed in more detail in the chapter dealing with each division.

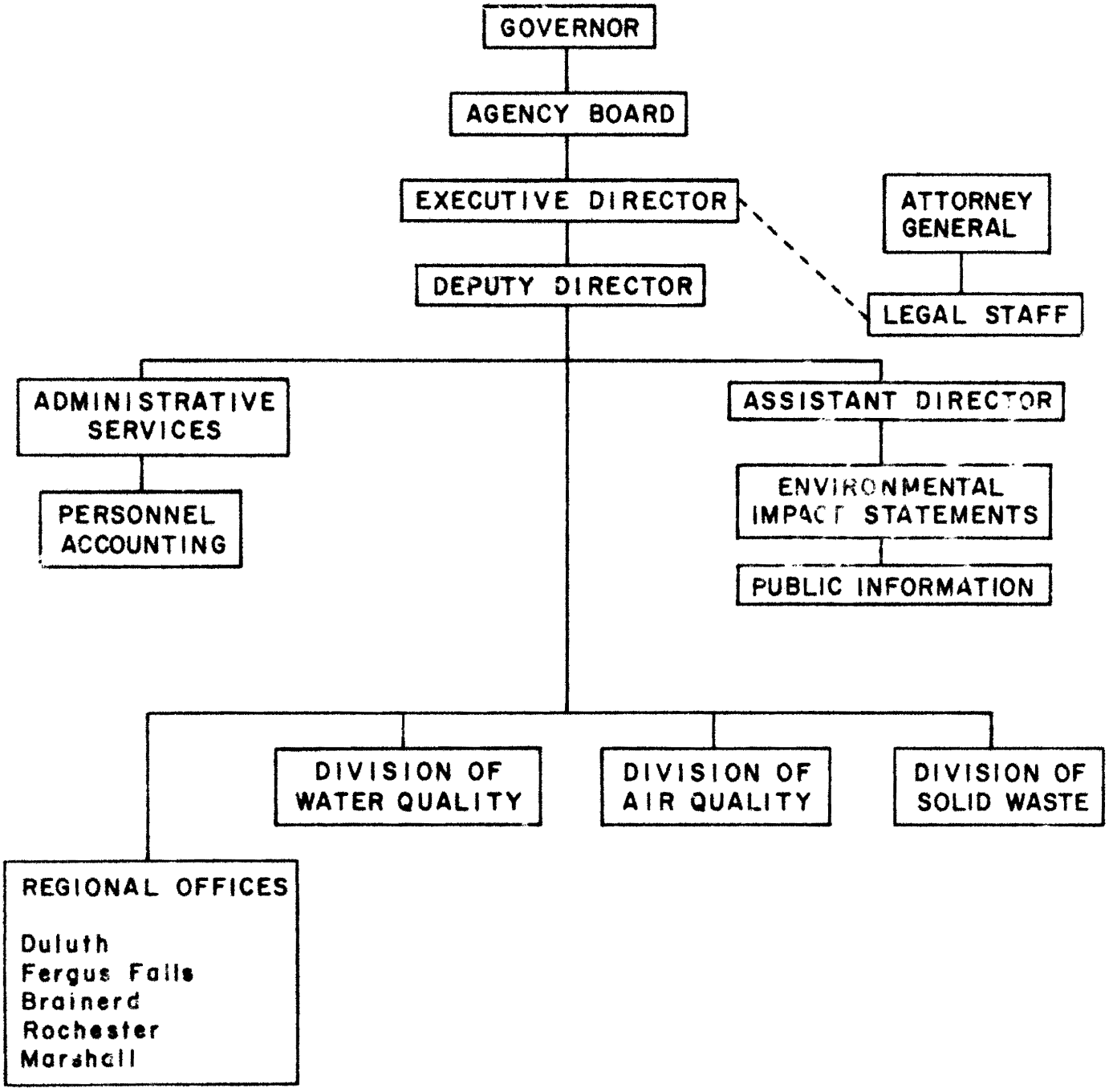
The Agency adopted procedural rules designated MPCA 1 through MPCA 13. These rules, adopted in 1973, clarify and standardize many Agency Board procedures. These rules also dictate conduct and practice before the Agency. (See Appendix C for Summary of Rules, Regulations, Classifications and Standards.)

The Agency has adopted comprehensive sets of air, water, and solid waste standards and regulations. It has adopted numerous policy statements and resolutions used as guidelines by the Agency and its staff.

The administration of the National Pollutant Discharge Elimination System Permit Program (NPDES) was approved by the Environmental Protection Agency (EPA) and taken over by the Division of Water Quality on June 30, 1974.

FIGURE 1

MINNESOTA POLLUTION CONTROL AGENCY



An aggressive enforcement program has been developed with the utilization of administrative and legal remedies up to and including litigation. The most notable ongoing litigation is the Reserve Mining Company disposal problem.

A state municipal wastewater treatment facility construction grant program has been established and administered in addition to an expanded federal grant program for the construction of these facilities.

Stream survey and monitoring programs have been expanded. Water Quality Management Basin Plans as required by Public Law 92-500 have been developed. Wastewater treatment facility operator training has been greatly expanded and an operator certification program has been established.

The entire air quality control program has been developed since 1967, including the organization of the Division of Air Quality. Air quality regulations APC 1 to 32 have been adopted or are in the process of being adopted, and some of the earlier adopted regulations have been revised.

A State Air Quality Implementation Plan has been adopted and a sophisticated air quality system has been developed.

A Metropolitan Transportation Plan has been developed.

Air quality and water quality data is stored by computer for ready access at any time.

Noise regulations NPC 1, 2 and 4 have been adopted.

The entire solid waste program has been developed since 1967, including the organization of the Division of Solid Waste. Solid waste collection, transportation, and disposal regulations SW 1 through 12 have been adopted. Livestock feedlot regulations SW 51 through 55 were promulgated. Regulations SW 56 through 61 providing for the processing of livestock feedlot applications by counties were also adopted.

Regulations SW 75 through 79 pertain to the disposal and recycling of abandoned motor vehicles and other scrap metal. Regulations SW 80 through 83 relate to the administration of grants-in-aid for resource recovery programs and projects.

Seminars and training sessions have been held for operators and municipal and county officials on the operation and maintenance of solid waste management systems.

New packaging regulations have been prepared and adopted.

CHAPTER II

WATER QUALITY

The Division of Water Quality has five Sections and an additional support unit that coordinates the processing of environmental impact statements and data processing assistance. See Figure 2.

The Permits Section issues discharge permits under the state-administered National Pollutant Discharge Elimination System (NPDES) program and facility permits for the construction of waste treatment works. Functions include the review of permit applications, drafting of proposed permits, issuance of public notices, holding of necessary hearings and issuance of final permits. Permits are issued for a maximum of five years and over 1200 have been issued to Minnesota sources of water pollution under the NPDES program. This section is also responsible for review and certification of projects requiring federal permits which include dredging activities as required by Section 401 of Public Law 92-500.

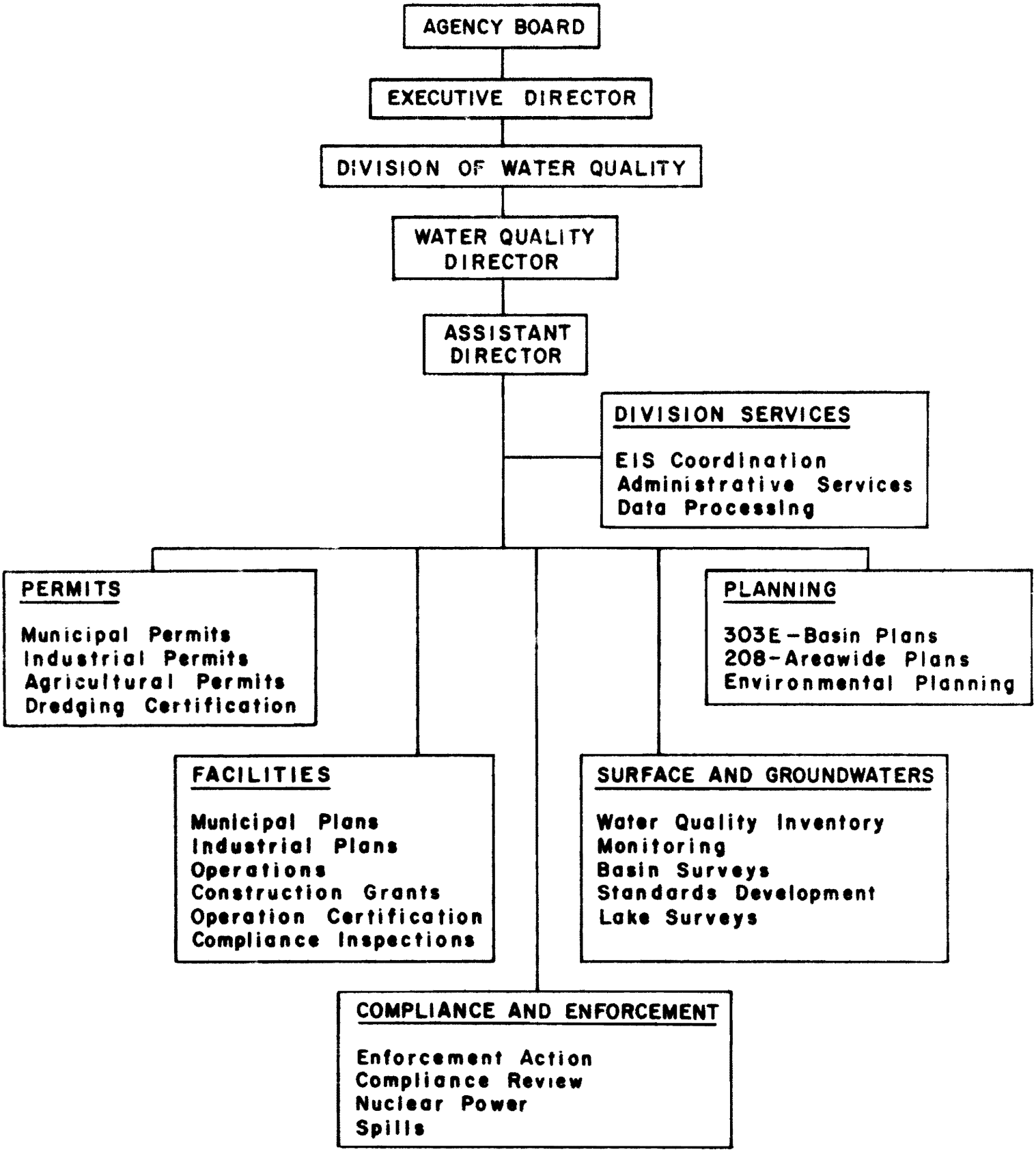
The Facilities Section provides technical review of engineering reports and plans submitted for municipal and industrial wastewater treatment plants. This section also conducts inspections of treatment plants to ensure optimal operations, determines compliance with the conditions of permits and provides technical assistance to plant operators. All major municipal and industrial dischargers are inspected annually. Technical support is also provided to municipalities with the administration of the federal-state wastewater treatment facility construction grants program. In Fiscal Year 1976 these grants totalled $172.024 million in federal funds and $34.405 million in matching state funds. The section also administers the mandatory waste treatment plant operator training and certification program.

The Surface and Groundwaters Section develops water quality and effluent standards and regulations. The section conducts routine monitoring at 103 stations. Additional monitoring to determine compliance with water quality standards is conducted as needed. Joint water quality and source studies are undertaken with local, state, federal and international agencies when the complexity of a problem demands.

The Compliance and Enforcement Section monitors performance requirements of permittees to determine whether noncompliance with permit requirements exist, and enforcement action

FIGURE 2

MINNESOTA POLLUTION CONTROL AGENCY
DIVISION OF WATER QUALITY
Organization



is initiated in cases of noncompliance. When it is appropriate, enforcement action may involve litigation, in order to achieve compliance. The section directs the recovery and clean-up of spilled pollutants, primarily on an emergency basis. The section also has technical review and enforcement authority over handling and use of certain radioactive materials.

The Planning Section is responsible for coordinating water quality management plans. The major work of this section relates to a variety of federal requirements for an annual program plan and the development of basin, segment, and area-wide plans.

Minnesota Statutes, Chapters 115 and 116, describe the policy, long range plan, and purpose relating to water pollution control:

> "It is the policy of the state to provide for the prevention, control and abatement of pollution of all waters of the state so far as feasible and practical in furtherance of the conservation of such waters and protection of the public health and in furtherance of the development of the economic welfare of the state..."
>
> "It is the purpose...to safeguard the waters of the state from pollution by:
> (a) preventing any new pollution; and
> (b) abating pollution existing...
> a program consistent with the declaration of policy above stated."

The Agency has proceeded under the general policy of preventing new pollution and abating existing pollution consistent with the other requirements.

Programs of water quality protection have been implemented by the adoption of water quality and effluent standards; regulations governing the construction and funding, under federal and state grant programs, of publicly owned waste treatment works; and by implementation of construction and discharge permit system for public and private waste treatment facilities. The present chapters of Agency regulations relating to water quality and others under consideration are shown in Appendix C.

In 1972, a sweeping federal-state campaign to improve water quality was launched when Congress enacted the Federal Water Pollution Control Act Amendments (FWPCA). The Act set

two water quality goals for the United States. The first goal is an interim level of water quality that provides for the protection of fish, shellfish and wildlife and recreation by July 1, 1983; and elimination of the discharge of all pollutants to navigable waters by 1985. In general, all water should be swimmable by 1983. In accordance with state authority, the Agency implements, as appropriate, the provisions of the 1972 FWPCA (Public Law 92-500).

Because of the extent of Minnesota's water pollution problems, limited funds and manpower, and because the severity of pollution varies geographically, the Agency has followed a strategy for water pollution control based on two main principles: prevent clean waters from being polluted, and combat pollution where it exists.

The MPCA has responsibility for considering present and potential uses of the state's waters and is responsible for determining the quality of the waters necessary to meet these uses. In accordance with this responsibility, the MPCA follows six categories of use classifications, and has grouped the state's waters into one or more of these classifications. These classifications are Domestic Consumption, Fisheries and Recreation, Industrial, Agriculture and Wildlife, Navigation and Others.

Each water use class has assigned to it the minimum quality suitable for its designated class. Limits are established for dissolved oxygen, turbidity, ammonia, temperature, pH, phenols, heavy metals, and other parameters.

Pollution is most severe where there are large concentrations of people and industry. The primary targets for regulatory efforts have been major sources of water pollution from industries and communities.

Industrial sources and municipal sewage treatment plants which discharge wastes to streams and lakes are called "point sources". The FWPCA and Minnesota Statutes define point sources as any discernible, confined, and discrete conveyance from which pollutants are discharged. Minnesota has nearly 1300 such point sources which require discharge permits. While the largest sources have been adequately identified, there probably are lesser sources not yet discovered.

Of these identified point sources, distinction is made between municipal and non-municipal discharges. "Municipal" sources include publicly-owned plants receiving domestic sewage which may be mixed with the industrial waste discharged into the collection system. Also in this category are such independent sources as truck stops, schools, trailer courts, camp-

grounds, sanitariums, water filtration plants, etc. As of January 1, 1976, there were 743 such sources.

The "non-municipal" dischargers consist primarily of industries discharging independently to surface waters. On January 1, 1976, there were 507 such sources. This category also includes discharges from confined animal feedlots, which have 1000 animal units or more. The Agency estimates some 80 such feedlots exist.

Both the municipal and non-municipal dischargers are further broken down into major and non-major categories. The current list of major dischargers is shown in Figure 3. It includes all those large facilities which have a high potential for violation of water quality standards, or who are required to install substantial pollution abatement equipment. The list was developed jointly by the MPCA and the EPA. Generally, most municipalities with a population in excess of 10,000 are considered major. Most major industries are large power plants or have a daily discharge in excess of 100,000 gallons of process wastewater. All are considered to have a potential for significant impact on water quality.

The Agency must also contend with "non-point" sources which are difficult to identify, measure, and control.

Some examples of "non-point" pollution are fertilizers and pesticides from croplands and orchards which may wash into waterways, and construction sites which cause sedimentation through soil erosion. Ferrous and nonferrous mining operations may contribute chemicals and solids through runoff. Also, areas that rely on septic tanks or other on-site sewage disposal may yield pollutants, including nutrients, which adversely impact surface and ground waters.

Today's knowledge is limited on "non-point" water pollution, but these sources must be controlled eventually because of their effect on surface and ground water. In some areas of the state it will not be possible to reach the 1983 goal of the FWPCA unless these sources are controlled.

The impact on surface waters from various sources of pollution can be identified through water quality monitoring. The actual amount of pollutants being discharged from point sources can be determined from effluent reports submitted to the Agency by the dischargers, as required by the discharge permits. However, the magnitude of non-point sources is not known. Considerable additional study remains on non-point sources of water pollution.

More than 450 communities in the state are not now providing adequate treatment of sewage and industrial waste.

FIGURE 3

MINNESOTA POLLUTION CONTROL AGENCY
DIVISION OF WATER QUALITY
MAJOR MUNICIPAL DISCHARGERS
JANUARY 1, 1976

	NAME	LOCATION
1.	Albert Lea	Albert Lea
2.	Austin	Austin
3.	Bemidji	Bemidji
4.	Brainerd	Brainerd
5.	Fairmont	Fairmont
6.	Faribault	Faribault
7.	Fergus Falls	Fergus Falls
8.	Hibbing - North	Hibbing
9.	Mankato	Mankato
10.	Moorhead	Moorhead
11.	New Ulm	New Ulm
12.	Northfield	Northfield
13.	Owatonna	Owatonna
14.	Red Wing	Red Wing
15.	Rochester	Rochester
16.	St. Cloud	St. Cloud
17.	Stillwater (Metropolitan Waste Control Commission)	Stillwater
18.	Virginia	Virginia
19.	Willmar	Willmar
20.	Winona	Winona
21.	Worthington (Plant)	Worthington
22.	Hastings (MWCC)	Hastings
23.	Western Lake Superior Sanitary District (WLSSD)	Duluth
24.	Cottage Grove(MWCC)	Cottage Grove
25.	Anoka (MWCC)	Anoka
26.	Blue Lake (MWCC)	Blue Lake
27.	Metro Plant (MWCC)	Minneapolis - St. Paul
28.	Seneca (MWCC)	Seneca
29.	Grand Rapids	Grand Rapids
30.	Marshall	Marshall
31.	Paynesville Station III	Paynesville
32.	Lakeville - Farmington (MWCC)	Lakeville - Farmington

FIGURE 3 (cont'd.)

MINNESOTA POLLUTION CONTROL AGENCY
DIVISION OF WATER QUALITY
MAJOR INDUSTRIAL DISCHARGERS
JANUARY 1, 1976

	NAME	LOCATION
1.	American Crystal Company	Crookston
2.	American Crystal Company	Moorhead
3.	American Crystal Company	East Grand Forks
4.	Boise Cascade Corporation	International Falls
5.	Conwed Corporation	Cloquet
6.	Wausau Paper Mills (Hennepin Paper Company)	Little Falls
7.	Koch Refinery	Pine Bend
8.	Potlatch Forests, Inc.	Cloquet
9.	Potlatch Forests, Inc.	Brainerd
10.	Reserve Mining Company	Silver Bay
11.	St. Paul Ammonia Products	South St. Paul
12.	St. Regis Paper Company	Sartell
13.	U.S. Steel Corporation	Duluth
14.	Wilson & Company	Albert Lea
15.	Minnesota Mining & Mfg.-Chemolite	Cottage Grove
16.	Northwestern Refining	St. Paul Park

POWER PLANTS

17.	Minnesota Power & Light	Aurora
18.	Minnesota Power & Light	Cohasset
19.	Minnesota Power & Light	Duluth
20.	Northern States Power	Red Wing (Prairie Island)
21.	Northern States Power	Monticello
22.	Northern States Power	Burnsville
23.	Northern States Power	Granite Falls
24.	Northern States Power	Oak Park Heights
25.	Northern States Power	Minneapolis
26.	Northern States Power	St. Paul
27.	Otter Tail Power	Fergus Falls

AGRICULTURAL

1.	Arends Farms, Inc.	Luverne
2.	Anthony Arens	Graceville
3.	Kenneth Baldry	Dumont
4.	Blue Earth Feedlot	Blue Earth
5.	Nelson Quality Eggs, Inc.	Bagley

FIGURE 3 (cont'd.)

MINNESOTA POLLUTION CONTROL AGENCY
DIVISION OF WATER QUALITY
MAJOR INDUSTRIAL DISCHARGERS
JANUARY 1, 1976

AGRICULTURAL (cont'd.)

	NAME	LOCATION
6.	Brookdale Farms, Inc.	Brooks
7.	Caldwell Livestock Company	Storden
8.	Con, Fed., Inc.	Mountain Lake
9.	Clarence Feikema	Luverne
10.	Duane Knott	Walnut Grove
11.	Langmo Brothers	Mountain Lake
12.	Langmo Brothers	Willmar
13.	Marius J. Martineau	Elbow Lake
14.	Natco, Inc.	Ada
15.	Nelson Quality Egg Farm	Bagley
16.	Oakridge Farm	Mountain Lake
17.	Prairie View Farm	Willmar
18.	River Valley Enterprises	Oaklee
19.	Thunder Bird Ranch	Fosston
20.	David & James Mulso	Sherburn
21.	Weldon Nelson #1	Bagley
22.	Gabrielson Cattle Corporation	Luverne
23.	Dean Bernloehr	Hanska
24.	Kenneth Hansberger	Worthington
25.	Cowen Creek Land & Cattle Corp.	Ramsey
26.	Wertheimer Cattle Company	Washington County
27.	Donald Taveirne	Russell
28.	Jules Noyes	Ghent
29.	Raymond Halbur	Amiret
30.	St. Paul Union Stockyards	St. Paul
31.	Willmar Poultry Company	Willmar
32.	Weldon Nelson #2	Bagley
33.	Skylark Ranch	Detroit Lakes
34.	Casmir Chirpich	Wells
35.	Dale Duncanson	Mapleton
36.	Kelly Brothers	Houston
37.	Babcock Swine, Inc.	Rochester
38.	Baer Poultry Ranch	Lake Park
39.	Baer Poultry Ranch	Lake Park
40.	Vinson Hagen	East Grand Forks

More than 40 percent of the industries in the state, which have separate discharges, are not providing adequate treatment but are on schedules of compliance. It is estimated that this required industrial construction is less than the estimated $3.4 billion in construction needed by all of the municipalities in Minnesota to provide adequate treatment of the domestic sewage and industrial wastewater discharged into their systems.

In recent years, the construction of municipal treatment facilities has progressed largely with the assistance of federal and state grant funds. Federal and state assistance has been provided in recent fiscal years as shown in Figure 4.

This current federally funded program represents 75 percent of the total eligible cost of construction of municipal wastewater treatment facilities. The total amount of construction involved is approximately $450.2 million in total cost from Fiscal Year 1973 through the current fiscal year. This figure represents the construction of treatment facilities and does not include money for such items as operation and maintenance and the construction of collection (sewer) systems. Most of the major communities in the state have initiated construction in recent years and the need to upgrade their facilities will continue for many years to come.

The amount of money spent by industries in the state for water pollution abatement is difficult to assess. Any such determination is complicated by the fact that the installation of pollution control equipment sometimes involves improvements in the manufacturing processes or the reclamation of usable products. Through the uniform application of effluent limitations nationally, industries cannot continue to gain economic advantage by putting off the installation of pollution control equipment. Construction of necessary pollution control facilities will continue for several years to bring existing discharges into compliance.

The availability of municipal treatment for industries in large cities has made it unnecessary for many of them to provide in-house treatment. Also, certain of these industries discharge wastes which are incompatible with municipal treatment systems, and consequently they must provide independent pre-treatment.

In the Agency's continuing efforts to protect the waters of the state, several major problems face the Water Quality Division.

Permits were issued to Reserve Mining Company in 1947 to discharge wastewater containing taconite tailings into Lake Superior. In 1956 and 1960 Reserve was allowed to increase the

FIGURE 4

MINNESOTA POLLUTION CONTROL AGENCY
DIVISION OF WATER QUALITY
FEDERAL CONSTRUCTION GRANTS

The following table shows what was authorized and appropriated nationally for the construction of municipal wastewater treatment facilities. The total amount and percentage which Minnesota received is shown for each fiscal year since 1957:

Fiscal Year	National Authorization	National Appropriation	Minnesota Allotment	% of Total
1957	50,000,000	50,000,000	929,450	1.859
1958	50,000,000	50,000,000	923,250	1.847
1959	50,000,000	50,000,000	929,175	1.858
1960	50,000,000	50,000,000	928,000	1.856
1961	50,000,000	50,000,000	930,000	1.861
1962	80,000,000	80,000,000	1,547,907	1.935
1963	90,000,000	90,000,000	1,772,313	1.969
1964	100,000,000	100,000,000	1,799,400	1.799
1965	100,000,000	100,000,000	1.793,100	1.793
1966	150,000,000	130,000,000	2,359,330	1.815
1967	150,000,000	150,000,000	2,891,680	1.928
1968	450,000,000	203,000,000	3,898,060	1.920
1969	700,000,000	214,000,000	4,101,500	1.917
1970	1,000,000,000	800,000,000	14,992,480	1.874
1971	1,250,000,000	1,000,000,000	15,192,470	1.519
1972	2,000,000,000	2,000,000,000	36,850,650	1.843
1973	2,000,000,000	2,000,000,000	40,638,000	2.032
1974	3,000,000,000	3,000,000,000	60,957,000	2.032
1975	4,000,000,000	4,000,000,000	64,247,300	1.606
1976*	9,000,000,000	9,000,000,000	172,024,500	1.911
Total	24,320,000,000	23,117,000,000	429,705,565	

* (This total reflects the release of impounded fiscal year 1973, 1974, 1975 funds. There was no separate fiscal year 1976 appropriation.)

dumping of wastewater which now contains 67,000 tons per day of tailings. Among other provisions, the permits prohibited any effect from the discharge on public drinking water supplies. In the 1960's citizens became aroused when they saw that the water quality of the lake was being affected. Before long, government action was initiated at the state and federal levels.

In June of 1973, the EPA announced that the drinking water of Duluth and other north shore communities was contaminated with asbestiform fibers which could cause cancer.

District Judge Miles Lord presided at a nine-month trial which began in Minneapolis in August 1973. That trial led to an order for the shutdown of the facilities at Silver Bay. This order of Judge Lord was quickly overruled by the Eighth Circuit Court of Appeals in St. Louis which sent the case back to Judge Lord's court for further action. Additional testimony was taken and final decision of the Eighth Circuit Court of Appeals affirmed the health hazard, set time limits on the continued dumping and gave other guidance for the resolution of the problem.

In December 1974, Reserve Mining Company submitted applications for an on-land disposal system in a basin which would be formed by the construction of a dam and three dikes at Mile Post 7. Mile Post 7 is located three miles inland from the North Shore of Lake Superior.

In October 1975, the MPCA and Minnesota Department of Natural Resources (DNR) jointly published the Draft Environmental Impact Statement (EIS) on Reserve Mining's proposed on-land tailings disposal system. The Draft EIS considered in detail the impacts of Mile Post 7 and alternative sites.

A hearing which began in June 1975 to consider the permit applications and EIS will produce findings to resolve the current air and water problems, although the exact nature of this settlement will not be known for several months.

The effects of the past disposal practices of Reserve Mining will continue to be born by the residents on Lake Superior and may never fully cease to be a problem.

Polychlorinated biphenyls (PCBs) are very stable, chlorinated organic chemicals used by industries throughout the world largely in the production of various electrical components. PCBs are potentially dangerous because of their wide dispersal and persistence in the environment. They also accumulate in food chains and have adverse effects on animals at the top of the food chain, including humans. The fillets of some fish in the Mississippi River and Minnesota River have been shown to

contain concentrations of PCBs higher than the Food and Drug Administration action level of five parts per million.

Adverse effects of PCBs which have been identified include: reproductive impairment in gulls, rhesus monkeys and mink; liver lesions and hepatic tumors in rats; and human miscarriages, still births and transplacental transmission of PCBs causing abnormal pigmentation in fetuses.

At present, the MPCA is a member of an Inter-Agency Task Force formed to investigate the PCB problem in the Mississippi River and Lake Pepin. The Task Force has initiated fish fillet, water, bottom sediment and point source sampling programs. Preliminary reports on these sampling programs have been released with final reports to be completed when all the data has been obtained.

The MPCA Board, in response to preliminary Task Force data and other PCB data, has approved a resolution calling for a federal ban on the sale and use of PCBs and recommended similar legislation to the Minnesota Legislature.

Any wastewater collection facility, whether industrial or municipal, creates the possibility of a bypass and the discharge of wastewater before treatment. A bypass can occur in a collection system before the wastewater reaches the treatment facility or it can occur at the treatment facility itself where the entire treatment process or only a portion of the process may be bypassed. As more and more treatment facilities are constructed, expanded and improved throughout the state to produce acceptable effluents, the relative impact of bypasses on water quality becomes more significant.

The goal of the Agency is to eliminate any discharge of inadequately treated wastewater. While this goal can be simply stated, it may be impossible, impractical or too costly to totally eliminate all bypasses. Accidents and loss of electrical power will occur that cannot be completely avoided by alarms and other safeguards. At the present time the Agency is far from the situation where bypasses have been eliminated to an acceptable level.

The largest bypass problem in Minnesota exists in the Minneapolis-St. Paul metropolitan area. Most of the wastewater treatment for this area occurs at the metro (St. Paul-Pig's Eye) treatment facility operated by the Metropolitan Waste Control Commission (MWCC). The spring of 1976 may be the first high water season when the treatment facility will be able to operate in spite of high water levels in the Mississippi River. In the past, high river levels have prevented the use of the effluent discharge channel and have required bypasses of portions of the treatment plant. To remedy this situation a flood wall has been

constructed and a pumping station will be used to discharge the treated effluent over the wall when the river is at flood stage.

A bypass problem much more difficult than high water at the treatment plant remains to be solved in the metropolitan area. This problem relates to the sewage collection system in the Twin Cities which, to a large extent, consists of combined storm water and sanitary sewers. Where the combined sewers connect to interceptors, overflow points exist which allow excess flow caused by rainfall or snow melt to bypass to the river. This excess flow which is bypassed consists of sewage and runoff water. A conservative estimate places the volume of the combined sewer overflow at 1.5 billion gallons annually in the Twin Cities area compared to 73 billion gallons, the amount of sewage treated annually at the MWCC metro plant. This discharge does not occur continuously but rather during periods of wet weather. The combined sewage probably does not have the organic strength of undiluted sewage, but it may have additional undesirable constituents of urban runoff, such as heavy metals, sediment and hydrocarbons.

The solution to the combined sewer problem in the Twin Cities will be expensive and take several years to complete. The problem has been recognized by the Agency and permits have been issued which require monitoring and the initiation of a systematic approach to eventually solve the problem.

Dredge and fill operations have received increased attention from the Agency in recent years as potentially serious effects of these operations have been discovered. The most significant dredging operation in the state is the continuing maintenance dredging program conducted by the Corps of Engineers on commercially navigable waters, the Duluth-Superior harbor and the Minnesota and Mississippi Rivers.

Two major problems result from dredging projects: resuspension of sediments at the dredge cutterhead and disposal of the dredged material. While the resuspension of sediments is a problem at any dredging site, it is a major concern in areas containing nutrients, polluted sediments or a high percentage of fine material that pollutants are most likely to adhere to. Resuspension of such sediments could reintroduce toxic substances, such as PCBs, into the food chain. The Agency believes that dredged materials be contained in a confined on-land disposal facility, and any discharge must meet appropriate effluent limitations and water quality standards. Improper disposal of dredged material has had an adverse effect upon fish and wildlife in the vicinity of dredging operations and has closed off entrances to backwaters, hastening the eutrophication of these areas.

Dredging and filling operations are currently regulated by a Corps of Engineers permit program. The MPCA is required under Section 401 of the FWPCA of 1972 to provide a certification that the proposed activity will not violate water quality limitations or effluent standards before a Corps permit can be issued for the proposed activity. The Corps permit program once was applicable only to navigable waters of the United States, but subsequent to July 25, 1975 the program has been extended to virtually all waters of the United States.

Under the provisions of the Corps regulation governing the administration of their permit program, federal agencies are not required to obtain a Minnesota water quality certification, but they are required to comply with the substantive state, interstate and local water quality standards and effluent limitations. The Corps contends that they do not have to meet these state requirements. The State filed in U. S. District Court in April 1975 for a declaratory judgment to require that the Corps comply with Minnesota Statutes and Regulations which relate to maintenance of the quality of the water in the lakes and rivers in Minnesota. The U. S. District Court has ruled that the Corps of Engineers must comply with these Statutes and Regulations.

Locks and Dam No. 26 is a $383 million project proposed by the U. S. Army Corps of Engineers to replace the current Locks and Dam structure at Alton, Illinois. Locks and Dam No. 26 is strategically located on the Mississippi River below its confluence with the Illinois River and above its confluence with the Missouri River near St. Louis, Missouri. The project will facilitate economic expansion of waterborne commerce because of its capability for quadrupling barge traffic on the Illinois and Upper Mississippi Rivers. Locks and Dam No. 26 could be an important precedent toward initiation of a twelve-foot navigation channel on the Upper Mississippi River.

Locks and Dam No. 26 has environmental implications in Minnesota which include: 1) water quality degradation through increased barge activity causing resuspension of bottom sediments (turbidity, nutrients, toxic chemicals, etc.), 2) water quality degradation through increased pollution from more accidental spills of hazardous and other materials transported in barges, 3) destruction of ecologically sensitive backwater slough areas, and 4) pollution from increased dredging, especially dredging associated with maintenance of a twelve-foot navigation channel. It is feared that increased barge traffic and other impacts will upset the current multi-use of the Upper Mississippi River through increased commercial use of the Mississippi River in Minnesota. The nine-foot navigation channel on the Upper Mississippi River in Minnesota is

presently maintained in a manner which is environmentally unsatisfactory and violates Minnesota law. Increasing this activity would expand the adverse input and make resolution of the problem more difficult.

In September 1974, a U. S. District Court injunction halted the Locks and Dam No. 26 project because of violations of federal law. In April 1975, the Agency Board of the MPCA unanimously voted to authorize the Executive Director to join a lawsuit brought against the Corps of Engineers by the Sierra Club, Izaak Walton League and some 21 western railroads. Accordingly, in July 1975, the MPCA filed a petition to appear as amicus curiae which was granted on August 14, 1975 by Judge Charles R. Richey, U. S. District Court, District of Columbia. Court proceedings are under way at present.

The Garrison Dam, part of the Pick-Sloan Missouri River Basin Program, was completed in 1956 and was principally intended to provide flood control, hydroelectric power, and irrigation. The Garrison Diversion Unit was approved by Congress in 1965 and designed to irrigate 250,000 acres in North Dakota and provide municipal and industrial water supplies, fish and wildlife conservation and enhancement, recreation and flood control for North Dakota. The project cost is currently estimated at 500 million dollars.

The Garrison Diversion has been criticized by the Canadian government, the President's Council on Environmental Quality, U. S. Environmental Protection Agency, the Under Secretary of the Interior for Fisheries and Wildlife, and several environmental groups including the Committee to Save North Dakota, National Audubon Society, National Isaak Walton League, the Sierra Club, the National Farmers' Union and the North Dakota Farmers' Union (the largest farm organization in North Dakota). The Environmental Impact Assessment Project of the Institute of Ecology, established in 1973 in an effort to improve the federal planning and evaluation procedures mandated by the National Environmental Policy Act (NEPA), published a policy review of the Final Environmental Statement for the Garrison Diversion Unit in January 1975. The TIES report severely criticized the project and EIS. The project, although currently fully funded, is the subject of an investigation by the House Conservation, Energy and Natural Resources Subcommittee, U. S. House of Representatives Committee on Government Operations. A report of the subcommittee is expected early in 1976. Failure of the U. S. Department of State to resolve international problems on the project resulted in a reference to the International Joint Commission and the formation of an International Garrison Diversion Study Board in November 1975. This Study Board will report to the IJC which will issue the final report in October 1976.

The MPCA's concern over the impacts of the Garrison Diversion Unit began in 1967. The MPCA's first formal review of the project came as a result of a review of the Final Environmental Statement for the project. The Agency's comments of July 1974 noted several specific concerns over potential water quality impacts and recommended that project construction be halted until water quality impacts were fully considered and evaluated. In May 1974 the Agency Board authorized the Executive Director to sue the Bureau of Reclamation for violations of the Freedom of Information Act. On April 15, 1975, the Agency Board authorized the Executive Director to sue the Bureau of Reclamation for violations of the National Environmental Policy Act of 1969. Since that authorization, the MPCA has had several meetings with North Dakota officials and representatives of the U. S. Bureau of Reclamation. On September 15, 1975, the MPCA testified at the field hearings conducted by the House Government Operations Committee. In November, the Executive Director of the MPCA was named to participate on the IJC International Garrison Diversion Unit Study Board. The Agency's continuing position has been that the Garrison Diversion Unit continues to be improperly constructed prior to adequate study and evaluation of water quality impacts which will result. This lack of information has prevented a decision regarding potential violations of Minnesota pollution control laws. On January 16, 1976, the Executive Director announced that litigation by the MPCA on Garrison Diversion Unit would be deferred until the IJC study is completed.

At present some 300,000 individual septic tank systems serve about one-third of the population in the state. Many local programs exist to control the location, construction and use of these systems, ranging from very good ordinances and a well staffed administration to no ordinance nor personnel.

Common practices in some areas include straight pipes from septic tanks to lakes, rivers or ditches. The two most serious situations are in shoreland areas and in outlying areas of urban development.

In outlying urban development, and even in some smaller cities, septic tank systems are often poorly installed in areas with unsatisfactory soil or topography. This may result in degradation of the ground water by sewage. In one metropolitan area, 60 percent of the wells were contaminated by septic tank seepage. Some septic systems fail by overflow or by backing up into homes. This leads to a demand either for sewer extensions or for a new sewer system and treatment plant. Frequently a county may have a very good program but has no jurisdiction to require the proper installation of septic tanks in a township or city.

In lakeshore areas the lack of central treatment plant results in the widespread use of septic tanks in places where the soil and topography are not suitable. Nutrients and other pollutants soon contaminate the lake. A mechanism to control the location, construction and use of septic tanks in these areas already exists -- the Shoreland Management Act. This statute requires that all new and existing systems be brought up to the standards of the Department of Health and the MPCA by July 1, 1977 in unincorporated areas, and by 1980 in incorporated areas. While this program has been very successful in controlling the location, construction, and use of individual systems on new lots and developments, there is a problem on the older, existing lots which may have an inadequate septic tank or improper soil.

Most local codes contain only information on how to locate and construct a septic tank system where the site and soil are adequate. If good soil does not exist, or if the lot is too small, the only alternative currently available is a holding tank. Homeowners shy away from holding tanks because they become very expensive to operate. Local zoning administrators are fearful of allowing the installation of holding tanks because of repeated instances of illegal pumping, by homeowners, onto lawns or into ditches and lakes when the cost of having the tank pumped becomes unbearable.

The Agency staff is working with a 46 member Citizens Advisory Committee in the development of statewide, technical standards governing location, construction and use of individual systems. These standards will help offset the above problems by: 1) providing a minimum standard for all local levels of government, thus helping to stem the proliferation of sewer extensions in and around urban areas, and 2) providing a series of alternative devices and methods which can be used, at the option of the local zoning administrator, to solve problems where septic tanks will not function properly.

The Advisory Committee and the Agency will be holding public meetings and public hearings throughout the state during 1976 to solicit further public input before the regulations take effect.

In 1971, the Legislature approved legislation directing the Agency to adopt standards to limit the amount of nutrients in various cleaning and water conditioning agents. In so doing, the Legislature reflected a nationwide concern that nutrients, such as the phosphates from laundry detergents, were contributing substantially to the problem of accelerated eutrophication or excessive nutrient pollution of our recreational waters, particularly lakes. As a result of this legislation, and after extensive investigation, public hearings on a proposed regulation which would control the concentration of phosphate in detergent were held in February and April 1975. The extensive hearing record has been summarized and will be considered by the Agency in early 1976.

The final disposal of solid residues resulting from wastewater treatment has long been a difficult and often costly problem facing treatment facilities. This problem may become even more troublesome since the quantities of sludge produced are expected to increase as treatment efficiency increases or additional treatment practices are employed to meet effluent discharge standards.

Application of these waste sludges on land has been a popular and often relatively inexpensive final disposal method. Until recently, little was known about the characteristics of most sludges or the impact of their application on soil, vegetation, or ground water, and no concentrated effort was expended in reviewing or controlling land application practices.

In 1974, a survey of Minnesota wastewater treatment facilities that generate sewage sludge revealed that about 200 of these facilities were now using and spreading of sludge as a fertilizer and soil conditioner while another 75 were using

burial or similar landfilling techniques for sludge disposal. Similarly, interest in land disposal of many industrial waste sludges has increased.

Past experience and recent research efforts have demonstrated that where proper restraints and management are exercised, many sludges can be land applied with little impact on the environment, public health, or aesthetics.

However, it has also been demonstrated that without due consideration of restraints or with improper or inadequate management, land application of waste sludges may promote any or all of the following problems:

-- Ground and/or surface water pollution
-- Excessive accumulation of heavy metals, persistent organics or salts in soil or food resources
-- Pathogen contamination of food and water resources
-- Aesthetic degradation

The Agency has initiated a program for guidance and control of sludge application practices with the overall objective being the minimization of the potential problems while preserving the feasibility and advantages of land application. Guidelines governing application of municipal wastewater sludges are in draft form at present for review by the University of Minnesota, the Department of Agriculture, the Health Department, the Wastewater Operators Association, the Consulting Engineers Council, and other appropriate groups and agencies. The Agency also plans to develop guidelines governing land application of water treatment sludges, industrial waste sludges, incinerator ashes and septic tank pumpage.

Minnesota statutes prohibit any discharge of sewage from vessels. In accordance with the FWPCA of 1972, the EPA and U. S. Coast Guard have recently promulgated regulations which allow the discharge of sewage, particularly on waters subject to interstate shipping. These federal regulations were designed to preempt state regulations. States are permitted to apply to the EPA, requesting that some or all of its waters be declared no-discharge zones. Minnesota applied for a no-discharge designation of Lake Superior, and the EPA has rejected this application. The Agency intends to reapply for no-discharge designation for all waters, interstate and inland, so that the Agency can continue to enforce the state legislation.

In the meantime, the DNR has enforcement responsibilities for the statute and will continue to require no-discharge devices on all vessels which they license. This applies only to recreational craft and not to the larger commercial vessels.

Possible conflicts exist between the EPA and U. S. Coast Guard regulations and the FWPCA of 1972, and legal challenges to the federal regulations may be necessary. The Agency staff is meeting with interstate shippers and port managers on Lake Superior and the lower Mississippi River to discuss the problems associated with equipping vessels and ports for no-discharge operation, the latter through the construction of pump-out facilities.

The NPDES permit is the tool used by the Division of Water Quality to regulate point source discharges to the waters of the state. The NPDES program is a product of the FWPCA of 1972 which requires a permit for every discharge and the attainment of certain effluent levels by July 1, 1977.

Because the grants program presently ties municipal construction to the availability of federal funds, the July 1, 1977 compliance deadline will be missed by many municipalities. This situation not only raises the question of possible inequity between requirements for industry as compared to municipalities, but it has also proved a barrier in the negotiations for joint treatment between industry and a particular municipality. In many cases, a desirable solution to the waste treatment problems of a city and an industry would be the construction of a joint treatment facility. However, when the city can wait for grant money and the industry is faced with the 1977 deadline the joint treatment solution is often unworkable.

With respect to solving municipal water pollution problems which do not require the construction of a new or expanded treatment facility but may require some lesser expenditure, the existence of the grants program leads to some difficulties. The line between grant eligible expenses and those not eligible can often lead to disputes which complicate the efforts of pollution abatement through the NPDES permits. The limited state and federal grant funds are best used building final treatment systems and municipalities must assume responsibility to operate the systems properly.

Another problem encountered frequently in NPDES permit compliance schedules is the delay of construction beyond the agreed construction dates. These delays occur for various reasons, but equipment delivery problems, bad weather and labor disputes seem to be the most common causes. The Agency staff must deal with the assessment of causes and appropriate remedies to problems with the interest of all parties in mind, including the general public of the state.

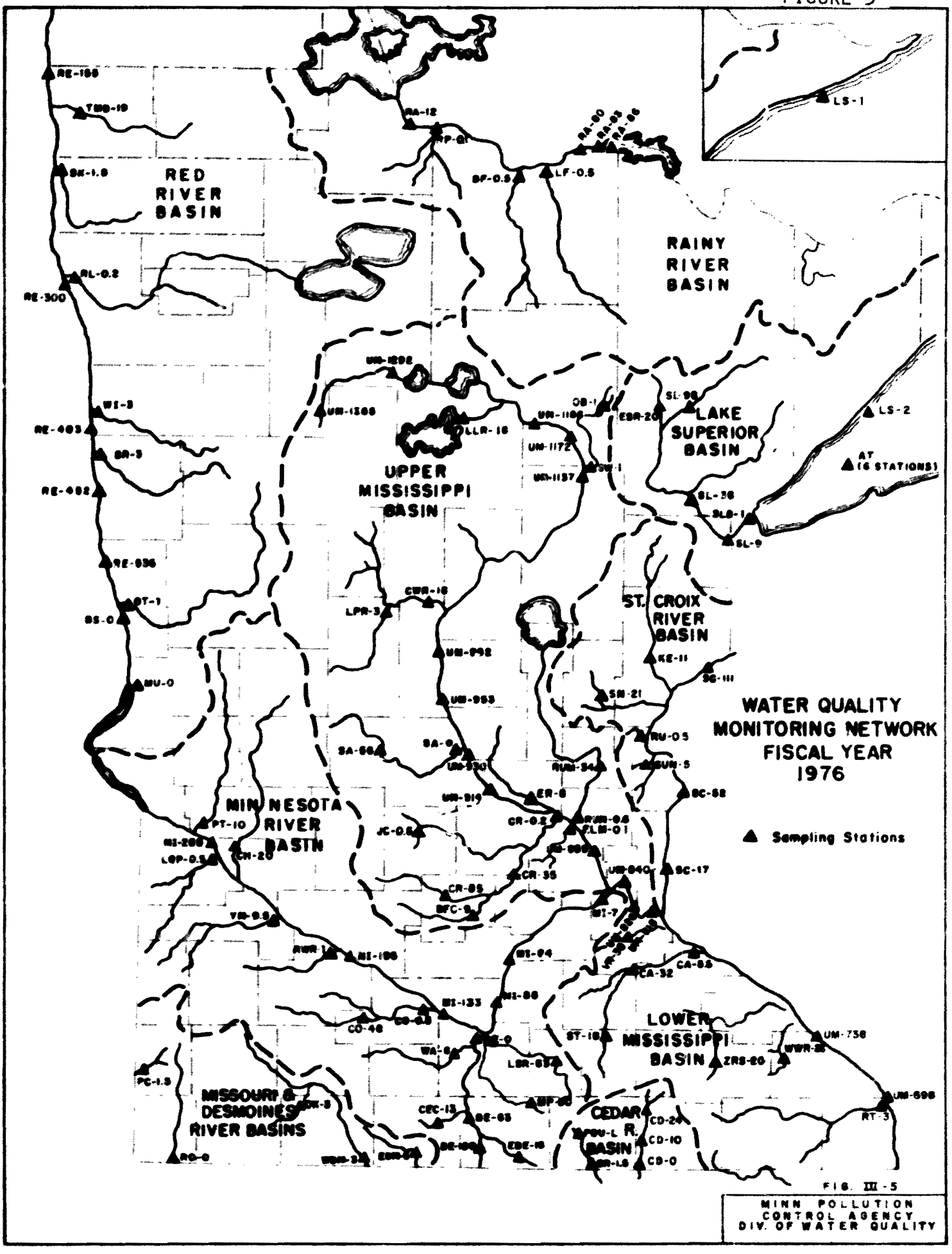
In spite of a number of difficult problems, the NPDES permit gives the Division of Water Quality a uniform framework from which to approach the job of cleaning up the waters of the state, with the necessary flexibility to deal with unique situations.

The Division of Water Quality conducts several programs to implement the Agency's federal and state authority to control water pollution in Minnesota. The most important are discussed here.

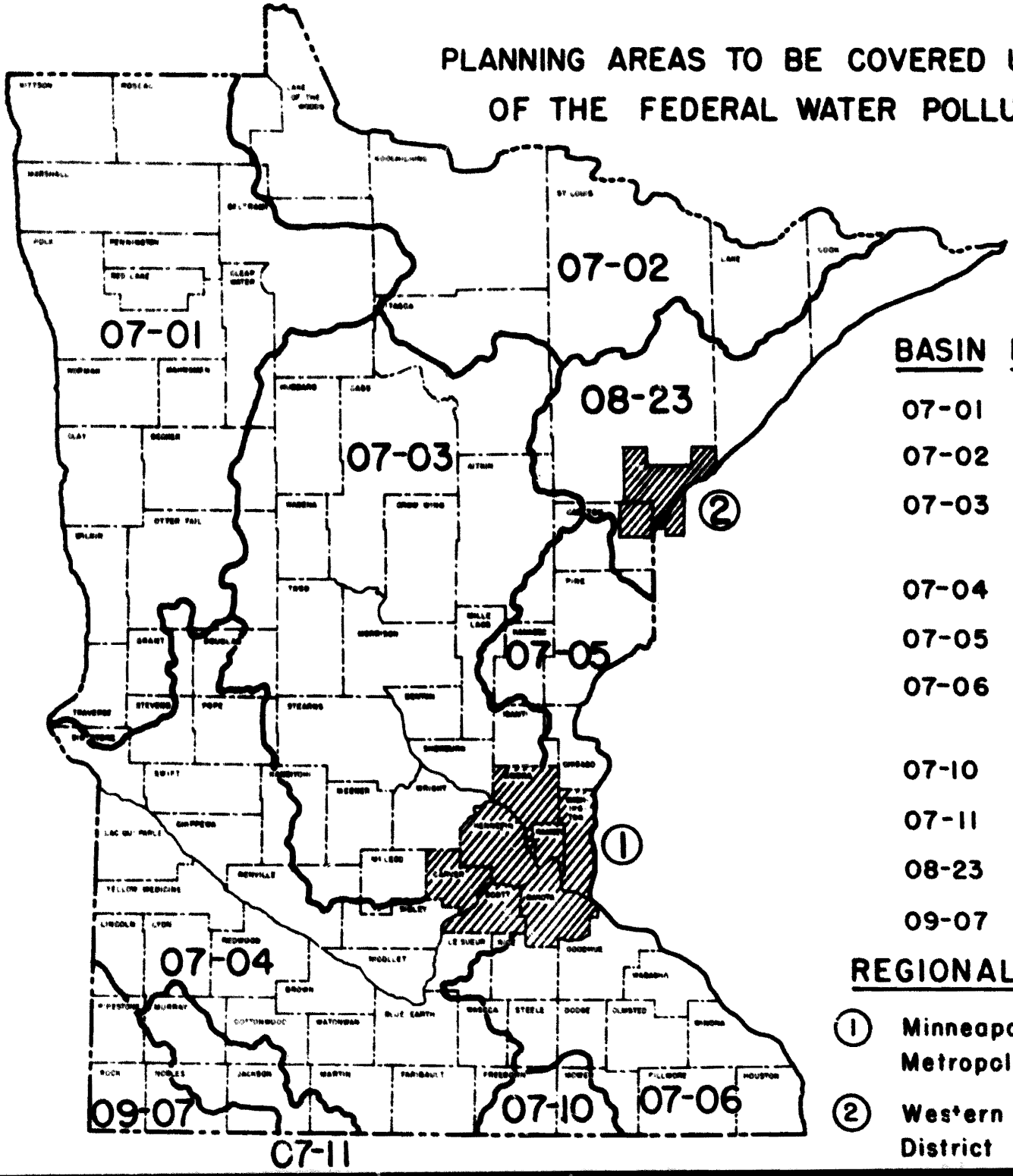
The water quality monitoring program supports all of Minnesota's water pollution control activities by supplying the qualitative data needed to determine existing water quality and to understand the causes and effects of such quality. The monitoring program also enables the state to assess the effectiveness of its water pollution control activities. The program is designed to monitor both the quality of effluents discharged and in-stream water quality. The monitoring program consists of a state-wide primary monitoring network, intensive water quality surveys, and effluent compliance monitoring of point source discharges.

The Primary Monitoring Network program as shown in Figure 5 and Figure 6, is the basic water quality information system for the Agency. It is expanded and refined each year to provide for current needs. Water samples are collected at 103 fixed locations each month and are routinely analyzed for 32 physical, chemical and microbiological parameters. Other parameters are sampled at selected locations. In addition to the monthly primary network stations, six monitoring stations in Lake Superior are sampled annually. Two continuous, automatic monitoring stations are located at East Grand Forks, one on the Red Lake River and the other on the Red River of the North. Two sampling locations on the Blue Earth River are part of the National Water Quality Surveillance System and were selected to reflect the influence of agriculture on water quality. Two sampling locations on the Mississippi River in the Metro area are also part of the National Water Quality Surveillance System. These were selected to reflect the effects of an urban, industrialized area on the river.

FIGURE 5


RED RIVER BASIN
RAINY RIVER BASIN
UPPER MISSISSIPPI BASIN
LAKE SUPERIOR BASIN
ST. CROIX RIVER BASIN
MINNESOTA RIVER BASIN
MISSOURI & DESMOINES RIVER BASINS
LOWER MISSISSIPPI BASIN
CEDAR & ROCK R. BASIN
WATER QUALITY MONITORING NETWORK FISCAL YEAR 1976
▲ Sampling Stations
AT (6 STATIONS)
FIG. III-5
MINN POLLUTION CONTROL AGENCY DIV. OF WATER QUALITY

PLANNING AREAS TO BE COVERED UNDER SECTION 303(e) OF THE FEDERAL WATER POLLUTION CONTROL ACT



BASIN PLANNING AREAS

07-01	Red River of the North
07-02	Rainy River
07-03	Upper Portion Upper Mississippi River
07-04	Minnesota River
07-05	St. Croix River
07-06	Lower Portion Upper Mississippi River
07-10	Cedar River
07-11	Des Moines River
08-23	Lake Superior
09-07	Missouri River

REGIONAL PLANNING AREAS

(1) Minneapolis-St. Paul Metropolitan Planning Area

(2) Western Lake Superior Sanitary District Planning Area

FIGURE 6

Complementing the primary monitoring network is the Intensive Monitoring Survey Program which is an in-depth water quality study conducted for a limited amount of time in a specific area where more comprehensive information is needed for the pollution control program. Frequent sampling or measurement of parameters is done at a set of monitoring stations to determine cause and effect relationships.

From 1975 on, intensive surveys are based on the NPDES permit renewal schedule. Surveys will be conducted one to two years prior to the reissuance of NPDES permits for a given river basin. Facilities inspection for all dischargers, both major and minor, will be included in the survey. The basin surveys will provide information on compliance with issued NPDES permit requirements, and water quality information necessary for the reissuance and possible modification of the permits within the basin.

As land disposal of wastes increases, a state-wide Groundwater Monitoring Program becomes a more important factor in pollution control. Principal aquifers in Minnesota and a network of monitoring wells to compile base-line data on the aquifers will be designated in Fiscal Year 1976. This will represent a limited new effort and major use will be made of available data from all sources. The MPCA and the Department of Health are presently beginning to develop this data.

To control point and non-point sources of pollution, major river basins were designated for study throughout the United States. For each river basin, a plan is to be developed to coordinate and direct water pollution control activities. The plans will be in two phases. In general, Phase I addresses point source management, and Phase II non-point source controls.

In Minnesota there are 11 designated basins, as shown on Figure 6. Ten are natural river basins, and one, the seven-county metropolitan, is defined along political boundaries. The Metropolitan Council is responsible for the Metro Area Basin Plan, and the Arrowhead Regional Development Commission has prepared the plan for the Lake Superior Basin. The MPCA is responsible for the other nine Basin Plans. Eight of the Phase I plans are completed and the ninth will be completed in early 1976.

Phase I River Basin Plans identify the water quality standards and pollution problems in the basin. The plans discuss all the known industrial and municipal dischargers and the requirements of the discharge permits issued by the MPCA. In addition, the plan sets priorities and estimates the cost for building public sewage treatment facilities within the basin. An estimation of the significance of non-point pollution in the basin is also attempted.

The Phase II Basin Plans will be more complex in certain areas of the state where the 1983 goal cannot be met without non-point source control. These plans will emphasize non-structural methods of controlling pollution. That is, when the pollution problem cannot be solved by building a sewage treatment plant, alternatives involving land use, farming and construction methods and other environmental control considerations may be needed. Phase II Basin planning by the Agency will begin in 1976 and must be completed by November 1, 1978.

In addition to basin-wide planning done by the Agency the FWPCA of 1972 also finances local/regional planning by regional agencies. This planning is usually in urban/industrial areas where severe water quality problems and complex control methods require a more sophisticated level of planning. However, there are non-urban areas in Minnesota with water quality problems which may also be eligible to receive funds to do their own planning for areawide management, provided there are local or regional agencies capable of doing the planning in the area.

To systematically regulate the discharge from point sources, state regulations have set minimum effluent limitations. In addition, the EPA established individual effluent limitations for certain industries, wastewater treatment facilities, power plants, animal feedlots and other specific sources.

These limitations reflect the degree of cleanup expected to be achieved by using the latest technology for controlling wastes. The initial set of point source, effluent limitations must be met by July 1, 1977. The dischargers may be required to meet more stringent effluent limitations by 1983. The effluent limitations represent goals that are technologically achievable at economically realistic costs. In the case of industries, since the limitations apply equally to all within a particular industrial category, they attempt to introduce an economic equity between individual competitors in that industry.

Each permit being issued is subject to public scrutiny and a possible public hearing. Over 1300 permits will be issued in Minnesota, and as of January 1, 1976, 1211 permits were issued. Thirty-four draft permits (essentially industrial) were subject to the outcome of public hearings and/or negotiations with the dischargers. The status of the permit program is shown in Figure 7. The total number of permits will slowly increase as applications come in from persons proposing to build new treatment facilities or from other persons who had not yet applied for a permit.

In effect, a NPDES permit is a statement of the law as it applies to a particular permittee. It sets specific limits on the concentration, volume and temperature of what may

FIGURE 7

MINNESOTA POLLUTION CONTROL AGENCY
DIVISION OF WATER QUALITY
PERMITS SECTION
NPDES STATUS
JANUARY 1, 1976

	Municipal Wastewater Treatment Plant	Water Treatment Plant	State Facility	Commercial Miscellaneous	Industrial	Agricultural	Grand Total	Percent of Total
Applications Received	665	235	29	58	844	59	1890	
No Permit Required Determinations	135	76	12	14	333	19	589	
Permits Required	530	159	17	44	511	40	1301	100
Permits Drafted	521	159	17	44	495	40	1276	98
Public Notices Issued	520	159	17	44	494	40	1274	98
Public Hearings Requested	3	4	0	1	28	0	36	3
Permits Issued								
By EPA	109	5	0	0	188	3	305	23
By MPCA	406	150	17	42	255	36	906	69
Total	515	155	17	42	443	39	1211	93
Remain to Draft	9	0	0	0	16	0	25	2
Remain to Public Notice	10	0	0	0	17	0	27	2
Remain to Issue	15	4	0	2	68	1	90	7

be discharged into the surface waters of the state and requires that the permittee monitor the discharge and report results periodically to the MPCA. If a discharger is unable to comply immediately with applicable effluent limitations, the permit establishes a firm schedule through which the final goal can be reached.

Because point source dischargers are frequently not able to comply immediately with the applicable effluent limitation, it is common for a permit to include a compliance schedule which requires that treatment facilities be constructed or upgraded. Before construction can begin, technical review of the plans and specifications is made by the Agency staff. The purpose of this review is to determine whether the proposed facilities are likely to comply with the limitations contained in the permit. At that time, various recommendations or requirements are given to the permittee, and, if necessary, the permit is reissued to reflect changes brought about by the construction. All construction of this nature must be authorized by the permit.

The primary purpose of this review is to provide technical support to the administration of the federal/state construction grants program. Industrial dischargers must provide their own financing for improvement of their discharge. However, to assist communities in planning and constructing wastewater treatment facilities, construction grant monies are available from the federal government and the state. Municipalities may apply for federal grants to cover 75 percent of the eligible cost and state grants for 15 percent of the eligible costs.

This construction grant program was initiated with the enactment of the Federal Water Pollution Control Act (FWPCA) in 1956. This Act was amended in 1961, 1965, 1966, 1970 and 1972. The Agency jointly administers the Act with the EPA and also administers the state grant program. The state program was initiated in 1969 with the enactment of the Crystal Waters Act which provided grants to cover the cost of interest on loans secured to finance federal portions (30 or 33 percent) of the cost of the project that was proceeding under the reimbursement provisions of the FWPCA of 1956. The Crystal Waters Act funds were never utilized, because no grant applications were submitted.

In 1971, the Minnesota Municipal Facilities Assistance Program was established by the Legislature. The program provided 25 percent matching grants, and, in 1973, it was amended to provide 15 percent separate state grants when the federal grant rose from the previous maximum of 55 percent to 75 percent. Funding of both of the programs has increased rapidly since Fiscal Year 1969, when the state was allotted $3,931,000 by the federal government. See Figure 4. The federal allotment to the state for Fiscal Year 1976 now stands at $172,024,500.

The annual Project List names the projects to be funded for a given year and reflects the state's priority in providing funds for constructing municipal treatment plants. Since federal dollars are limited, they are dispensed on a priority basis. Based on a 1974 survey, states have estimated that the total national need for construction of facilities is over $60 billion.

To determine the federal dollars to be allotted to each state for the program, the EPA has, for Fiscal Years 1973, 1974 and 1975, conducted a "Survey of Needs for Municipal Wastewater Treatment Facilities." As of the 1974 Survey (done for Fiscal Year 1975), Minnesota had a total of $1.3 billion in needs in the following categories:

I -	Provision of Secondary Treatment Technology	$ 69,304,000
II -	Provision of More Stringent Treatment	406,802,000
IIIa -	Infiltration/Inflow Correction	52,140,000
IIIb -	Major Sewer System Rehabilitation	1,415,000
IVa -	New Collectors	203,988,000
IVb -	New Interceptors	233,479,000
V -	Correction of Combined Sewer Overflows	368,254,000
	TOTAL	$1,335,382,000

This does not include an additional estimated $2 billion needed for treatment and/or control of stormwater.

The Municipal Discharge Inventory (MDI) is a priority listing of all communities in the state which discharge to waterways. Position on the list is determined by assigning priority points to each municipality, including the priority points of the segment to which the municipality discharges.

After the major river basins were established, they were further divided into segments. There are 44 segments in Minnesota and all were ranked according to the following criteria:

1) Severity of pollution problems
2) Population
3) Need for preservation of high quality
4) National priorities

Segment priority points based on these criteria are used as an input in the development of the priority listing of individual dischargers for the state.

The Municipal Needs List (MNL) is a listing of all communities that have inadequate sewage treatment facilities and are being considered for state and federal grant monies. Communities on the MNL receive the same number of points as they had on the MDI plus additional points from 10 to 40 for the type of project needed. The list is separated into Metro Area and Outstate Area. Federal and state money is similarly divided -- the current split is approximately 62 percent for the Metro Area and 38 percent Outstate, based on sewered population.

The most important concept of a municipal priority ranking system is that it directs the limited funds for water pollution control efforts toward the higher priorities, to those projects most likely to have a beneficial effect on water quality. Construction grant funds are allocated according to the priority system.

It is a national requirement that existing publicly-owned treatment plants must have secondary treatment by July 1, 1977. They may have to provide advanced treatment by July 1, 1983.

The Agency Board has adopted a policy of requiring construction of municipal wastewater treatment facilities when federal construction grant funds become available. In September 1975, the Agency adopted a policy calling for enforcement action on those municipalities not utilizing these construction grant funds promptly.

Compliance monitoring surveys are conducted by the Agency annually on all major and selected minor dischargers, both municipal and non-municipal. The purpose of these inspections is to determine compliance with the issued NPDES permit. With the issuance of nearly all permits for point-source dischargers, Compliance monitoring and enforcement follow-up on permits has increasing importance to the pollution control program. Compliance monitoring detects violations of requirements in NPDES permits; verifies the self-monitoring reports by dischargers; and provides quantitative support for the Agency's Enforcement Unit.

In addition to the monitoring conducted by the Agency, the permittee is also required, by the permit, to conduct regular monitoring of the discharge. Self-monitoring reports must be submitted monthly to the Agency, where they are reviewed by the staff to determine compliance with the permit. These reports describe the nature of the discharge and the amount of each pollutant being discharged. Any discharge of pollutants above the amount specified in the NPDES permit is a violation and subjects the discharger to possible enforcement action.

Dischargers are also required to notify the Agency immediately if a serious violation occurs so that appropriate protective action may be taken.

The Enforcement Unit has as its objective the initiation of an appropriate action for every permit violation, ranging from telephone or letter contacts to litigation in those instances where cooperative agreement cannot be reached.

The Enforcement Unit, as a matter of first priority, assures permit compliance by use of appropriate enforcement actions for the major dischargers found to be out of compliance. Most industrial majors will be on compliance schedules during Fiscal Year 1976 and will, therefore, have interim effluent limits. For this reason, defaults in industrial majors schedule dates are viewed more seriously than minor excursions above interim effluent limits. With respect to the major municipal sources, the situation is the reverse. Since construction is tied to the grants program and grant funds are limited, many municipal dischargers will not have construction scheduled during Fiscal Year 1976; the permits for these discharges emphasize interim operations.

Second priority is given to enforcement of the minor dischargers which have significant water quality impacts. Attention is given to compliance schedules for non-municipal dischargers and effluent limits for municipalities. Pre-treatment requirements are enforced on industries that are identified as causing problems in municipal systems.

Minor permittees which have less impact on water quality receive the lowest priority from the Enforcement Unit. Even so, all such noncomplying permittees receive at least informal enforcement contact.

To assure compliance with permit conditions the Enforcement Unit uses one or a combination of its several enforcement remedies, depending on the situation. These include enforcement letters; "show cause orders" to require a violating permittee to appear before the Agency Board; issuance of Citations for Violation of Permits; and, as a final action for extreme situations, initiating litigation against a permittee. Litigation may be used to recover civil penalties of up to $10,000 a day or criminal penalties of up to $25,000 and/or imprisonment for one year.

The enforcement program also handles environmental concerns related to atomic energy use and by-products. Of first priority is participation in the siting, construction, and licensing procedures for atomic energy facilities. Comments are presented on related rule making activities, preparation of

environmental impact statements, and licensing hearings. When necessary, legal action is taken to protect the environment from the radiological impact resulting from the use of atomic energy.

The Operator Certification program for operators of municipal wastewater treatment plants was administered voluntarily from 1952 to 1971. In 1971, the Legislature authorized mandatory wastewater treatment facility operator certification. Since 1971, some 1200 examinations have been administered by the Agency. Some 1500 municipal and 500 state and private operators have been certified, with collected fees going to the general state fund. There are currently no federal requirements; although a national group, ABC (Association of Boards of Certification), is developing standardized procedures with the EPA. The basic objective is to upgrade operator skills through training.

The Operator Training program provides training opportunities to wastewater treatment facility operators in operation techniques in order to optimize the treatment facility performance. Training opportunities are provided to consider sampling techniques, laboratory procedures, operation of controls, and maintenance practices. This training program consisted of an annual institute until 1969 when a program was developed with the cooperation of the Minnesota Department of Education which employed a traveling instructor. Other training opportunities are provided through courses developed by the Agency staff. Currently, there are some 2000 municipal state and private operators for which training is needed to upgrade skills and to meet the certification renewal requirements of the Regulation WWOB 1 which derived from the mandatory certification law. In Fiscal Year 1975, approximately 700 training opportunities were provided, and it is expected that approximately 850 trainees will be attending one of the courses offered in Fiscal Year 1976.

Basically, two types of standards are used for the control of water pollution. One type of standard deals with the quality of the receiving water. These standards are commonly referred to as water quality or stream standards. The second type refers to the quality of the waste being discharged from a facility, and are called effluent or discharge standards.

Effluent standards are established to protect the water quality standards. The Agency requires secondary treatment as a minimum for all discharges of pollutants. However, it is sometimes evident that secondary treatment is not adequate to prevent pollution, and it becomes necessary to establish more restrictive effluent standards. This is primarily done through the establishment of mathematical models to predict effluent standards which would protect water quality. Load

allocation studies are done and effluent standards are established according to the needs of a particular stream.

Figure 8 gives a graphic representation of the state's water quality, using four water quality parameters, which are measured by the primary monitoring network. It should be noted, that the monitoring stations shown in the figure are often placed in problem areas, so the overall water quality in a basin may be better than is indicated by the monitoring data. Many water quality parameters other than the four cited, are routinely monitored and many of these parameters are consistently in compliance with the state standards. The overall water quality in Minnesota is quite good, with some specific exceptions, even though available data indicates that there are problems with certain pollutants and with several areas of the state. There is a state-wide pollution problem with fecal coliforms, with nine of the eleven basins having violations of the standard in over 20 percent of the water quality samples taken. Significant turbidity problems occur in the agriculturally oriented basins in southern and western Minnesota. This includes the Red River of the North, Cedar River, and Des Moines River Basins. The violations of water quality standards may make the designated water uses for some of the state's streams inadvisable in those reaches where the violations occur.

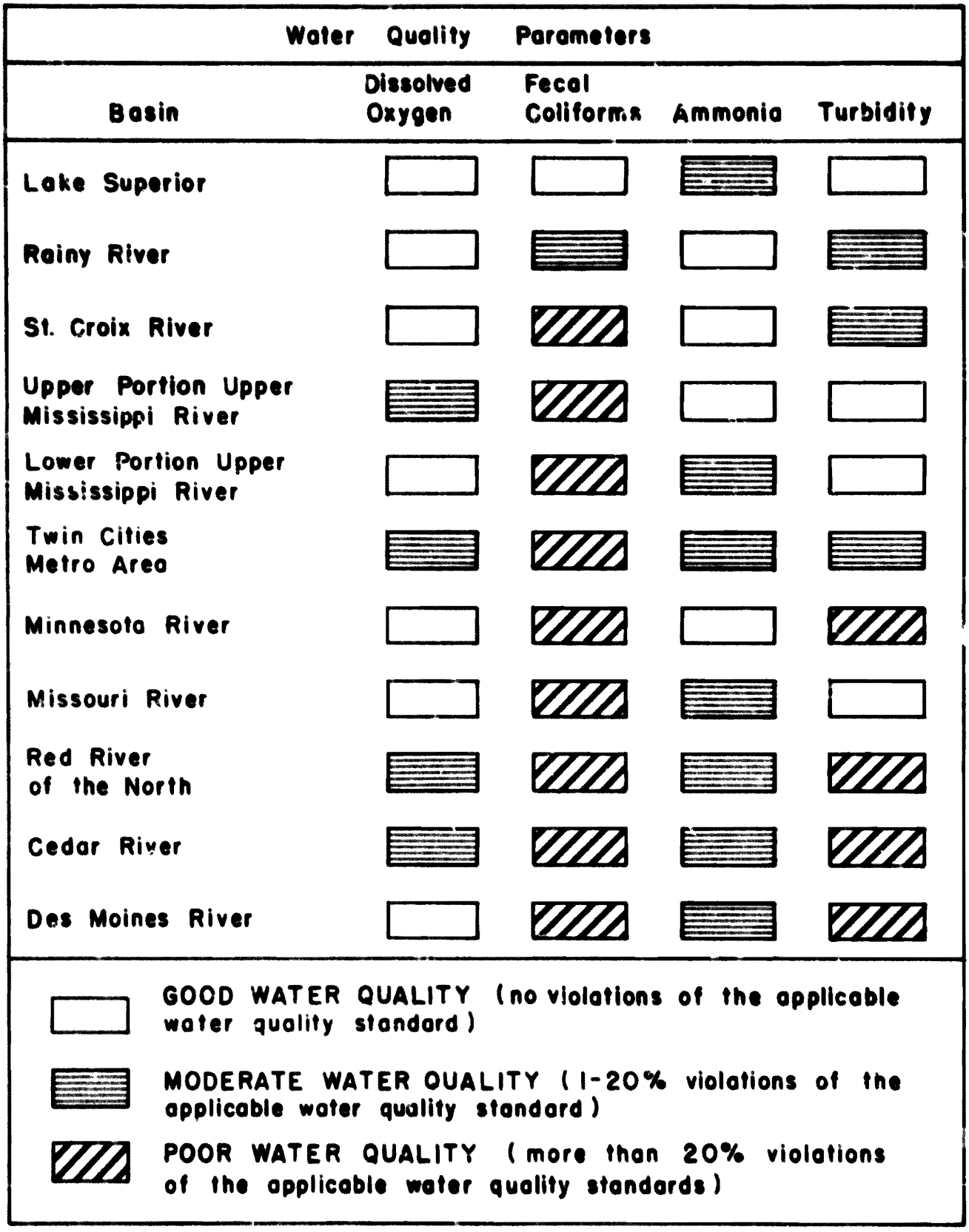
The St. Croix River, Upper Portion Upper Mississippi River, Rainy River, and Lake Superior basins, generally have high water quality, although point source dischargers are causing various water quality problems. Because waters in these four basins are in general already of high quality, efforts are being continued to protect these waters from any sources that would degrade their quality. These four basins are heavily used for water related recreation.

The State of Minnesota has a large role in the Clean Lakes Program of the FWPCA. The lake inventory program was initiated during Fiscal Year 1975 and includes a listing of 15,291 Minnesota lakes. The inventory was completed in Fiscal Year 1975, and Fiscal Year 1976 efforts will be directed towards updating and refining the system. Major concerns addressed by the Clean Lakes Program include analyzing the impact of various human activities on Minnesota's lakes and identifying lakes characterized by excessive eutrophication.

In summary, while Minnesota's waters are generally good quality, pollution problems in certain localized areas and with certain pollutants exist. Point sources cause water quality problems throughout the state, and water quality violations due to non-point pollution occur particularly in southern and western Minnesota. Northeastern Minnesota has generally high quality waters, with the exception of the Silver Bay area of Lake Superior, and these waters must be preserved and protected.

FIGURE 8

Summary of Minnesota Water Quality



Spills and leakages of pollutants occur in an unpredictable manner throughout the state. The Agency maintains a 24-hour emergency answering service with an immediate response capability. The responsible person, or the party having control over the spilled material, must take reasonable actions as necessary to minimize immediate or future pollution of any waters of the state. In the event of a pollutant spill, Agency staff members often work closely with the responsible person or company in cleaning up the spilled material in an effort to minimize the pollution caused by the accident. Approval or disapproval of the planned method of disposing of the recovered product and contaminated materials is given frequently on the scene of the spill.

CHAPTER III

AIR QUALITY

The MPCA Air Quality Division began in May of 1968 with the employment of the Division Director. Originally, the division was organized into two sections: Technical Services and Engineering & Enforcement. Since that time, the division has evolved into five sections: Technical Services, Engineering, Enforcement, Noise and Transportation. The organizational structure is shown in Figure 9. Presently, the staff is composed of 35 state employees, ten federal assignees, and four part-time employees.

The Technical Services Section is subdivided into an Air Monitoring Unit, a Data Analysis Unit, and a Quality Control Unit. The Air Monitoring Unit maintains and continuously upgrades an extensive network of continuous and discrete sample analyzers located throughout the state. Other duties of the unit include development of special sampling programs, mobile sampling, laboratory analysis, instrument calibration, quality assurance, technical consultations and public relations.

The Data Analysis Unit is involved in a variety of activities including summarizing continuous and discrete sampler data, data publication, special data searches, diffusion modeling, computerized inventory and calibration programs.

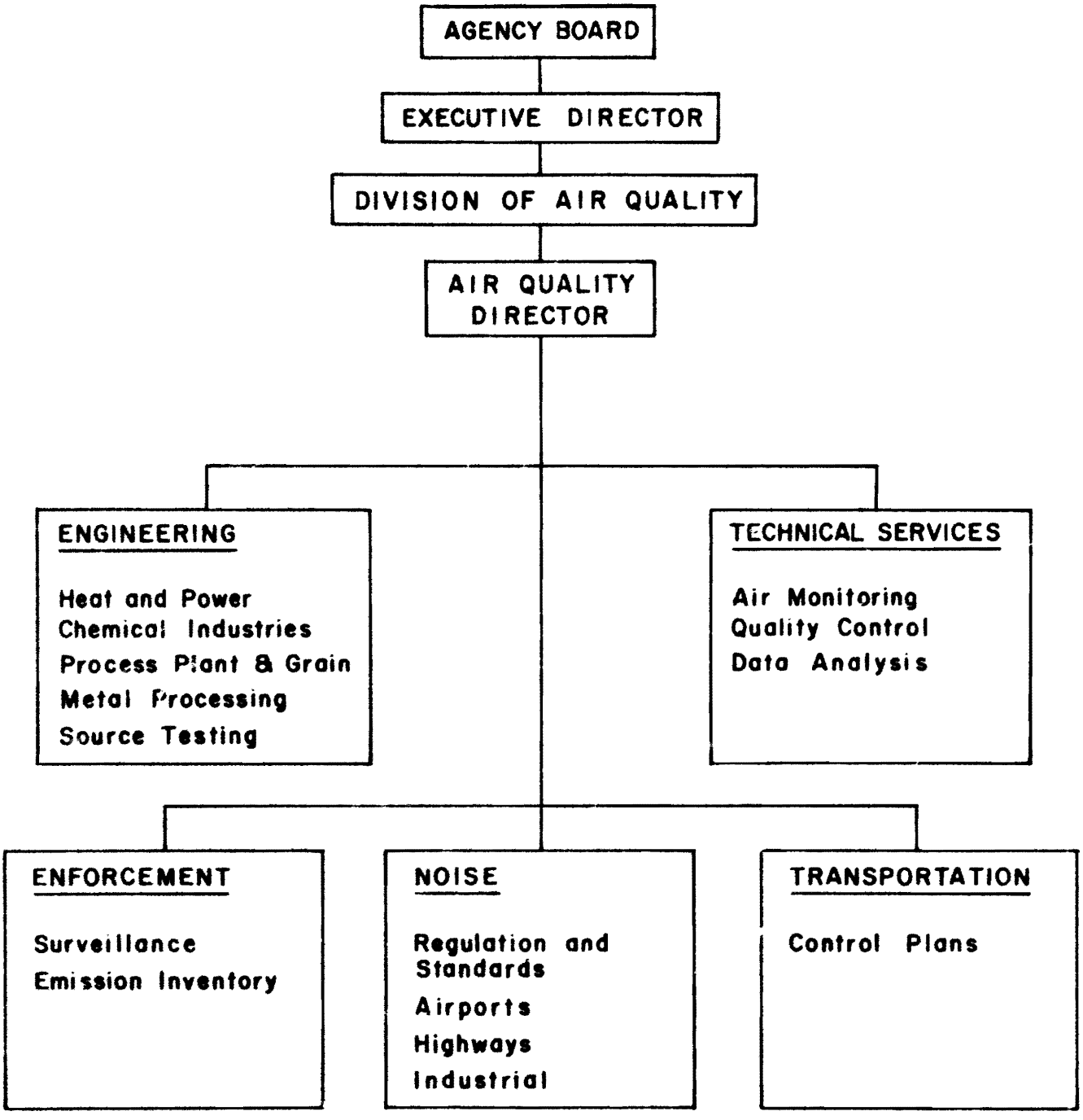
The Engineering Section has four units, each responsible for issuing installation permits for new emission facilities, modifications to existing facilities, undertaking plant inspections and issuing operating permits.

The four units of the Engineering Section are: Heat and Power -- responsible for fossil fuel-fired power generating plants, steam heating boilers, internal combustion engines and open burning; Chemical Process -- responsible for chemical emission facilities such as oil refineries, fertilizer manufacturing plants, paper producing plants, acid manufacturing plants, rendering plants and odorous emissions; Process -- responsible for grain handling, asphalt mix plants, taconite plants and wood processing plants; and Metal Processing -- responsible for foundries, coke plants and source testing. In addition, the section is responsible for recommending air pollution control regulations.

The Enforcement Section resolves complaints, surveys emission facilities and conducts an annual emission inventory of facilities which emit more than 25 tons per year or have the potential to emit 100 tons or more of a pollutant.

FIGURE 9

MINNESOTA POLLUTION CONTROL AGENCY
DIVISION OF AIR QUALITY
Organization



The Noise Pollution Control Section was established in January 1972 in response to numerous noise complaints and the mandate of the State Legislature to control noise. The section was not staffed until November 1973. The section is responsible for establishing noise standards and noise regulations. The primary areas of effort are airports and highways.

The Transportation Control Section was established in September 1973 to coordinate the development, monitoring, and maintenance of vehicle emission and transportation control strategies for the Twin Cities.

The Agency has adopted 25 air pollution control regulations. Seven more have been proposed and will be promulgated by July 1976. Public hearings have been held on the proposed regulations and comments received are being reviewed and evaluated by the staff before presentation to the MPCA Board for adoption. Appendix C lists the regulations.

The U. S. Clean Air Act Amendments of 1970 provided for federal promulgation of standards of performance for new stationary sources where a category of sources may contribute significantly to air pollution. Thus far the EPA has promulgated standards for 12 sources. The Agency has adopted seven of these New Source Performance Standards (NSPS) as Agency regulations. The remaining five standards are included in the seven proposed regulations previously mentioned.

The 1970 Clean Air Act Amendments also provided for National Emission Standards for Hazardous Air Pollutants (NESHAP). The EPA has promulgated standards for three hazardous pollutants (asbestos, beryllium and mercury) and these have been adopted by the Agency.

There are approximately 650 major sources in the state whose emissions exceed 25 tons per year. A continuing annual updated emission inventory is maintained on these sources whose compliance status must be reported to the EPA on a semi-annual basis. In addition, there are about 600 smaller emission sources currently on file with the Division of Air Quality. The sources are classified as follows:

Fuel Combustion -- sources which emit gases and particulates due to fuel combustion for either power generation, heating purposes or to generate steam.

Particulate Sources -- sources such as gravel crushing operations, sand and gravel handling, asphalt paving operations, paving plants, taconite plants, mining industry, grain handling industry, and other types of sources which emit particulates.

Chemical Sources -- chemical processing including petroleum refining, fertilizer manufacturing, rendering operations, process chemicals, petro-chemical manufacturing, and others.

Mobile Sources -- sources involving internal combustion engines, barges, large stationary engines, and oil-fired or gas-fired turbines generally used for power generation.

The emissions of total pollutants from point and area sources in Minnesota are tabulated below:

	Total Annual Emission Tons	From Fuel Combus-tion	Process Indus-trial Sources	Trans-porta-tion	Solid Waste Disposal	Misc.
Particulates	293,527	145,561	129,959	12,742	5,275	--
% of Total		50%	44%	4%	2%	
Sulfur Dioxide	431,702	393,642	26,410	9,493	2,157	--
% of Total		91%	6%	2%	1%	
Carbon Monoxide	1,940,893	25,587	217,013	1,666,789	31,503	--
% of Total		1%	11%	86%	2%	
Nitrogen Dioxide	343,739	137,561	4,337	199,508	2,077	--
% of Total		40%	1%	58%	1%	
Hydro-carbons	452,691	8,438	69,267	342,234	11,311	21,441
% of Total		2%	15%	76%	2%	5%
Total of Five Pollutants	3,462,552	710,789	446,986	2,230,766	52,323	21,441
% of Total		21%	13%	64%	1.5%	0.5%

-1972 National Emissions Report
EPA-450/2-74-012
June 1974

The Agency has standards for the concentration of particulates, sulfur dioxide, carbon monoxide, nitrogen dioxide,

and hydrocarbons in the ambient air. When any of these standards is exceeded, appropriate action is taken including air pollution alerts.

At present, the division does not have a breakdown of the "untreated" or "potential emission" loads. This information is being developed and will be available by July 1, 1976.

The Air Quality Division has issued 564 installation permits covering new and existing facilities. Many of these cover a large number of pollution control devices; e.g., one taconite plant expansion permit covered 38 separate, large air pollution control systems as a part of the one permit.

A major problem faced by the Division of Air Quality includes high particulate levels. Most large point sources of particulates are meeting or will soon meet current regulations. The division believes many violations of standards occur due to fugitive dust. This is wind-borne dust and dirt carried from unpaved parking areas, unvegetated areas alongside of roadways, unpaved roads in rural areas, and certain farming activities.

High sulfur dioxide (SO_2) levels are occurring in the metropolitan area almost exclusively and can be pinpointed specifically to major emitters of SO_2 such as power plants and refineries.

The dual problems of excessive particulate and sulfur dioxide levels in the metropolitan area are certain to be seriously aggravated during the continued cutoff of natural gas to commercial and industrial users. It has been variously estimated that as many as 450 large users of natural gas in the Twin Cities area will be forced to switch to an alternative fuel source within the next three to five years as supplies dwindle. The likely alternative fuel is coal, or possibly fuel oil. From an air quality standpoint, the combustion of natural gas is preferred to the combustion of coal or fuel oil, both of which produce significantly higher quantities of sulfur dioxide and particulate than does gas.

Ambient air quality in the Twin Cities already has been degraded to the point where sulfur dioxide and particulate standards in many areas are being exceeded. Indeed, a principal effort of the Air Quality Division is to attain air quality standards in the Twin Cities. The conversion to coal or fuel oil by even a few of the current large-volume users of natural gas will result in further aggravation of an already serious air quality situation. In view of the excessive pollution levels in the Twin Cities, there is little doubt that only a few, at best, of the users will be allowed to make the gas-to-

coal or gas-to-fuel oil conversion. The other conventional alternative is for users to use electricity for heating, lighting or other commercial and industrial needs.

Although the conversion to electricity would insure that air quality in the Twin Cities metropolitan area would not be greatly affected, the production of electricity at power plants outside the Twin Cities area will mean that air quality elsewhere will be degraded. Additional power production also will mean additional transmission line construction and its attendant land-use conflicts.

Carbon monoxide (CO) due to vehicle emissions is a continuing problem in Minneapolis, St. Paul, Rochester and Duluth. The surveys made in Minneapolis and St. Paul have shown excessive levels of carbon monoxide in the central business districts.

Another problem, photochemical oxidants, is becoming recognized nationally and, in many cases, control may not be possible on a state or local level. Components of photochemical oxidants, which are substances used in the forming of the oxidants, may come from distances of many hundreds, or even thousands, of miles.

Division tests have shown high oxidant levels about 40 miles northwest of the Twin Cities when prevalent winds were southeasterly. This indicates that the pollutants may originate in the Twin Cities and travel to outlying areas.

A major problem of the Noise Pollution Control program involves airports, especially the Minneapolis - St. Paul International Airport. Many complaints of jet aircraft noise have been received by the Agency. An intensive study of this source is being made by the Noise Pollution Control Section of the division.

Another source of noise that generates a considerable number of complaints, especially in the metro area, involves roadway traffic. Interstate freeway routes in urban areas are routed close to built-up residential areas, resulting in a high noise impact in areas which had no such problems prior to freeway construction. A monitoring and abatement program is being conducted jointly with the Minnesota Highway Department. Some funds have been appropriated to that department for noise control barriers which will reduce this problem.

Currently, the Agency has three noise regulations: NPC-1, NPC-2 and NPC-4. The three regulations are NPC-1: Definitions, Severability and Variance for Noise Pollution Control Regulations; NPC-2: Noise Standards; and NPC-4: Motor Vehicle Noise Limits. The latter regulation will be enforced

by the State Highway Patrol and also may be enforced by local police in the various municipalities and by county sheriffs in the counties of the State of Minnesota.

The division is engaged in various programs to prevent deterioration of present air quality. Surveys are being conducted to pinpoint specific air pollution problems which result in either complaints or high ambient levels of pollution. Among the special surveys now underway are an extended photochemical oxidants survey to determine transport of oxidant components from areas of high emissions of pollutants.

The Federal Clean Air Act requires that air quality standards must be attained in high-pollutant areas, but also that steps be taken to insure that standards will be maintained at least ten years into the future. The air quality maintenance program is necessary to enable air quality managers to continually assess industrial growth and other development to determine in advance whether air quality standards may be jeopardized. Maintenance programs are underway for the Twin Cities area where sulfur dioxide and particulate levels are exceeding ambient standards, and in Duluth where particulate levels are excessive. The Air Quality Division also is studying whether carbon monoxide and other automobile related pollutants are excessive in the Twin Cities and in Rochester to the point that maintenance plans should be developed.

The development of air quality maintenance plans involves the identification of sources of the troublesome pollutant and the development of forecasts to predict growth patterns and the resultant implications on air quality standards. If the Air Quality Division determines that anticipated development is likely to jeopardize air quality standards, plans must be developed to insure that standards will not be exceeded. The plans could include prevention of new sources or reduction of pollution from existing sources either through production curtailment or technology improvement.

In addition to requiring the attainment and maintenance of air quality standards, the Federal Clean Air Act also provides that clean-air areas not be degraded. The intent of this so-called "anti-degradation" provision is to insure that air quality standards will not be violated as a result of increased growth and development. The EPA has promulgated "anti-degradation" regulations that provide for classifications of regions of states of unspecified size in which limited incremental amounts of sulphur dioxide and particulate pollution is allowed. There are three classifications: Class I, in which virtually no change in sulphur dioxide or particulate levels is allowed; Class II, in which "moderate" incremental levels of the two pollutants is allowed; and Class III, in which pollution up to the level allowed by

ambient standards is allowed. All regions of the states have been designated as Class II, with the states and the federal government to jointly determine where areas should be reclassified to the stringent Class I classification or to Class III. In making the determinations, the states are directed to consult with regional and local authorities and must conduct extensive public hearings on the reclassifications.

There are several requirements imposed on the states to implement the anti-degradation regulations. In Minnesota only limited work has been done to date on anti-degradation regulations, although there is certain to be important work in this area in the coming months and years. The regulation will have land-use effects, and for that reason there are requirements that the social and economic implications must be considered by the MPCA in determining which areas of Minnesota will be reclassified from the present Class II to Class I or to Class III. A complicating factor is that the Congress currently is considering several amendments to the Clean Air Act, including modifications of the anti-degradation provision. The effects of the proposed changes are not entirely clear at this time, although the confusion should be eliminated during 1976.

The Engineering Section issues installation and operating permits for sources or potential sources of air pollution. The Division of Air Quality issues between 300 and 400 installation permits per year.

The Engineering Section also conducts plan review of all construction to determine whether proposed installations are likely to meet state emission standards and ambient air quality standards. The division is in the process of adopting federal New Source Performance Standards and national emission standards for hazardous air pollutants and will seek review authority from EPA to enforce this federal program in the state. The Engineering Section also provides technical assistance to operators of facilities and assists these sources in selecting appropriate abatement measures to meet the emission standards. Technical assistance in air monitoring is also extended to local agencies in St. Louis, Olmsted, St. Cloud and Stearns Counties.

The Technical Services Section of the Division of Air Quality administers the air monitoring program. EPA regulations require that a minimum number of samplers be located in each air quality region of the state. The state has met this numerical requirement and has installed additional equipment where unique air pollution problems exist. Routine air pollutants which are monitored by the Technical Services Section of the division include the following pollutants: 1) Total

Suspended Particulates; 2) Nitrogen Oxides; 3) Sulfur Oxides; 4) Photochemical Oxidants; 5) Total Hydrocarbons; 6) Carbon Monoxide; 7) Particulate Lead; 8) Particulate Nickel; 9) Particulate Iron; 10) Particulate Cadmium; 11) Ammonia; and 12) Aldehydes.

In addition, the Technical Services Section gathers detailed meteorological information to supplement air pollution data. There are 96 air monitoring sites through the state, at which the following instruments are being operated: 75 High Volume Air Samplers; 20 Smokespot Samplers; 11 Continuous SO_2 Samplers; 23 SO_2 Bubbler Samplers; 6 Continuous Carbon Monoxide Samplers; 15 Nitrogen Dioxide Bubbler Samplers; and 3 Continuous Ozone Analyzers. The section also maintains several weather monitoring stations.

There is also a control facility monitoring program conducted by the Source Sampling Unit of the Engineering Section. The Source Sampling Unit samples various emission sources in the state where the division feels the source is not meeting the emission standards or where tests have been run by consultants and the division personnel have reason to believe that the sampling data submitted is erroneous. Sampling is also done on smaller sources to determine equipment performance and to develop operating parameters and performance characteristics of various types of sampling equipment.

One of the main tools of the Air Quality Enforcement Section is the permit system requiring installation permits and operating permits for emission facilities or potential emission facilities. The permit system incorporates a surveillance program which involves actual observation of various types of sources on periodic inspection trips to assure that the facility is continuing to operate properly. Where a source is not in compliance with Agency regulations, a Stipulation Agreement is worked out between the source and the Agency. This Agreement is a legally binding document setting up specific control measures which will be taken by the facility operator and establishes a timetable for the installation of the necessary equipment to bring the source into compliance with the regulations. Stipulation Agreements have been negotiated with nearly all major emission sources not in compliance.

Complaints received by the general public, municipal, county or state officials, are recorded and steps taken to investigate the complaint, to determine the validity of the complaint, and to initiate appropriate enforcement actions.

The Division of Air Quality utilizes a minicomputer to aid in the collection and reduction of ambient air quality data. The system is made up of three station types (central, local and remote) connected by telephone.

During 1974, the data acquisition system gathered approximately 90 percent of all possible data points. Instrument failures, data communications problems, and other hardware failures accounted for the 10 percent data loss. Computer up-time was virtually 100 percent. Recurrent hardware problems and difficulty in obtaining replacement parts resulted in the proposal of several changes in the data sampling and communications system.

After examining various alternatives, the division decided the flexibility, reliability, and serviceability of minicomputer controlled sampling provided the most desirable modification.

Under the new scheme, a minicomputer will be placed at each local station where it will control the sampling and sending of data back to the central station.

Besides improving the percentage of data gathered, this modification will provide important advantages.

First, sampling can be conducted at more frequent intervals, averaged internally by the computer, and sent after the end of a one-minute period. When the original data acquisition system was designed, air pollution monitoring instruments required several minutes to respond to changing environmental conditions and the original sampling schedule of one sample per minute was adequate. However, newer instruments have response times of only a few seconds; hence, faster sampling will allow greater flexibility in system operation.

Second, nonstandard inputs will be handled by simple software changes rather than complex electronic conditioning. Sampling or transmission changes can also be accomplished with relative ease.

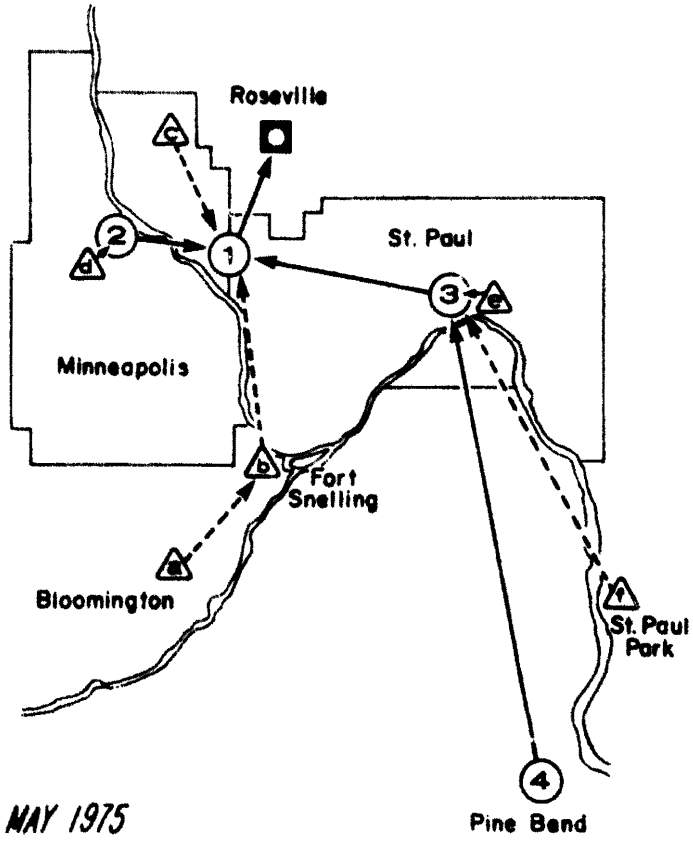
Third, computers are standard items. Parts and service are readily available. Additional units can be purchased from "off-the-shelf" products, rather than providing the complex tooling and assembly required for hardwired units.

Also, calibration down-time will be reduced since the station operator will be able to selectively calibrate an instrument while data is being collected from all other instruments. This feature, coupled with the added reliability of the new units, will increase system data gathering efficiency above the present 90 percent level.

Along with the proposed system modification, several changes were made in the system. Several sites and parameters were added/discontinued; Figure 10 represents the status of the system.

Figure 10

Minnesota Air Quality Data Acquisition System Sites and Pollutant Monitoring



■ CENTRAL STATION, DATA ACQUISITION COMPUTER, ALERT CENTER

① KSTP, MIDWAY MONITORS: CO, SO_2, O_3, PARTICULATES, METEOROLOGY, VISIBILITY, HUMIDITY
- ⓐ BLOOMINGTON MONITORS SO_2
- ⓑ FORT SNELLING SO_2
- ⓒ NORTHEAST MINNEAPOLIS MONITORS SO_2

② DOWNTOWN MINNEAPOLIS MONITORS SO_2, CO, PARTICULATES
- ⓓ TRAFFIC CONTROL CENTER MONITORS SO_2

③ DOWNTOWN ST. PAUL MONITORS SO_2, CO, O_3, PARTICULATES
- ⓔ FEDERAL BUILDING, ST. PAUL MONITORS CO, O_3
- ⓕ ST. PAUL MONITORS SO_2

④ PINE BEND MONITORS SO_2, NO, NO_2, NO_x, METEOROLOGY

KEY

○ LOCAL STATION
△ REMOTE STATION
——→ TELEMETRY (LOCAL-CENTRAL) DIGITAL
- - - → TELEMETRY (REMOTE-LOCAL) ANALOG

Finally, the Division of Air Quality has an Emergency Episode Control Plan. This plan details levels at which alerts involving reduced activities or reduced inputs by industry, if this is the case, must be taken in order to reduce levels to those within the healthy range. The Emergency Episode Control Plan is included in the State Air Implementation Plan; however, this will be extensively revised to handle situations which have arisen and which require more extensive treatment in the Implementation Plan to assure adequate and quick response in these areas.

CHAPTER IV

SOLID WASTE MANAGEMENT

The Division of Solid Waste of the MPCA was formed in 1970. Prior to 1974, the major programs of the division were the closing of open dumps, the permitting of sanitary landfills to replace the dumps, the permitting of livestock feedlots, and the collection and transportation of abandoned motor vehicles to scrap metal processors. During 1974 and 1975, division programs have expanded to include resource recovery, source reduction and hazardous waste management.

The division, with a staff of 20, is organized into five sections: Systems Management, Enforcement, Resource Management, Hazardous Waste, and Agricultural Waste. (see Figure 11). The following is a summary of each section's major functions.

The Systems Management Section reviews permit applications for solid waste disposal facilities, including sanitary landfills, transfer stations and solid waste incinerators with related energy recovery systems. The section also reviews environmental impact statements.

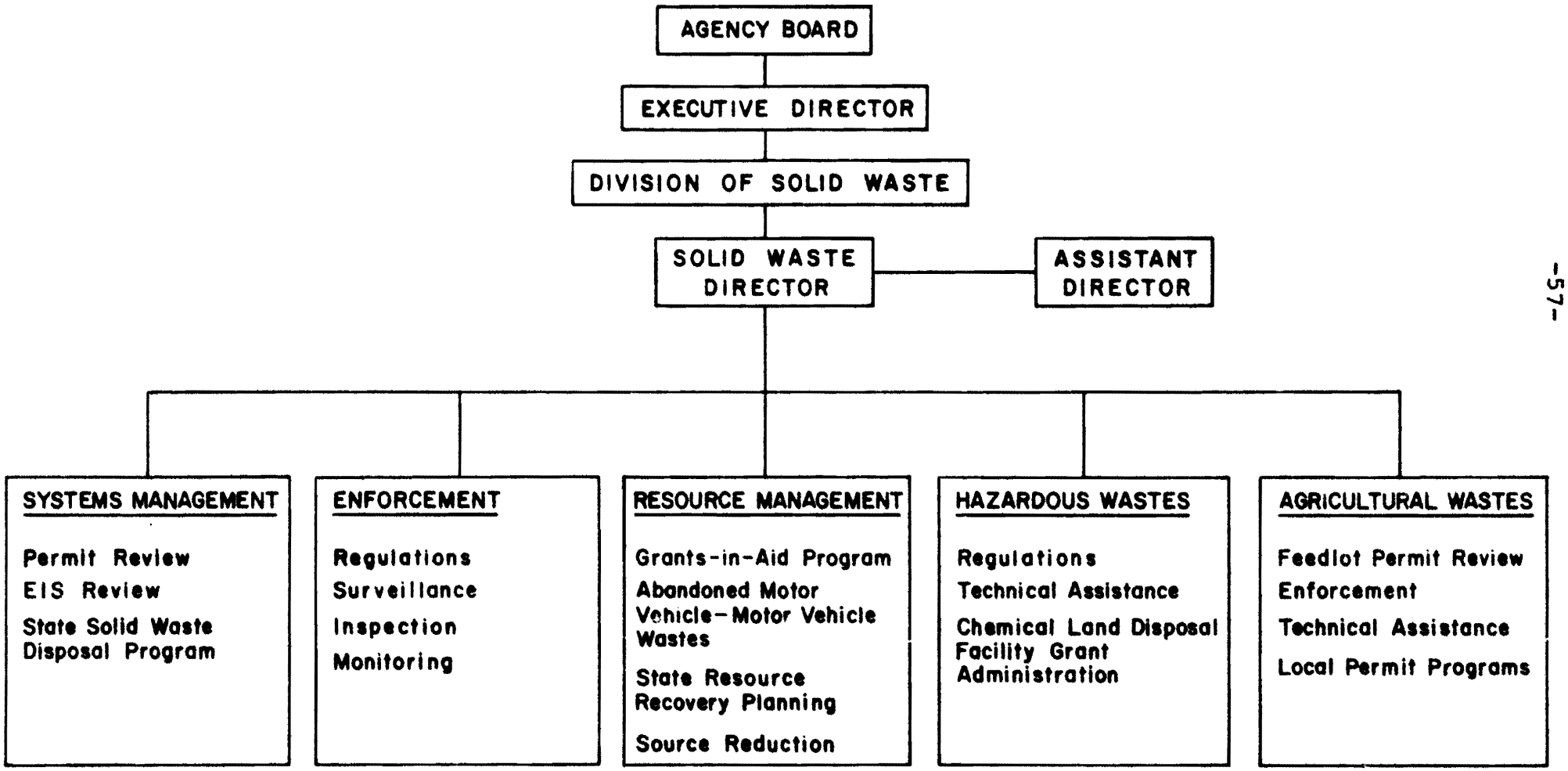
The Enforcement Section is responsible for the proper closing of open dumps and other illegal solid waste disposal facilities, insuring the implementation of the solid waste management systems contained in each county's approved solid waste management plan, and the inspection, monitoring and surveillance of operating solid waste disposal facilities.

The Resource Management Section administers the Agency programs for the reduction, reuse and recycling of solid waste materials. This section assists in the Agency's source reduction programs, oversees the planning and development of resource recovery systems, reviews applications for grants-in-aid for resource recovery projects, and administers the Agency's grant program for reclaiming abandoned motor vehicles.

The Hazardous Waste Section, the most recent addition to the division, is primarily responsible for developing hazardous wastes regulations to govern the collection, transportation and disposal of hazardous waste materials. A second major responsibility of the Hazardous Waste Section is the technical and administrative review of the chemical waste land disposal demonstration project. This demonstration project, funded by

FIGURE 11

MINNESOTA POLLUTION CONTROL AGENCY
DIVISION OF SOLID WASTE
Organization



a federal grant from the U.S. EPA to the MPCA and the Metropolitan Waste Control Commission (MWCC), will demonstrate methods for the proper treatment, recovery and disposal of selected hazardous waste material.

The Agricultural Waste Section administers regulations for the control of wastes from livestock feedlots, poultry lots and other animal lots.

The programs of the Solid Waste Division involve close coordination with federal and other state governmental agencies. At the federal level, the EPA provides technical assistance, research and program guidance. The U. S. Department of Agriculture's Soil Conservation Service provides technical assistance in the areas of feedlot pollution abatement practices and soil investigations for possible sanitary landfill sites. The U. S. Geological Survey also provides occasional technical assistance to the solid waste programs.

The greatest amount of the division's intergovernmental coordination occurs with county governments. The original state solid waste management plan, adopted in 1970, was centered around the county level of government. Each county has been required to submit to the Agency a solid waste management plan providing for the collection, transportation and disposal of their solid waste.

The division is now placing increasing emphasis on regional solutions to solid waste management, solutions which incorporate innovative methods of solid waste collection, transportation, disposal and resource recovery. The trend toward regional approaches continues to be based on cooperation and coordination with the individual county governments.

The Agency has adopted 32 solid waste regulations (Appendix C). The initial solid waste regulations promulgated in 1970 include SW 1-11 which provided for the adoption of county solid waste management plans, the closing of open dumps, and the operation of approved solid waste disposal facilities. In 1973 amendments to SW 1 and SW 6 strengthened the standards for sanitary landfills to provide increased protection to the environment. Also in 1973 regulation SW 12 was adopted, setting standards for proper closure of open dumps.

In 1971 the Legislature granted the Agency further authority over solid waste management and regulations were subsequently adopted governing livestock feedlots (SW 51-61) and reclamation of abandoned motor vehicles and other scrap metals (SW 75-79).

In 1974 the Legislature directed the Agency's involvement in the areas of resource recovery and hazardous waste management. Regulations for the resource recovery grant-in-aid program (SW 80-83) were adopted in February of 1974. Regulations are currently being drafted to set standards for the identification, labeling, classification, storage, collection, transportation and disposal of hazardous wastes. Depending on the outcome of pending litigation, the division would administer the Agency's new packaging review program.

The division presently regulates solid waste disposal facilities, livestock feedlot operations, reclamation of abandoned motor vehicles, and resource recovery facilities.

The division faces several problems in managing the state's growing solid waste. Large quantities of hazardous wastes are being generated in Minnesota. The handling and disposal of these dangerous materials are almost completely uncontrolled. The Agency objective is to bring the hazardous substances under a tight control program. Some of this waste is presently being disposed of in environmentally acceptable ways such as incineration, solvent recovery, and in out-of-state land disposal facilities; but much of this material is being discharged into sewers, disposed of illegally at landfills, or simply indiscriminately dumped.

The Agency currently has no control over the generators of these hazardous materials and thus no way to ensure that generators dispose of their wastes in an environmentally safe manner. In the absence of adequate hazardous waste disposal facilities, the Agency cannot conduct a control program because the generators have no acceptable place to go with their wastes. The few privately-owned, environmentally acceptable facilities are reluctant to expand unless hazardous waste regulations are adopted and, more importantly, are enforced.

The MPCA and other governmental units must address the problem of ultimate and long-term responsibility for completed sanitary landfills. Leachate, uneven surface settlement, and methane gas could create long-term environmental problems at these sites.

Every permitted sanitary landfill is required to have an Agency-approved water quality monitoring system. Problems arise, however, in the uniformity and reliability of sampling and analysis techniques. The division anticipates adopting guidelines for the proper collection of water quality samples. A quality control program for analysis and laboratory procedures is also necessary.

Resource recovery facilities require reliable and usually a large volume of solid waste for proper operation and in order to offset their high capital investment. There is presently no mechanism to guarantee that a resource recovery facility will be able to obtain the necessary volume of solid waste or to require haulers to deliver solid waste to established resource recovery facilities, especially if haulers can demonstrate that in the current market, it is financially advantageous to go to a sanitary landifll rather than to a resource recovery facility. There must be an orderly and acceptable transition from the system which currently prevails to one which encourages the establishment and maintenance of resource recovery facilities. In this regard, consideration has been given in the metropolitan area to a districting plan whereby haulers would be assigned specific solid waste facilities.

The division is involved in several activities in solid waste management. A statewide dump survey was conducted from 1970 to 1973. Data are logged on federal Health, Education and Welfare (HEW) forms and computerized on a federal EPA data bank. The survey found that approximately 1200 open dumps existed in Minnesota in 1972.

SOLID WASTE DISPOSAL FACILITIES
(Permitted Sanitary Landfills)

FY	Permitted Facilities	Open Dumps
71	23	1200
72	62	1100
73	102	950
74	134	750
75	147	600
76	156	500

A state solid waste management plan was completed in 1971, followed by completion of 87 county solid waste management plans between 1971 and 1974. Resource recovery planning began with the passage of Minnesota Statute 116F in 1973 -- The Recycling and Solid Waste Act. This bill initiated the Agency's program in source reduction, including packaging regulations.

A solid waste disposal facility permit issuance program has existed in the division since the spring of 1970. In the case of a sanitary landfill permit application, landfill site design plans, a written operating and engineering report, a hydrogeological study of the site, and a design of a water monitoring system are reviewed by division technical staff before a recommendation for permit issuance or denial is made to the Agency Board. Only applications for facilities consistent with the approved county solid waste management plan are reviewed. Once a permit is issued for a sanitary landfill, the site cannot begin operation until it is certified by a registered engineer that the site has been constructed in accordance with the approved site plans and that a water monitoring system is operational.

The division also permits solid waste transfer stations, demolition waste landfills, other special waste landfills (such as power plant fly ash disposal facilities), composting facilities, livestock feedlot operations and resource recovery facilities.

To accelerate the processing of feedlot permits and to increase total input, a program was initiated in 1974 to involve counties in the feedlot permitting process. Under this program, a county may issue, deny, modify, or revoke feedlot permits within that county -- subject to review by the Agency.

State solid waste regulations require that all permitted sanitary landfills have an approved water monitoring system. Each sanitary landfill permittee is responsible for seeing thatquarterly water quality samples are taken at the landfill site, analyzed for specified parameters and that the results of these analyses are forwarded promptly to the Agency for review. Water samples are monitored for any significant change in selected "leachate indicators" -- chlorides, nitrates, COD, pH, and specific conductance. About 80 percent of the permitted sanitary landfills in the state have operational ground water monitoring systems which are designed to measure the quality of ground water "upstream" and "downstream" from the disposal areas. The remaining sites are under review.

Additional facility surveillance is achieved through review of monthly operational reports submitted by the permittee to the Agency.

The division has both civil and criminal legal remedies available to insure compliance with state solid waste regulations. Staff has formalized an enforcement procedure which must be adhered to in bringing any violation of solid waste regulations and requirements to the attention of the State Attorney General's Office. This enforcement procedure insures that the Agency first exhausts all its administrative remedies and provides the alleged violator sufficient opportunity to comply prior to seeking other remedies. Staff enforcement procedures consist of a series of three documented facility inspections by Agency regional staff with follow-up meetings, with the third on-site inspection and meeting having Agency central office personnel present to discuss compliance alternatives; a fourth documented regional inspection; and, if all else fails, the staff has the option to bring the matter to the Agency Board in the form of an Order to Show Cause to the alleged violator. The Agency Board may authorize a public hearing on the matter. The Board then acts upon findings of that hearing. The Board may authorize staff to proceed with legal action or to pursue further administrative action in the form of a compliance stipulation.

Solid Waste Division data processing, with the exception of the feedlot permit program, is currently done manually. Data received from sanitary landfill monthly operational reports and quarterly water monitoring reports are manually logged in a file card system. At the end of each reporting period, a list of delinquent permittees is compiled and reminder letters are sent. After logging new data, the card file for each permittee is examined and the results of the analysis of each monitor well are compared to those of all past years to determine if changes are occurring in ground water quality.

Data compiled from the livestock feedlot permit program are presently entered in the Division of Water Quality basin planning computer program. The data consist of site operation and soils characteristics for each feedlot permit issued.

Minnesota Statutes 1973, Chapter 116F, authorized establishment of a Resource Recovery Grant-in-Aid program. The grant-in-aid may not exceed 50 percent of the total costs of eligible resource recovery projects. Minnesota Pollution Control Agency Regulations SW 80-83 govern eligibility criteria and application procedures for administration of these grants-in-aid. The Legislature, in establishing

the program, encouraged both the reduction of the amount and type of material entering the solid waste stream and the reuse and recycling of material.

The Agency may contract to make, within the limit of the appropriation, $616,000 for the current biennium, grants-in-aid to any county, region, municipality or institution. The staff has established eligibility criteria for Fiscal Year 1975 funding and has finalized a review schedule of applications. Figure 12 lists the projects the Agency funded on a matching basis in Fiscal Year 1975 and Fiscal Year 1976.

Minnesota Statutes, Chapter 115, 116, 168B and 400, as amended, authorized establishment of an abandoned motor vehicle collection/recycling grant-in-aid program. Minnesota Pollution Control Agency Regulations SW 75-79 govern eligibility and application procedures for the administration of these grants-in-aid.

The abandoned auto program makes 100 percent reimbursement grants available to local units of government (usually counties) for the inventory of abandoned motor vehicles and the collection, reduction and transportation of inventoried abandoned motor vehicles and other scrap to market. Local units of government apply to conduct an inventory or collection and, upon approval of the Agency, proceed with their program and are reimbursed for their expenditures. The state and local units of government have been very successful in this program, being directly responsible for moving approximately 78,000 vehicles to market since May of 1972. Figure 13 summarizes the progress of this program.

Figure 12

GRANT-IN-AID PROGRAM

FY 75

Projects Funded on a Matching Basis

Grantee	Amount	Type of Project
Metropolitan Council	$ 50,000.00	Metropolitan Area-Wide Systems Planning
Region Nine Development Commission	20,000.00	Demonstration-Source Separation of Newsprint/Region-Wide Plan.
SE Area-Wide Planning Organization	2,454.33	Two-County Systems Planning
City of Minneapolis	22,136.00	Public Education
Minnesota Environmental Science Fndn.	10,210.00	Public Education
Hennepin County	100,000.00	Systems Planning-Energy Recovery
WLSSD	46,584.50	Urban-Wide Systems Planning
University of Minnesota	78,714.50	Agricultural Wastes Research
St. Cloud Area	20,000.00	Region-Wide Systems Planning
Olmsted County	34,625.00	Systems Planning
City of Mankato	35,000.00	Feasibility Study - Plastics Recovery
City of Fairmont	11,125.00	Feasibility Study & Systems Planning-Energy Region
Aitkin County	22,000.00	Rural Recovery-Transfer Station
Solid Waste Mangement System	196,245.00	" " " "
MICC	17,100.00	Hazardous Waste Recovery
Minn. Geographic Society	7,600.00	Public Education
Science Museum of Minnesota	10,319.10	Public Education
Region Ten Development Commission	5,000.00	Region-Wide System Planning
Occupational Training Center	2,524.00	Feasibility for Recovery Facility
" " "	61,000.00	Hardware - Mobile Can Baler
TOTAL FY 75	$752,637.43	

Figure 12 (cont.)

GRANT-IN-AID PROGRAM

FY 76

Projects Funded on a Matching Basis

Grantee	Amount	Title/Type of Project
Metropolitan Inter-County Council	$ 31,279.00	"The Development of a Metropolitan System of Resource Recovery for Urban Tree Wastes -- A Feasibility Analysis"
Metropolitan Council	49,000.00	"System Planning for Resource and Energy Recovery from Solid Waste (Second Phase)"
Western Lake Superior Sanitary District	45,078.50	"WLSSD Resource Recovery and Energy Conservation Plan Implementation"
Occupational Training Center, Inc.	74,331.00	"Recycling Research and Demonstration Project"
City of Fairmont	23,750.00	"Fairmont Regional Refuse Resource Recovery System -- Phase III"
University of Minnesota	58,932.00	"Energy Extraction From Biomass Wastes in Minnesota"
Owatonna Reclamation Center, Inc.	4,000.00	Can recycling project
Region Nine Development Commission	22,250.00	"Project Implementation - Greater Mankato Can Recovery Program"

Figure 13

Abandoned Motor Vehicle Recycling Program

FY	Number Inventory Contracts	Number Collection Contracts	Number Hulks Removed	Program Expenditures
71	--	--	--	--
72	57	8	0 0	$ 122,014
73	25	51	43,078	675,000
74	6	32	27,710	249,951
75	24	10	7,800	70,643
Sept. 75	18	0	N/A	55,406
TOTALS	130	101	78.588	1,173,014

CHAPTER V

MPCA AND THE FUTURE

The role of the Minnesota Pollution Control Agency in preserving Minnesota's environment has grown substantially since 1967. The first eight-plus years are recounted in Chapters I - IV. Many of the current programs and activities of the Agency will continue over the next decade. However, new challenges are apparent, and problems previously of secondary importance will be major areas for the involvement of the MPCA. This chapter is intended to suggest issues that the Agency must confront during the next decade.

Non-Point Source Water Pollution Control

The foremost environmental problem for Minnesota and the nation the last several years was developing standards and regulations to eliminate the most serious, visible and harmful point sources of wastewater pollution. Point sources of wastewater can be measured and controlled through a systematic regulatory plan as is the case in Minnesota. The technology is developed to deal with point source pollution; it is now, in the main, a matter of time and money. In Minnesota we have not solved point source pollution, but the problem is not how but when.

However, water pollution comes from three principal sources: 1) Municipal Point Sources, 2) Industrial Point Sources, and 3) Urban and Rural Non-Point Sources. EPA Administrator, Russell Train, has called non-point source pollution "The single most important water quality problem and 50 percent of total water quality problems." These sources are less visible, more difficult to identify and, as such, are harder to measure and control.

There are several sources of non-point pollution: 1) croplands on which pesticides and fertilizers have been used which eventually wash into waterways; 2) improperly managed construction sites or forest areas where sediments erode into waterways; 3) chemical runoff from mining operations and oil fields; 4) areas that rely on septic tanks where improper drainage allows nutrients to seep into lakes and streams; and 5) agricultural, rural and urban runoff.

The EPA has estimated that two billion tons of sediment are delivered to lakes and streams annually from over 400 million acres of croplands as well as large amounts of nitrogen from fertilizers, animal wastes from feedlots, and toxic pesticides. It is estimated that five to ten percent of the total sediment load comes from 10 to 12 million acres of commercial forest harvested each year. Also urban sprawl, which nationally consumes hundreds of square miles per year, generates nutrient-rich sediment at an even greater rate than agricultural activities.

As required by Section 208 of the FWPCA of 1972, the MPCA is assessing the degradation of water quality caused by non-point sources of pollution in Minnesota, both urban and rural. Complicated federal regulations outline a comprehensive planning process that the Agency is undertaking to describe types of non-point source pollution, identify the waters affected and evaluate alternative control measures to produce the desired level of water quality. The MPCA must prepare, and the Governor adopt, a plan to meet the needs for non-point source pollution control by November 1978. The Agency will work closely with agricultural, forestry, and mining interests to assure proper preparation and implementation of these plans.

The consequences of standards that could require municipalities to collect and treat storm water; require erosion reduction techniques in construction, logging and mining operations; or require the state's agricultural community to drastically reduce sediment and nutrient loads to public water, are immense.

Air Quality Anti-Degradation

As was discussed in detail in Chapter III, the Clean Air Act of 1970 and court cases subsequent to the passage of that act, require that states insure that areas of good air quality remain in that condition.

The implementation of the anti-degradation program has prompted a debate over the land use and growth implications of clean air designations in Minnesota and around the country. The MPCA has begun the initial steps to designate the state, pursuant to EPA regulations. The MPCA is preparing a detailed analysis of candidate areas in Minnesota for Class I or Class III designations. The process is lengthy and requires substantial public participation before the Governor can propose classification of any area of the state.

The Ford Administration and some interest groups have urged the U. S. Congress to eliminate all reference to anti-degradation in the Clean Air Act. However, to date, subcommittees in both the House and Senate have strengthened

the anti-degradation campaigns. Also to date, the EPA has indicated no changes to the current regulations and the MPCA is proceeding pursuant to these regulations.

The MPCA believes that claims that the anti-degradation regulations will seriously restrict development have little basis in fact. Rather, the desire for clean air in this country is very legitimate and the Agency believes the U. S. possesses the technology, capital, and planning capability to protect clean-air areas.

In any case, the process of designating areas of the state consistent with anti-degradation regulations will be an important program for the MPCA the next several years.

Regulation of Individual Sewage Treatment Systems

The MPCA's emphasis on surface water quality to date will in future years equally emphasize ground water quality. Similarly, the Agency's emphasis on central treatment of wastewater will shift to greater involvement in individual sewage treatment systems.

Approximately 300,000 septic tank systems have been installed serving the one-third of the state's population outside of metropolitan areas. A diversity of water quality problems in portions of Minnesota have resulted. Both surface and ground water resources are impacted by the poor location or improper operation of septic tanks, especially in lake regions in central and northern Minnesota.

A wide range of county programs and ordinances attempt to control the location of individual sewage treatment systems. A lack of uniform enforcement has resulted. Some counties have very good programs with excellent administration; some have no ordinance or no trained personnel.

The MPCA recognizes that programs dealing with individual systems are best administered at the local level. The Agency will continue to develop a program to insure adequate controls by local government. This program includes: 1) minimum statewide standards covering the location and construction of individual systems; 2) training and certification program for local inspectors and the industry (installers, service personnel, manufacturers); and 3) a system to require the adoption of ordinances in critical areas (primarily urban).

The standards will supplement mechanisms for local enforcement around lakeshores which are already provided under the 1969 Shoreland Management Act. This act requires all individual systems around lakeshores in Minnesota to be upgraded to MPCA standards by July 1977.

Development of standards for the installation and operation of septic tanks is proceeding with the assistance of a 46-member Citizens Advisory Committee. Public meetings and hearings are to be held in early 1976 with the standards scheduled for adoption by the end of this year.

These Agency standards are intended to provide uniformity by establishing minimum statewide guidelines for the installation of individual disposal systems. The standards are also designed to provide alternative systems which can be used in areas where the traditional septic tank system will not function properly.

The application of these standards to the estimated 10,000 septic tank systems installed in Minnesota each year will be an important area of involvement for the MPCA the next several years.

Copper-Nickel Mining

Mining has been and will continue to be a major industry in Minnesota. The development of Minnesota's natural iron ore deposits, the technological breakthrough that made the processing of taconite feasible and the recent expansion of the taconite industry by several companies has been of tremendous economic impact on Minnesota. The environmental impact has been immense also.

Now in the offing is the potential development of Minnesota's vast low-grade base metal resources. Underneath northern Minnesota is the largest known resource of copper-nickel in North America.

The stakes are high. The direct and indirect economic benefit to the Minnesota economy of decades of copper-nickel mining would be immense. Royalties, lease payments, corporate and personal taxes would be huge. On the environmental side, land use, air, water and noise pollution implications are immense. Mining, milling and refining of these metals would have major impacts. Open pits close to the Boundary Waters Canoe Area, vast waste rock piles, immense tailings basins and a possible smelter all pose pollution problems that must be addressed.

The Reserve Mining Company case has demanded more attention from the MPCA than any other single source of pollution since 1969. That situation will continue. But the analysis of the potential for copper-nickel mining will be a major challenge for the Agency and the state for the next decade. The Agency will continue to participate in the Copper-Nickel Regional Environmental Impact Statement under preparation by the Environmental Quality Council to determine the regional impact of copper-nickel mining on northern Minnesota.

Air Quality Impacts from Increased Use of Coal

The continuing increases in the cost of petroleum fuels, the declining availability of domestic and foreign natural gas and the slow development of alternative energy sources -- these realities of present supplies and costs and the vast deposits of low-sulfur lignite coal in the western states, will produce substantial increases in the utilization of coal as a primary and secondary energy source. Coal, nearly abandoned in past years as an energy source, except by electrical utilities, because of air pollution problems, is now in increased use in Minnesota and throughout the nation. The future is nearly all coal for large industrial and commercial users. From Minnesota's current annual use of coal of six million tons per year, predictions of requirements by 1985 include up to 25 million tons per year.

The environmental impact from the greater utilization and conversion to coal will be significant. Coal is not a clean fuel. Air emissions of particulates (TSP) and sulfur dioxide (SO_2) are significant and must be controlled. Impairment of human health from elevated levels of particulates and sulfur dioxide is proven. While major coal-burning facilities -- power plants, taconite plants, sugar beet plants -- can meet applicable particulate and sulfur dioxide source standards through the installation of sophisticated abatement equipment, the incremental contributions of these new sources of TSP and CO_2, whether new plants or conversions from natural gas, to air quality maintenance programs will be a major issue for the MPCA the next several years.

Ambient TSP and SO_2 concentrations in the metropolitan area are near the allowable EPA and MPCA standards. The MPCA, in an area where ambient air concentrations are in violation of applicable standards, cannot approve a new source whose contribution of TSP or SO_2 would violate the standards.

The effect on the MPCA's air quality maintenance program of the conversion to coal by a large portion of the 450 present users of other fuels in the metropolitan Twin Cities area will be a major program for the MPCA in the next several years. Air quality maintenance will be of greater importance in the next

several years than the prevention of significant deterioration, the "anti-degradation" program, discussed earlier.

Source Reduction, Resource Recovery, and Energy Recovery

Reducing the amount of solid waste generated and maximizing the recovery of the solid waste that must be generated is the major involvement of the Division of Solid Waste and will continue in the next several years. While the Agency is dealing with the recovery of generated wastes, particular emphasis is placed on reducing the amount of waste generated in the first place.

Americans compiled this throwaway record in 1973, according to the National League of Woman Voters in a recent publication:

-- 52 million tons of bottles, cans, plastics and other paper containers thrown away;

-- 22 million tons of food thrown away;

-- 10 million tons of newspapers thrown away;

-- 3 million tons of paper plates, paper towels and paper napkins thrown away; and

-- 2 million tons of major appliances thrown away.

All told, Americans threw away 144 million tons of solid waste in 1973, and Americans spent $45 billion just to throw away the throwaways.

But what is most disturbing to the MPCA about these figures is that 65 percent -- or 95 million tons -- of discarded municipal solid waste is composed of packaging: single-use convenience items or major consumer items that are designed for quick obsolescence.

The MPCA believes our society's pattern of consumption for disposable goods and packages indicates one of two things: either these items symbolize American affluence and one of the highest standards of living in the world; or they are a serious symptom of our excessive and to some, indefensible, use of scarce resources and energy.

For the past several decades, one measure of our technological prowess has been in how clever we are in hiding trash. That process historically was the open dump which in the past five years has begun to disappear from the landscape. The dump

has been replaced by yet another breakthrough in hiding trash, the sanitary landfill. The long-term viability of landfills is questionable in metropolitan areas. The MPCA has worked diligently to close open dumps and permit sanitary landfills. As more and more landfills get bigger and are filled up, what course should be followed to adequately manage solid waste?

The League of Woman Voters has suggested what our society's objective must be in the management of solid waste:

> "It is apparent that the goals of environmental protection and resource conservation can be achieved only through policies that (1) reduce that portion of the waste stream that can be reduced; (2) recover its recoverable portion (by recycling and/or energy recovery); and then (3) ensure safe disposal of the rest."

The crucial aspect of a comprehensive solid waste management program is reducing that portion of the waste stream that can be reduced or programs of source reduction. There has been a great deal of discussion in Minnesota of the second and third components of comprehensive solid waste control -- recycling/recovery and landfills.

But the MPCA believes there has been little awareness and discussion of the absolute necessity of reducing the amount of solid waste that is generated and thereby must be recycled, recovered, or landfilled. The rationale for reducing waste at its source is that we will as a result:

-- reduce the solid waste stream;

-- reduce raw materials consumption;

-- reduce energy consumption;

-- reduce environmentally damaging resource extraction; and

-- use less land for waste disposal.

To accomplish programs of source reduction, efforts must be directed at reducing solid waste by:

-- reusing containers rather than immediately disposing of them;

-- extending produce lifetimes and designing products for resource recovery; and

-- decreasing product consumption.

What are the possibilities for source reduction? The EPA has suggested that source reduction measures -- taxes and charges, deposits, bans, design regulation, voluntary measures, and education -- can be applied effectively to several product categories in the solid waste stream, including containers, packaging, appliances, newspapers, tires, and certain miscellaneous items.

The MPCA, while involved in encouraging the recovery of generated wastes through technical and financial assistance, will continue its efforts to encourage the reduction of the amount of wastes generated.

Ground Water Protection

Over 90 percent of Minnesota's municipal water supplies utilize ground water. As of 1970, a total of over 2.5 million persons in the state were dependent upon ground water for potable purposes. Man's activities which are a threat to ground water quality include: individual waste disposal; land disposal of municipal and industrial solid waste; agricultural activities; and accidental spills of petroleum products and other hazardous and toxic wastes. As the need to improve surface waters becomes more important, the land is being called upon to treat man's wastes at an ever-increasing rate.

Treatment alternatives, if not adequately controlled, can result in ground water contamination. Unlike most surface waters, contamination of ground water supplies is not easily reversed.

MPCA Regulation WPC 22 requires the monitoring of potential ground water pollution sources and limits discharges so not to preclude the use of ground water for potable supplies. Depending upon the severity of the problem, corrective requirements vary from terminating the discharge, the installation of barrier wells, or excavation to remove contaminants that threaten ground water supplies.

As greater use is made of the land for waste disposal and greater dependency on ground water for potable supplies occurs, efforts to protect our state's ground water supplies will be increasingly important. Minnesota's abundance of ground water has resulted in minimal efforts only to assess our ground water resources and to examine alternatives to protect these resources.

More precise knowledge of the impacts of actual and potential pollution on our ground water resource is required. This knowledge, together with well-established surface water protection programs, will make possible adequate protection of ground water resources. However, all ground water problems will not be solved in the near future. A great deal of research needs to be

done on the fate of contaminants that enter the soil and the ground water. These problems are now beginning to be addressed on the state and local level.

The threat to Minnesota's abundant ground water resources is great and growing, the resource is extensive and fragile, and the response by government to date has been inadequate. The MPCA in the next decade must and will protect the quality of Minnesota's subsurface water resources just as the Agency has concentrated to date on the protection of Minnesota surface water resources.

Nuclear Power

The MPCA and the State of Minnesota have long questioned the authority of the U. S. Government as the sole licensor and regulator of nuclear power plants. The MPCA appealed unsuccessfully to the U. S. Supreme Court to assert state jurisdiction over nuclear generating facilities.

The licensing and regulatory authority over nuclear facilities now rests with the U. S. Nuclear Regulatory Commission (NRC). The siting and terms of operation of nuclear plants are subject to adjudicatory hearing where the MPCA has and will continue to assert itself to insure the prudent operation of the two nuclear plants in the state and that all release of radioactive contaminants to the air and water of the state are "as low as practicable". The MPCA will also continue its efforts, through legislation and the courts, to gain authority for the State of Minnesota to regulate air and water emissions from the NSP Monticello and Prairie Island facilities.

The MPCA for several years has advocated state legislation to declare a moratorium on the future construction of nuclear power plants in Minnesota until the host of design, operation and waste disposal questions surrounding nuclear power plants are answered more adequately than to date. The Agency nuclear power staff of the Water Quality Enforcement Section will continue to alert the Agency and the public to the important questions about the safe operation of nuclear power facilities.

Agricultural Waste Management

In the management of agricultural wastes, the MPCA faces a major challenge. There are approximately 100,000 feed-

lots in Minnesota. The Agency's best estimate is that 30 - 40,000 of these feedlots pose a current or potential threat to surface and ground water quality. Under the MPCA's feedlot program where a permit is required when a new facility is constructed or a current facility is expanded, nearly 4,500 permits have been issued. While over 5,000 will be issued by the end of 1976, this figure is a minimal percentage of all feedlots.

In addition, the FWPCA of 1972 requires that NPDES permits be issued for large feedlot operations. While the final impact of this requirement is not known at present because of litigation, a number of continued feeding operations in Minnesota will also require a NPDES permit because of the magnitude of potential discharge to the waters of the state.

During the next several years Agency efforts will be focused primarily on maintaining the permit program and undertaking planning activities in several areas:

1) Assessing the feasibility of a statewide feedlot inventory in order to determine priority of feedlot problems and to provide the Agency and the agricultural community with data on the costs and benefits of agricultural pollution control measures.

2) Assessing areas where the MPCA could delegate additional authority to local government for the processing of feedlot permits.

3) Determining the feasibility of a program of state financial assistance to feedlots to encourage improvements.

At present farmers who upgrade or install new facilities are eligible for an income tax credit from the State of Minnesota. Consideration will be given to additional credits and incentives, including low-interest loans.

Management of Hazardous Waste

Whether solid waste management means an open dump, a landfill, an energy recovery facility, or a resource recovery plant, the wastes of concern are primarily municipal wastes -- residential, commercial, demolition wastes, etc. These wastes have been and will continue to represent the vast amount of solid waste generated in Minnesota.

But there are other wastes -- toxic and hazardous wastes. These are the by-products of various industrial processes: flue dust containing arsenic from copper, lead, or zinc plating; metal containing chromium from car bumper plating; organic wastes from the manufacture of pesticides; explosive and industrial gas wastes from the manufacture of explosives; toxic sludges from a variety of industrial processes; to name only a few.

It is estimated that in the United States 10 million tons of hazardous wastes are generated yearly. In Minnesota approximately 100 thousand tons of hazardous wastes are generated. What happens to these wastes? Most are not yet accounted for and are disposed of on-site or flushed down the sewer, adversely affecting a system's treatment capabilities. The toxic, inorganic, and non-degradable constituents of these wastes make them a real danger to surface and ground water.

In Minnesota, pursuant to legislation enacted by the 1974 Legislature, the MPCA is preparing regulations for the proper identification, classification, collection, storage, treatment, and disposal of hazardous wastes. The MPCA has received an EPA grant, the only one in the nation, for the land disposal of hazardous wastes. The other disposal method is incineration. The Agency is now saddled with an inefficient and underfinanced incinerator at Shakopee -- the Pollution Controls Inc. facility. A more efficient incinerator is needed in the metropolitan area to properly incinerate those hazardous wastes that are not so toxic that they must be land disposed. Portions of these wastes, as the cost of their components increases, can be recycled and reclaimed.

Minnesota is ahead of most states in toxic waste management, and we are not doing the job. Nationwide the proper disposal of toxic and hazardous wastes is essentially an unaddressed problem. The Agency will be heavily involved over the next several years in the management of hazardous wastes.

Operation & Maintenance of Treatment Facilities

With the enactment of the FWPCA of 1972, $18 billion was authorized for a construction grants program to defray the construction costs of municipal wastewater treatment facilities. The future holds the possibility of even greater amounts of federal funding. This vast financial commitment will result in a large increase in the number of municipal wastewater treatment facilities in Minnesota. The MPCA estimates there will be over 600 municipal facilities by 1980.

Reliable operation and maintenance of municipal facilities is essential to meet prescribed water quality goals. On-site inspections have shown that numerous facilities in Minnesota are not being operated properly. Part of the problem is

related to economics, part from neglect, and part because of improper training. Facility performance frequently can be improved through increased attention to facility operation and maintenance and through minor plant modifications.

The same situation is apparent in the operation and maintenance of air pollution control equipment.

To provide assistance to municipalities and to promote better operation and maintenance, the following actions are being considered by the MPCA:

1) The Agency's municipal wastewater facility compliance inspection program will place greater emphasis on problem plants. Inspections will be directed to achieve improved operational efficiency of problem facilities and facilities within critical water pollution areas.

2) Increased technical assistance will be provided to municipal wastewater treatment operators. A technical team will be established to work at municipal treatment facilities to solve operational problems. This team will work closely with plant operators to improve the efficiency of their plants.

3) A grant program to underwrite a portion of the operation and maintenance costs for municipal plants. A municipality would receive a reimbursement grant only when a facility is producing an effluent in compliance with the MPCA permit.

Management of Sludge Disposal

The treatment of municipal or industrial wastes produces a by-product, or sludge. Past experience and recent research efforts have demonstrated that where proper restraints and management are exercised, many of these sludges can be applied to the land with little impact on the environment or public health. However, it is also apparent that without proper or adequate management, land application of sludges can promote any or all of the following problems: surface and/or ground water pollution; excessive accumulation of heavy metals, persistent organics or salts in the soil; pathogen contamination of food and water resources; and aesthetic degradation.

The MPCA continues to develop a program to control the application of sludges. Guidelines governing land application of municipal wastewater sludges will be prepared for promulgation in 1976. These guidelines are intended to aid municipal officials, engineers, and plant operators in implementing acceptable sludge disposal facilities and practices and to provide land managers with recommendations concerning site management and usage. The guidelines will also provide Agency staff with criteria to aid in the review and approval of land application projects. These guidelines will limit sludge application rates to levels consistent with fertilization and soil conditioning.

Guidelines are also being developed to control land application of water treatment sludges, industrial waste sludges, incinerator ashes, and septic tank pumpage. The primary emphasis of each set of guidelines will be to minimize the potential problems associated with land application.

Noise Abatement

Future Agency programs to control unnecessary noise in the environment will depend on the availability of additional program resources for the Noise Pollution Control Section of the Division of Air Quality. The present staffing is inadequate to accomplish important, current program needs: development of additional noise regulations; monitoring for violations of ambient noise standards; and the development of an enforcement program to bring excessive noise levels throughout the state down to those levels which will assure a healthy noise environment for the people of Minnesota.

The effects of persistent, high levels of noise from industry, transportation or other sources of noise on human health are known and dictate that the Agency expand its efforts during the next decade to minimize this source of pollution.

New Pollutants

Our society has taken pride in conquering all but the more persistent, chronic, and contagious diseases. However, industrialization and expanded technology have altered the environment and are exposing man and his descendants to increasing amounts of harmful pollutants, some of them chemical compounds that did not exist a century, decade, or even a year or two ago.

Over 25,000 new chemical compounds are developed each year; over two million compounds are known. The result is an increase in old ailments and the emergence of new ones -- all traceable to substances in air, water and food.

These "new pollutants" -- mercury, certain toxic pesticides and herbicides, heavy metals, organophosphates, polychlorinated biphenyls (PCBs), polyvinyl chloride (PCV), asbestos fibers, chloro-organics, sulfates (the list grows larger each year) -- have and will affect the programs of the MPCA.

These chemical pollutants are producing what Dr. Selikoff of Mt. Sinai Hospital in New York City and an expert in the Reserve Mining Company trial calls a new field of environmental disease. Likewise, these chemicals are producing a new field of pollution abatement. The effect of these and other compounds when introduced into the air and water will be an important area of Agency involvement in the next decade.

Enforcement Programs

In the next several years, enforcement of Agency regulation will play an important role at the Agency, particularly in the Division of Water Quality. This situation will result because the Agency has been authorized to administer many of the provisions of the 1972 FWPCA. The construction grants program and the NPDES permit program are the main activities administered by the Division of Water Quality which require enforcement action. Both of these programs have established time schedules and effluent limitations which are applicable to approximately 1,300 dischargers in Minnesota. To insure the credibility and success of these two major water quality programs, an active enforcement program is essential.

The mechanics of enforcement are tied closely to the NPDES permit. Every discharger must have a permit which establishes effluent limits and a schedule for additional abatement measures. The Division of Water Quality also has an enforcement role in the area involving spills, leaks, or discharges of oil and other hazardous materials. Of particular concern is the problem of contamination of ground water resulting from such discharges. These situations present very difficult problems which must be addressed. Many materials are very difficult or expensive to recover and most are a threat of prolonged ground water contamination.

An expanded effort in the Division of Air Quality in enforcement will be required in order to bring non-complying air pollution sources into compliance and to assure the ability of the MPCA to meet the ambient air quality standards. Likewise,

in the Division of Solid Waste the continued program to close noncomplying open dumps and permit sanitary landfills will require staff attention to the enforcement of applicable regulations.

Monitoring Programs

In 1975 there were 103 routine monitoring stations in the state that produced data for the MPCA. Monitoring stations measure changes in the quality of the rivers, streams and lakes in Minnesota. Based on this information, the Agency works to protect the existing water quality and eliminate those sources of pollution which are causing problems.

It is evident from the Agency monitoring activities that non-point sources of pollution cause significant water quality problems. The sources and extent of this impact are important and must be addressed as part of the area-wide planning process.

Increased monitoring by the Division of Air Quality will be required. Additional monitoring for highly toxic pollutants such as PCBs very likely will be required in the future as adequate monitoring methods are developed which will determine the concentrations of these pollutants in the extremely low levels that occur in the atmosphere. The basic monitoring systems of the Agency will be increased, especially in the more remote areas of the state where the effect of large installations miles away must be measured so to comply with current ambient air regulations.

Environmental Impact Review

The National Environmental Policy Act of 1969 (NEPA) was complemented by the Minnesota Environmental Policy Act of 1973 (MEPA). These laws established basic criteria and requirements, federal and state, for environmental impact statements, policies and decision-making involving Minnesota. The important responsibilities for implementation of these statutes, which rest with the MPCA and other state agencies, have resulted in a significant financial burden. The 1975 Legislature provided some financial assistance in the current biennium for the administration of this system through a special appropriation to the MPCA and several other state agencies.

In response to the funding provided by the Legislature, the MPCA created an Office of Environmental Analysis. To fully

implement MEPA and respond to the growing demands associated with the federal and state EIS program, additional and more permanent funding will be required.

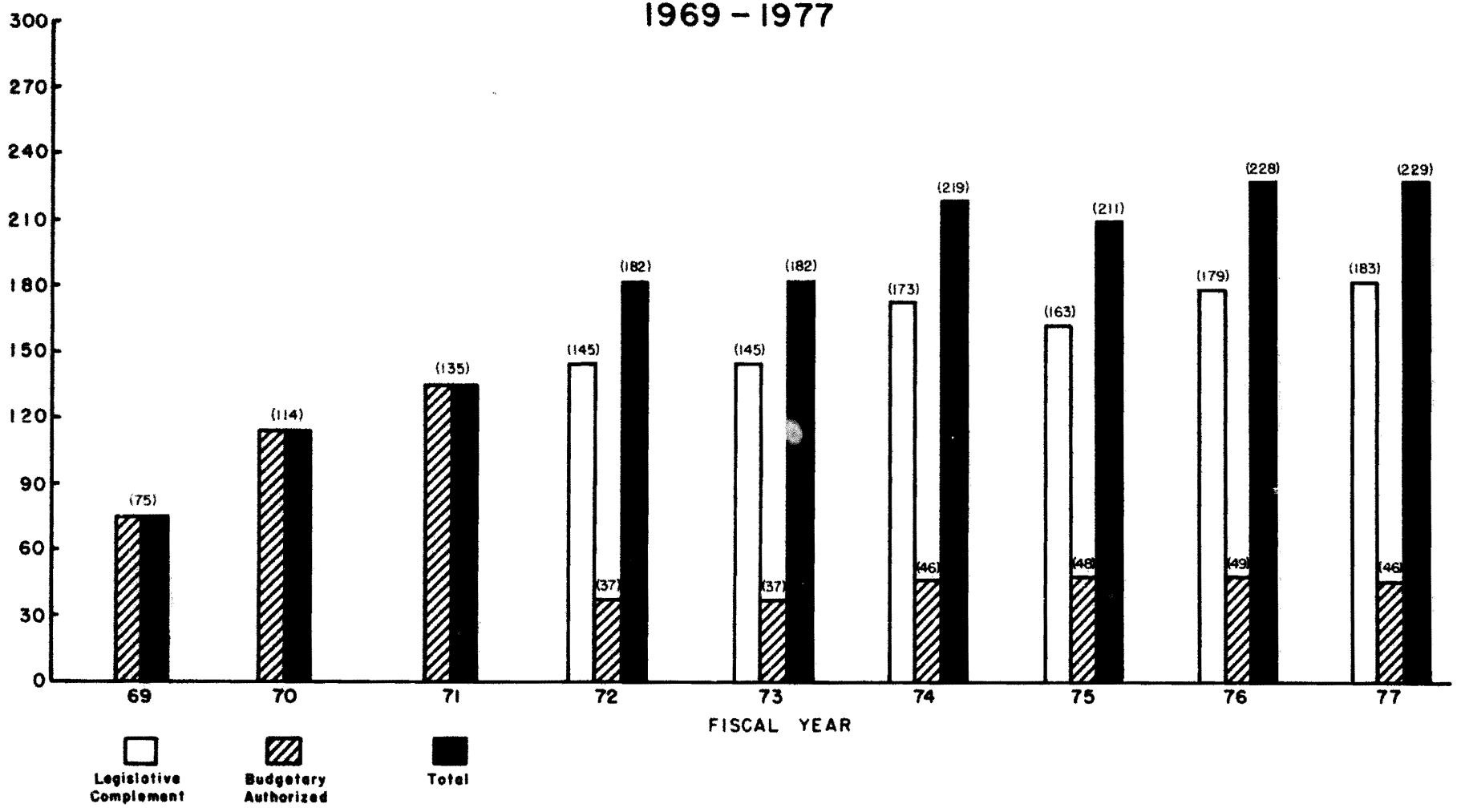
Increased use of the EIS process in the future and associated increases in the MPCA's involvement can be anticipated in several major areas which may involve federal and/or state environmental impact statements: 1) copper-nickel mining developments, which will include one regional EIS and several site specific EISs; 2) construction, expansion and/or modification of power plant facilities including power transmission lines; 3) expansion of the taconite industry; 4) projects which will affect Lake Superior including alteration of lake levels; 5) maintenance and/or expansion of the Mississippi River channel and navigation oriented facilities on the Mississippi and other Minnesota rivers; 6) energy recovery facilities utilizing the burning of refuse; 7) maintenance and/or expansion of the Duluth - Superior Harbor including potential deepening of the harbor and other developments; 8) energy resource developments including peat. In addition, many smaller projects will require environmental impact statements and be reviewed and/or prepared by the MPCA. These may range from housing developments and landfills to highway maintenance and construction projects.

Continued efforts of the MPCA to effectively assess environmental implications of projects prior to their construction represent a major effort designed to enhance environmental quality through preventive and cautious planning programs.

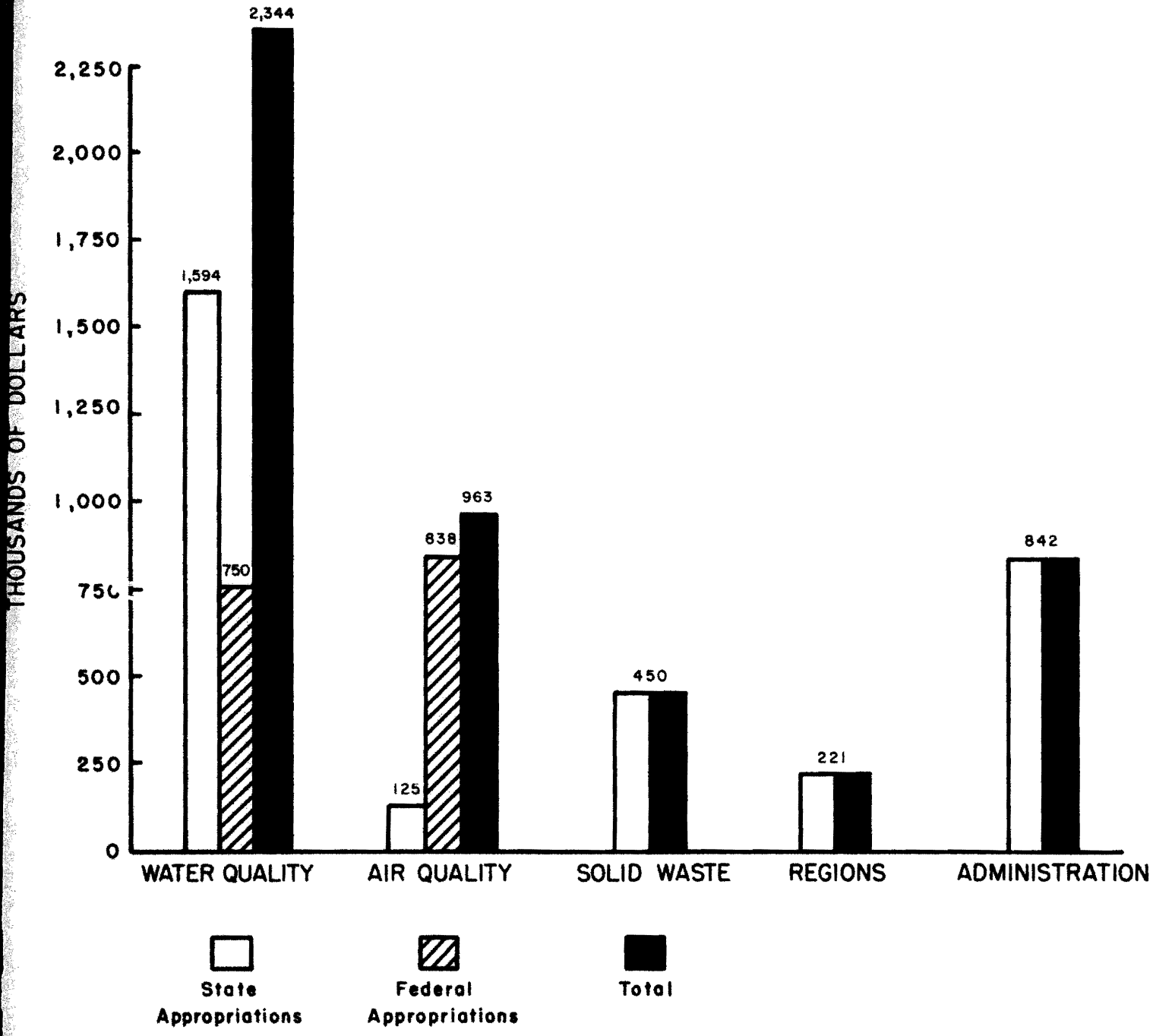
A P P E N D I X A

Operating Appropriations and Complement

POLLUTION CONTROL AGENCY COMPLEMENT
1969 - 1977



1977
DIVISIONAL APPROPRIATIONS



1976
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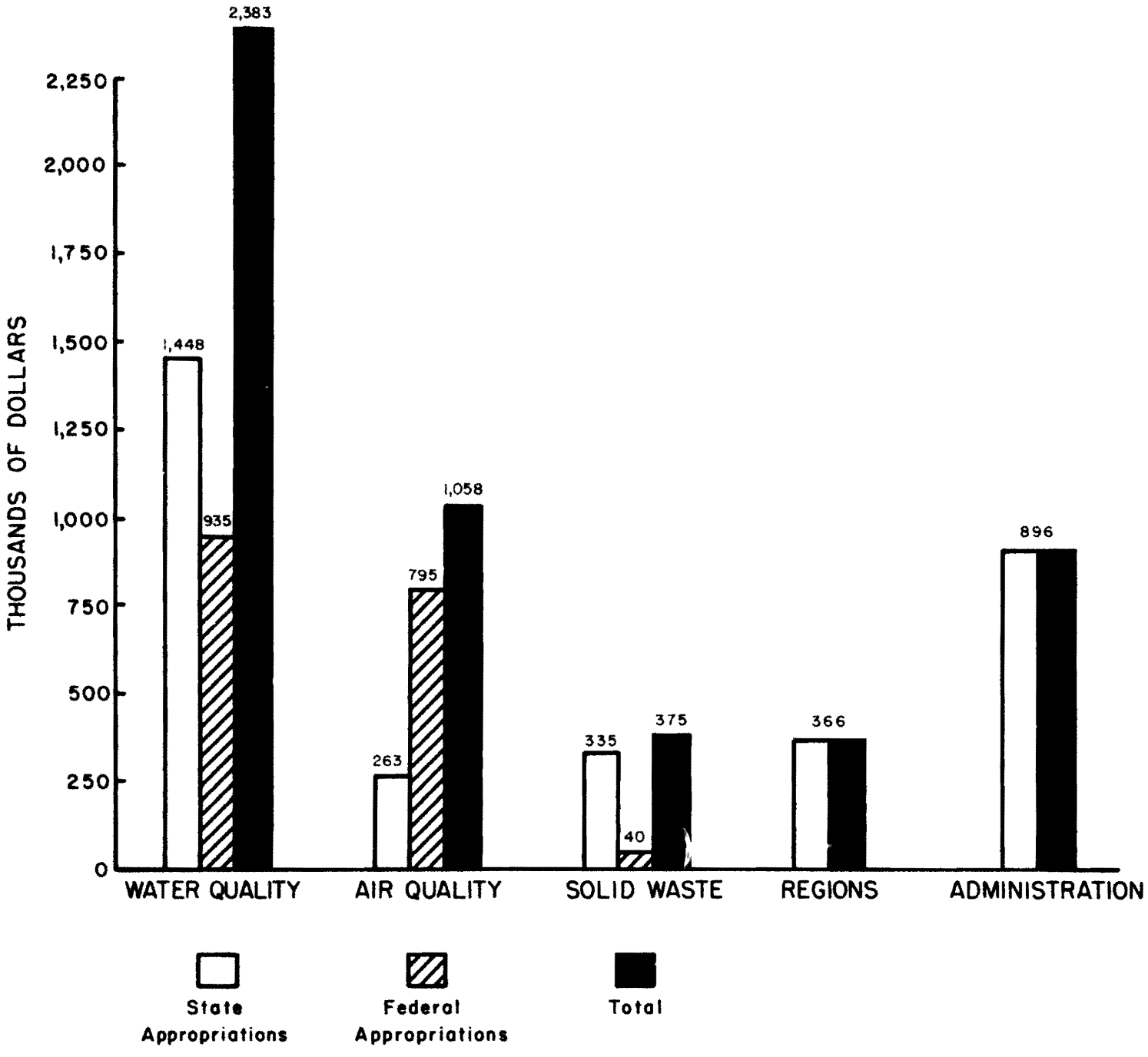
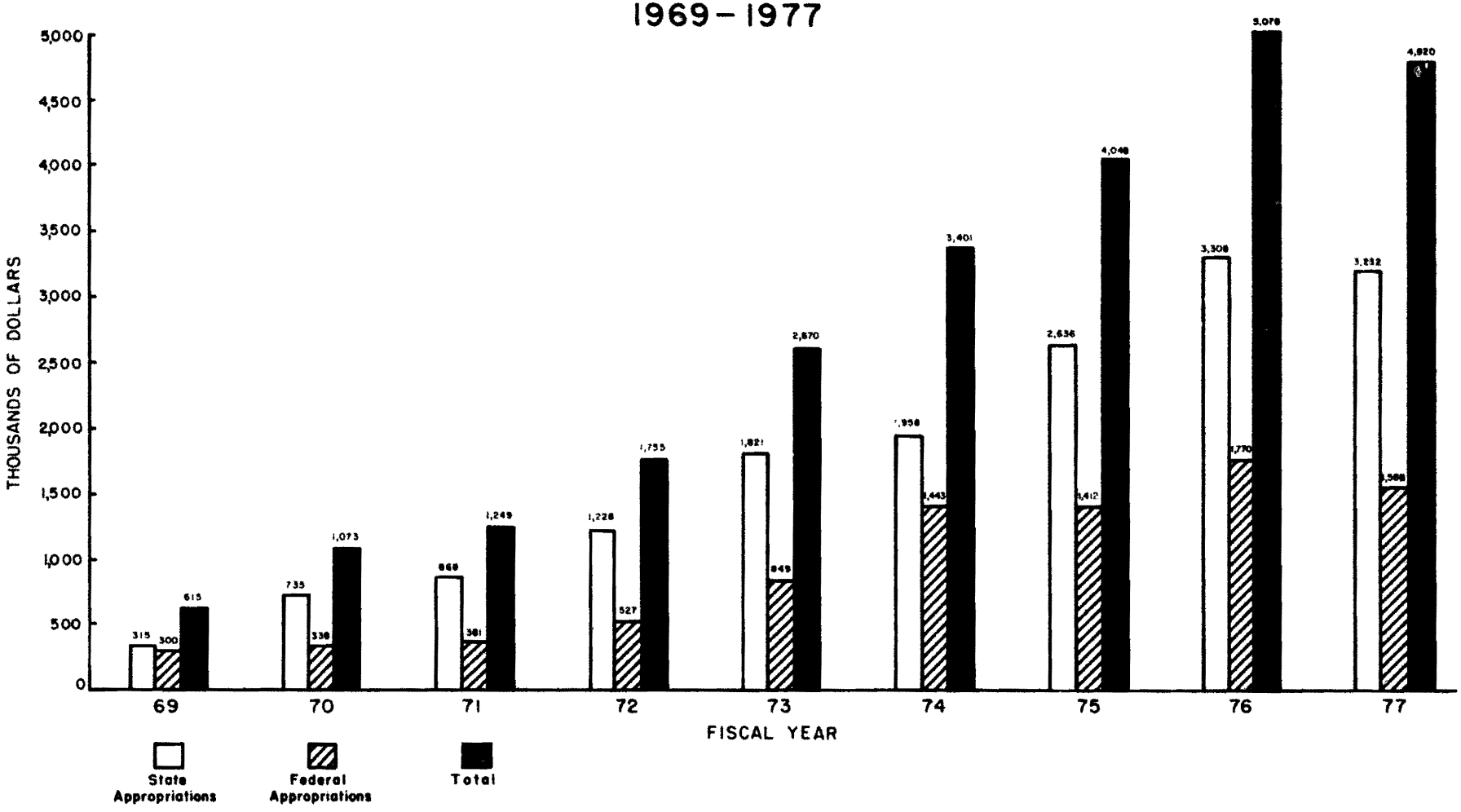


POLLUTION CONTROL AGENCY
Operating Appropriations
1969 – 1977



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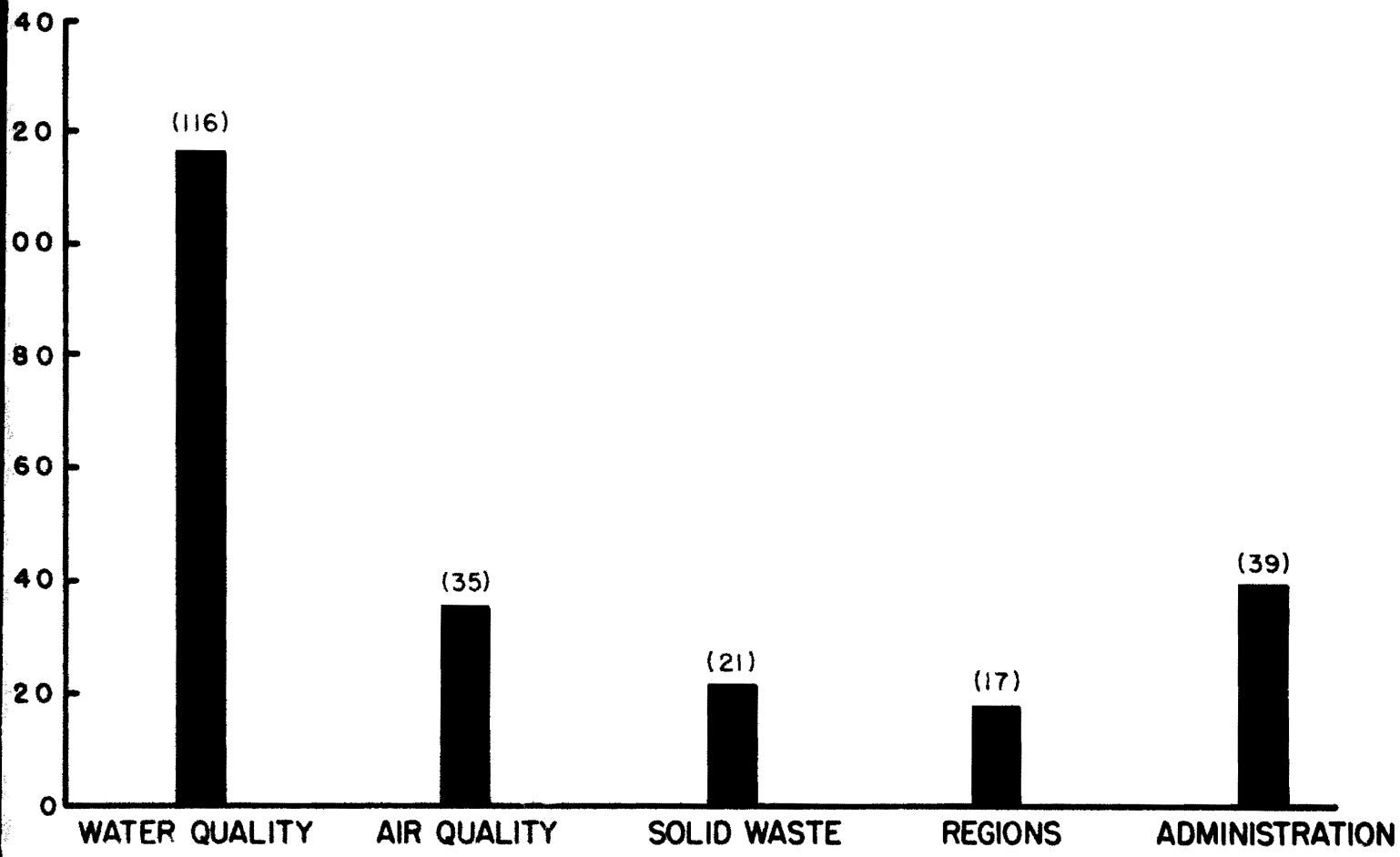

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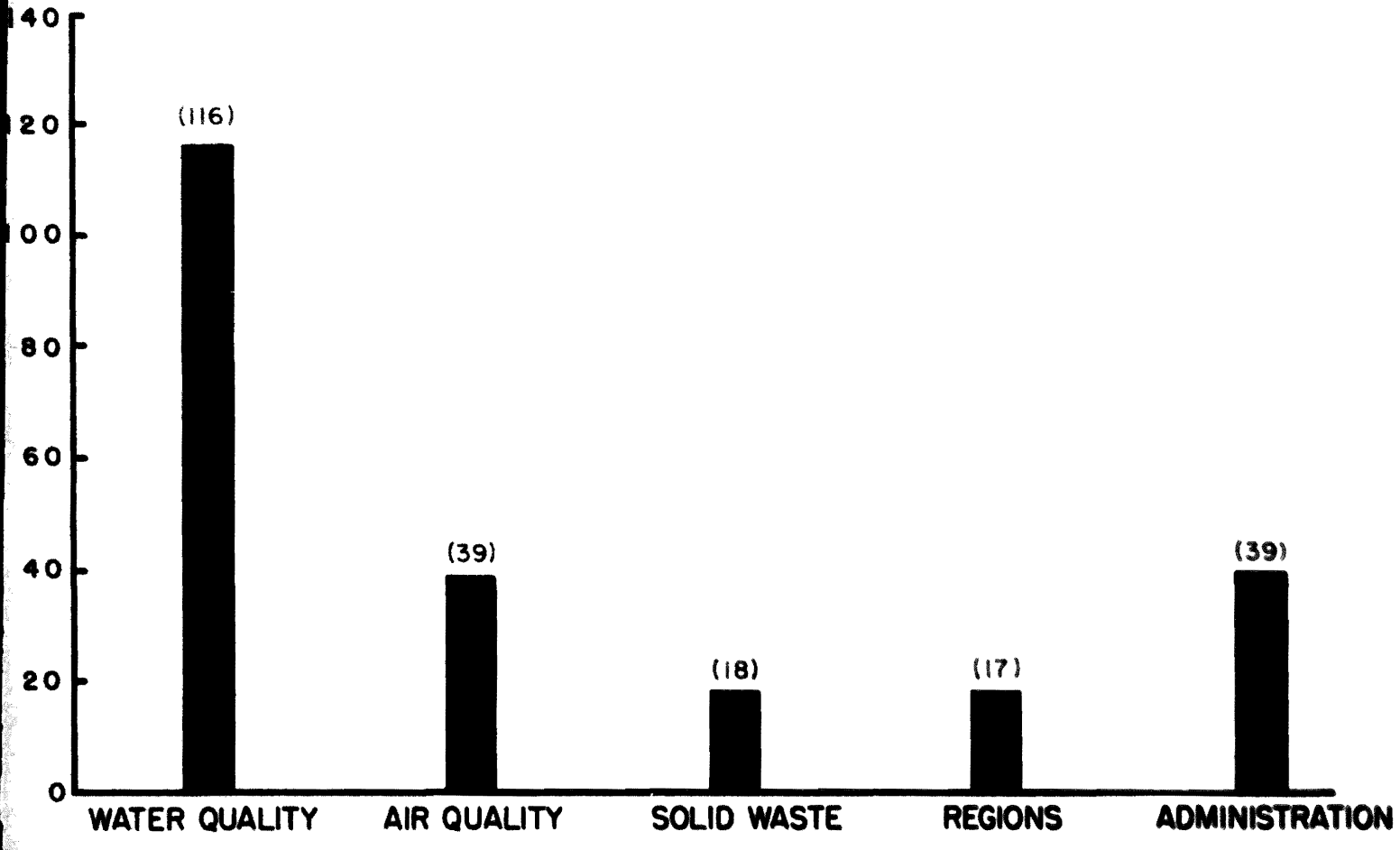
DIVISIONAL COMPLEMENT



A P P E N D I X B

Major Legislation Relating to the Agency

A. State

1945

The Water Pollution Control Act, Minn. Stat. chapter 115, established the Water Pollution Control Commission, the precursor of the Agency. The Commission was charged with enforcing the state's water pollution laws, cooperating with other governmental bodies, and setting up a permit system for and gathering information on disposal systems.

1961

Regional sanitary districts were authorized to be created by two or more adjacent areas by Minn. Stat. 115.15 to 115.37 (amended in 1969 and 1973) for the purpose of providing an adequate and efficient means of collecting, conveying, pumping, treating and disposing of domestic sewage and garbage and industrial wastes within the district. The districts are governmental subdivisions in charge of installing, operating, and maintaining any system works or facility within or without the district to prevent and control water pollution of any waters of the State within its territory.

Minn. Stat. 361.29 gave the Water Pollution Control Commission regulatory authority over marine toilets on watercraft.

1963

Minn. Stat. 115.41 to 115.53 (amended in 1967, 1969, and 1973) provides for a long-range plan for the control of water pollution by classifying the waters of the state and setting standards of quality and purity for each such classification. Cooperation between municipalities to provide areawide waste management and treatment was encouraged by these statutes, and towns were given the authority to construct, install, acquire, maintain and operate disposal systems in the same manner as statutory cities.

1965

Regional sanitary sewer districts were authorized to be created by Minn. Stat. 115.61 to 115.67 (amended in 1969 and 1973). Municipalities in a drainage area may join together to prevent pollution by planning, acquiring, building, and operating sewage disposal systems. The districts are governed by a board of directors and have the power of a municipal corporation and governmental subdivision of the state.

1967

The pollution Control Agency was created by Minn. Stat. Chapter 116 which abolished Water Pollution Control Commission and transferred its functions and powers to the Agency. The Agency was given authority over air quality control and solid waste management.

Minn. Stat. 40.03 gave the Agency's director a seat on the Soil and Water Conservation Commission.

Minn. Stat. 272.02 subd. 1 (15) gave the Agency authority to advise the commissioner of revenue on the eligibility of a taxpayer for a full or partial exemption from property taxes on property used for pollution control.

1969

Persons were put under an affirmative duty to notify the Agency of discharges and to recover the pollutants Minn. Stat. 115.061.

The Agency was given authority to enforce its orders, permits, standards, regulations, etc. by criminal prosecution, civil penalties, injunctive relief, or actions to compel performance Minn. Stat. 115.071.

The Agency was given power to direct the immediate discontinuance or abatement of pollution in emergency situations, where there is an "imminent and substantial danger to the health and welfare of the people of the state." Minn. Stat. 116.11.

The procedures for hearings and issuance of permits, variances, stipulations, etc. were refined to allow fuller public notice and participation, and the hearings and records of the Agency were made generally public Minn. Stat. 115.05, 116.075.

Minn. Stat. 290.06 subd. 9 gave the Agency authority to certify the percentage of pollution control equipment and feedlot pollution control equipment eligible for a tax credit on a taxpayer's income tax.

Minn. Stat. 473D.07 gave the Agency regulatory authority over solid waste disposal sites and facilities in the Twin Cities Metropolitan Area.

1971

The Agency was given authority to adopt standards and regulations relating to noise pollution. Minn. Stat. §116.07.

A special fund was created by Minn. Stat. §116.18 to be granted and disbursed by the Pollution Control Agency to municipalities and agencies of the state in aid of the construction of wastewater treatment facilities. The funds are granted only to those facilities being built under projects tendered a grant of federal funds under the Federal Water Pollution Control Act. The eligible cost of construction is provided 75 percent by the federal government, 15 percent by the state, and 10 percent by the local community.

The cleaning agents and chemical water conditioners came under Agency regulation. Minn. Stat. §116.22.

The director, along with the secretary of the State Board of Health was given the authority to certify water supply system operators and wastewater treatment facility operators and classify the system or facility which the operator is qualified to supervise. Minn. Stat. 115.71-82.

Minn. Stat. chapter 116A, Public Water and Sewer Systems, provides that county boards may assume authority to operate water and sewer systems. The Agency shall receive notice of the hearing to allow the boards to assume this authority and the boards may not take any action in contravention of the Agency's authority. (Amended in 1973.)

Minn. Stat. chapter 116B, the Minnesota Environmental Rights Act, allows the Agency (or citizens, governmental bodies, the Attorney General, etc) to bring a civil action against any polluter. Actions are barred where the alleged polluter is acting under a permit, stipulation, order or rule of the Agency or the departments of health, agriculture, or natural resources. The Agency may also bring suit to challenge a rule, stipulation, permit, etc. issued by the state, another agency or instrumentality, or governmental body. The Agency may intervene as a party in such actions brought by others.

Minn. Stat. 114A.09 provides that the Southern Minnesota Rivers Basin Commission shall not supersede the Agency's powers over water pollution.

Minn. Stat. chapter 168B gave the Agency the authority to review contracts between units of government and independent contractors for the disposal of abandoned motor vehicles. Where the contact has been approved, the Agency may reimburse the governmental unit for costs incurred under the contract.

1973

Minn. Stat. chapter 116C, the Environmental Quality Council, establishes the EQC as the coordinating body for agencies concerned with natural resources. The Agency's director has a permanent seat on the EQC. The EQC also has authority over the preparation of Environmental Impact Statements and the siting of power plants. The Environmental Quality Council has authority over the preparation of Environmental Impact Statements. It also has the authority to designate power plant sites and corridors. The Pollution Control Agency participates in such siting and thereafter proceeds with its permitting procedures with regard to the facility in question.

Minn. Stat. chapter 116D sets out Minnesota's environmental policies and goals. The Agency, along with other state agencies, must observe these policies and goals. The statute also provides

for the preparation of Environmental Impact Statements where there is potential for significant environmental effects from governmental or private actions; the Agency is to participate in their preparation.

Minn. Stat. chapter 116F, Recycling of Solid Waste, allows the Agency to give grants in aid to regions, municipalities, or institutions for resource recovery programs. The Agency is to review new packaging and may, after proper procedures, ban the sale of packaging for a limited time, to encourage better use of materials and recycling.

1974

The Agency was given the authority to adopt standards and regulations relating to hazardous wastes.

B. Federal

1. The Clean Air Act is one of the major pieces of federal legislation which affects the Agency. The Act (P.L. 91-604, 42 U.S.C. 1857), first enacted in 1955, provided for a national research program, with primary responsibility for cleaning up air pollution left to the states.

Subsequent amendments in 1963, 1965, 1967 and 1970 provided that the Environmental Protection Agency (EPA) set standards for air quality and oversee the development and implementation of state plans to achieve those standards. The Agency is responsible for enforcing the provisions of the Act.

2. The Federal Water Pollution Control Act (FWPCA) is another major piece of federal legislation. The Act (P.L. 92-500, 33 U.S.C. 1251), originally enacted in 1948 and amended numerous times since then, has a scheme similar to the Clean Air Act: federal standards enforced by the state agencies under the supervision of the EPA.

Persons who discharge pollutants into waters of the United States must apply for andobtain a permit under the National Pollutant Discharge Elimination System (NPDES). The NPDES program includes sewage, oil and hazardous substances, thermal discharges, marine pollution, and other pollutants. The Agency received authorization from EPA to administer the NPDES program within Minnesota in 1974.

Minnesota may adopt more stringent standards than the national ones for discharges of pollutants, control or abatement of pollution; the Agency has done so in certain areas.

The statute also authorizes states to enter into interstate compacts to cooperatively clean up waters. Minnesota has entered into such a compact with Wisconsin.

3. Other federal legislation which affects the Agency includes the following:

The Federal Environmental Pesticide Control Act (P.L. 93-295, 7 U.S.C. 135), enacted in 1947 and added to in 1972, regulates pesticides, insecticices, fungicides and other economic poisons. States may enact their own regulations on the sale or use of economic poisons if not in conflict with the federal regulations, and may register pesticides under certification by the EPA.

The Solid Waste Disposal Act (P.L. 89-272, 1965) and the Resource Recovery Act (P.L. 91-512, 1970) provide that the states shall be primarily responsible for collection and disposal of solid wastes. The EPA gives grants for local programs, conducts a national research and development program, and provides technical aid to the states.

The Agency has responsibilities under the Internal Revenue Code §103 and §169, enacted in 1968 and 1969 respectively. The Agency must certify pollution control facilities to the EPA for their rapid amortization under §169. Under §103, interest on industrial development bonds for the financing of pollution control devices is excluded from gross income; the Agency certified that the devices are eligible for the provision.

The Environmental Protection Agency was created in 1970 in a reorganization plan of the President. (84 Stat. 2086, 35 F.R. 15623) Responsibilities for environmental concerns were transferred to the EPA from other federal agencies and departments, including the Interior Department; the Agriculture Department; Health, Education and Welfare; the Federal Radiation Council, and the Environmental Quality Council. The Agency now works primarily with the EPA rather than with numerous federal agencies.

The National Environmental Policy Act (P.L. 91-190, 42 U.S.C. 4332, 1970) set forth national policies concerning the environment, created the Council on Environmental Quality to advise the President, and established the system of Environmental Impact Statements. The states have opportunities to comment on the statements and must generally follow the national policies set out in the Act.

The Noise Control Act of 1972 (P.L. 92-574, 42 U.S.C. 4901) allows the EPA to coordinate federal research and activities in noise control and set noise emission standards for products distributed in commerce. The Agency may set noise standards where they do not conflict with the federal ones.

A P P E N D I X C

Summary
of

Rules, Regulations, Classifications and Standards

APPENDIX C

SUMMARY OF RULES, REGULATIONS, CLASSIFICATIONS AND STANDARDS

Regulation	Title	Date Filed With Sec. of State	Date Amended
MPCA 1	Duty of Candor	12-21-73	
MPCA 2	Definitions	12-21-73	
MPCA 3	Agency Meetings and Officers	12-21-73	
MPCA 4	Declaration of Emergency	12-21-73	
MPCA 5	Permits	12-21-73	
MPCA 6	Variances	12-21-73	
MPCA 7	Stipulation Agreements	12-21-73	
MPCA 8	Informed Complaints	12-21-73	
MPCA 9	Hearings	12-21-73	
MPCA 10	Inspection and Confidential Information	12-21-73	
MPCA 11	Sanctions	12-21-73	
MPCA 12	Conflict of Interest	12-21-73	
MPCA 13	Public Participation in Agency Matters	12-21-73	

Water Regulation	Title	Date Filed With Sec. of State	Date Amended
WPC 1	Classification and Standards for the Mississippi River and Tributaries from the Rum River to the Upper Lock and Dam at St. Anthony Falls	04-19-63	
WPC 2	Classification and Standards for the Mississippi River and Tributaries from the Upper Lock and Dam at St. Anthony Falls to the Outfall of the Minneapolis-St. Paul Sanitary District Sewage Treatment Plant	04-19-63	
WPC 3	Classification and Standards for the Mississippi River and Tributaries from the Outfall of the Minneapolis-St. Paul Sanitary District Sewage Plant to Lock and Dam No. 2 near Hastings	04-19-63	
WPC 4	Regulation Relating to Storage or Keeping of Oil and Other Liquid Substances Capable of Polluting Waters of the State	07-09-64	
WPC 5	Classification and Standards for the Minnesota River and Tributary Waters from Carver Rapids to the Outlet of Reilly Creek and Grass Lake Below Shakopee, Zone 36-22.4	11-30-65	
WPC 6	Classification and Standards for the Minnesota River and Tributary Waters from the Outlet of Reilly (Terrel) Creek and Grass Lake Below Shakopee to the Junction with the Mississippi River at Fort Snelling, Zone 22.4-0	11-30-65	

Water Regulation	Title	Date Filed With Sec. of State	Date Amended
WPC 7	Classification and Standards for Reilly (Terrell) Creek, Bluff Creek, the Chaska Creeks, Spring Creek, Carver Creek and Sand Creek and Tributary Waters	11-30-65	
WPC 8	Classification and Standards for Eagle Creek and Purgatory Creek and Tributary Waters	11-30-65	
WPC 9	Classification and Standards for Nine Mile Creek and the Credit River and Tributary Waters	11-30-65	
WPC 10	Classification and Establishment of Standards of Water Quality and Purity for the Red River of the North, the Otter Tail River from Fergus Falls to the Mouth, and the Red Lake River from Crookston to the Mouth	09-21-66	06-05-67
WPC 11	Classification and Standards of Water Quality and Purity for the Rainy River from the Outlet of Rainy Lake at Ranier to the Minnesota and Ontario Paper Company Dam in International Falls	12-15-66	
WPC 12	Classification and Standards of Water Quality and Purity for the Rainy River from the Minnesota and Ontario Paper Company Dam in International Falls to the Canadian National Railway Bridge in Baudette	12-15-66	

Water Regulation	Title	Date Filed With Sec. of State	Date Amended
WPC 13	Classification and Standards of Water Quality and Purity for the Rainy River from the Canadian National Railway Bridge in Baudette to Lake of the Woods	12-15-66	06-05-67
WPC 14	Criteria for the Classification of the Intrastate Waters of the State and the Establishment of Standards of Quality and Purity	08-15-67	10-04-73
WPC 15	Criteria for the Classification of the Interstate Waters of the State and the Establishment of Standards of Quality and Purity	06-14-67 06-30-69	07-01-69 10-13-71 10-04-73
WPC 16	Classification and Establishment of Standards of Water Quality and Purity for Anderson Creek, Big Silver Creek, the Blackhoof River, Canutrup Creek (and Mary Brook), Clear Creek, Deer Creek, the Little Net River, the Net River, North Fork Creek, Skunk Creek, Stateline Creek and Stony Brook, Carlton and Pine Counties	08-03-67	
WPC 17	Classification and Establishment of Standards of Water Quality and Purity for the Nemadji River System, Carlton and Pine Counties (Except Waters Included in WPC 16)	08-03-67	

Water Regulation	Title	Date Filed With Sec. of State	Date Amended
WPC 18	Effluent Standards for Disposal Systems Discharging to the Mississippi River from the Outfall of the Minneapolis-St. Paul Sanitary District Sewage Treatment Plant to Lock and Dam No. 2 near Hastings	09-26-68	
WPC 19	Effluent Standards for Disposal Systems Discharging to the Minnesota River from above Chaska to the Junction with the Mississippi River at Fort Snelling	09-26-68	
WPC 20	Effluent Standards for Disposal Systems Discharging to the Minnesota River from Mankato to Chaska	09-26-68	
WPC 21	Effluent Standards for Disposal Systems Discharging to the Mississippi River from the Junction of the Rum River to the Outfall of the Minneapolis-St. Paul Sanitary District Sewage Treatment Plant, and from Lock and Dam No. 2 Near Hastings to the Junction with the Chippewa River, and to the St. Croix River from Taylors Falls to the Junction with the Mississippi River	09-26-68	
WPC 22	Classification of Underground Waters of the State and Standards for Waste Disposal	08-14-73	

Water Regulation	Title	Date Filed With Sec. of State	Date Amended
WPC 23	Standards of Quality and Purity for Effluents Discharged to Intrastate Waters	04-15-69	
WPC 24	Classifications of Intrastate Waters of Minnesota	09-07-73	
WPC 25	Classifications of Interstate Waters of Minnesota	02-04-71	09-07-73
WPC 26	Effluent Standards for Disposal Systems Discharging to Lake Superior, Lake of the Woods and Fall Lake	02-04-71	
WPC 27	Effluent Standards for Disposal Systems Discharging to the Intrastate Waters of the Lake Superior Basin, and to the Interstate Waters of Lake St. Croix	02-04-71	
WPC 28	Effluent Standards for Disposal Systems Discharging to the St. Louis River from its Source to and Including St. Louis Bay and Superior Bay; the Mississippi River from its Source to the Blandin Dam in Grand Rapids Including Lakes Andrusia, Bemidji, Cass, Itasca, Pokegama, and Winnibigoshish; and the Little Minnesota River and Big Stone Lake, and Albert Lea Lake	02-04-71	

Water Regulation	Title	Date Filed With Sec. of State	Date Amended
WPC 29	Effluent Standards for Disposal Systems Discharging to that Portion of the Mississippi River from the Blandin Dam in the City of Grand Rapids to the Mouth of the Rum River and from the Mouth of the Chippewa River to the Iowa Border, the Red Cedar River from Austin to the Minnesota-Iowa Border, the Minnesota River from the Mouth of the Pomme De Terre River and Including Marsh Lake to Mankato, and the Blue Earth River from the Mouth of Elm Creek to the Junction with the Minnesota River in Mankato	02-04-71	
WPC 30	Effluent Standards for Disposal Systems Discharging to the St. Croix River from the Wisconsin Border Crossing to Taylors Falls	02-04-71	
WPC 31	Effluent Standards for Disposal Systems Discharging to the Roseau River from its Source to the Canadian Border, the North Fork of the Yellow Medicine River, the West Fork of the Lac Qui Parle River, the Blue Earth River from the Iowa Border to the Mouth of Elm Creek, the Little Rock River, the West Fork of the Little Sioux River, the Rock River, the West Fork of the Des Moines River from its Source to the Minnesota-Iowa Border, the Red Cedar River from its Source to Austin, Bear Creek, the Upper Iowa River, Pine Creek, and the Root River	02-04-71	

Water Regulation	Title	Date Filed With Sec. of State	Date Amended
WPC 32	Effluent Standards for Disposal Systems Discharging to Crooked Creek from its Source to its Mouth	02-04-71	
WPC 33	Reserve for Future Use		
WPC 34	Rules for Administration of Municipal Facilities Assistance Program and Minnesota State Water Pollution Control Fund	04-25-72 04-18-73 11-13-73	 04-18-73 11-13-73
WPC 35	Reserve for Future Use		
WPC 36	Regulation for Administration of the National Pollutant Discharge Elimination System (NPDES) and State Disposal System Permit Programs	04-10-74	
WPC 37	Standards for the Limitation of the Amount of Phosphorus in Various Cleaning Agents and Chemical Water Conditioners		
WPC 38	Reserved for Future Use		
WPC 39	Reserved for Future Use		
WPC 40	Regulation for Individual Sewage Treatment Systems		

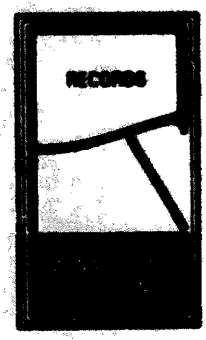
Water Regulation	Title	Date Filed With Sec. of State	Date Amended
WPC 41	Effluent Standards for Disposal Systems Discharging to the Vermillion River in Twp. 113, 114 and 115N, Range 15, 16, 17, 18, 19, 20 and 21W, Goodhue, Dakota and Scott Counties		
WPC 42	Effluent Standards for Disposal Systems Discharging to the lower Reach of the Chippewa River		

Air Regulation	Title	Date Filed With Sec. of State	Date Amendment Filed
APC 1	Ambient Air Quality Standards	07-07-69	06-03-70 02-18-71 04-13-72
APC 2	Definitions	07-07-69	06-05-70
APC 3	Permits	07-07-69	04-28-74
APC 4	Indirect Heating	07-07-69	04-13-72
APC 5	Particulate Emissions	07-07-69	
APC 6	Fugitive Dust	07-07-69	
APC 7	Incinerators	07-07-69	12-02-75
APC 8	Open Burning	07-07-69	06-05-70 09-14-71 12-23-75
APC 9	Odors	07-07-69	09-14-71
APC 10	Odors in Processing Animals	07-07-69	
APC 11	Visible Emissions	07-07-69	09-14-71 04-13-72
APC 12	Vehicles	07-07-69	9-14-71
APC 13	Gasoline Storage	07-07-69	12-02-75
APC 14	Acid & Alkaline Fallout	07-07-69	

Air Regulation	Title	Date Filed With Sec. of State	Date Amendment Filed
APC 15	Sulfuric Acid Plant	07-07-69	04-13-72 11-04-75
APC 16	Nitric Acid Plant	04-13-72	11-04-75
APC 17	Asbestos	07-06-73	
APC 18	Inorganic Fibers	03-18-74	
APC 19	Indirect Sources	02-18-75	
APC 20	Coke Plants	Proposed	
APC 21	Monitoring, Performance Tests	Proposed	
APC 22	Portland Cement Plants	12-02-75	
APC 23	Asphalt Concrete Plants	12-02-75	
APC 24	Petroleum Refineries	Proposed	
APC 25	Secondary Lead Smelters	Proposed	
APC 26	Secondary Brass-Bronze Ingot	Proposed	
APC 27	Iron & Steel Plants	Proposed	
APC 28	Sewage Sludge Incinerators	12-02-75	
APC 29	Grain Handling	12-23-75	
APC 30	Beryllium	11-04-75	

Air Regulation	Title	Date Filed With Sec. of State	Date Amendment Filed
APC 31	Mercury	11-04-75	
APC 32	Direct Heating	Proposed	
NPC 1	Definitions	11-27-74	
NPC 2	Noise Standards	11-27-74	
NPC 4	Vehicle Noise Emission Standards	8-25-75	

Solid Waste Regulation	Title	Date Filed With Sec. of State	Date Amendment Filed
SW 1 - 12	Solid Waste Disposal Regulations	01-12-70	09-26-73
SW 51 - 55	Regulations for the Control of Wastes from Livestock Feedlots, Poultry Lots and Other Animal Lots	03-08-71	
SW 56 - 61	Regulations for the Processing of Feedlot Permits by the Counties and the MPCA	01-12-74	
SW 75 - 79	Regulations for the Disposal and Reuse of Abandoned Motor Vehicles and Other Scrap Metal	03-03-72	
SW 80 - 83	Regulations for the Administration of Grants-Aid for Resource Recovery Programs Projects	02-12-74	
SR 1 - 6	Source Reduction (New Packaging)	12-31-74	



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RM-00062-01