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Protecting Innesota's Vaters

AN AGENDA FOR ACTION IN THE 1987-1989 BIENNIUM

TD 224 .M6 P77 1987/89





FOREWORD

We are making choices now that will determine the condition of Minnesota's water resources in the year 2000. While Minnesota is rich in water resources and has noteworthy protection programs, we may share in the much talked about "national water crisis" without new steps to wisely manage our water.

In order to help the state anticipate its water needs, the Environmental Quality Board created a Water Resources Committee and directed it to prepare a state strategy for water management. The twelve-point program summarized in this brochure is a first step in development of this strategy.

In preparing this program, the Water Resources Committee has recognized that we have much to learn about the distribution and quality of our water resources, the inter-relationships between land, air, and water, and the characteristics that govern the response of water to environmental perturbations. We also need to learn how to make water information more readily available to those making decisions about land, air, and water resource matters.

We consider the **1987-1989 Water Resources Priority Recommendations** to be an ambitious, but necessary, beginning. In the years to come, the Environmental Quality Board and Water Resources Committee intend to carry on the process of identifying and evaluating pressing state water resources issues, and seeking executive and legislative action to address these issues.

We believe this action will help to ensure that the state does its part in safeguarding the health and preserving the quality of life for all Minnesotans. With the support of its public and private citizens, we have no doubt that the state can chart a course leading to a safe, beautiful environment in the year 2000.

John C. Ditmon

John C. Ditmore, chair Environmental Quality Board

Marthe C. Brand

Martha C. Brand, chair EQB Water Resources Committee

PROTECTING MINNESOTA'S WATERS

AN AGENDA FOR ACTION IN THE 1987 – 1989 BIENNIUM

Choices are being made now that will determine the condition of Minnesota's water resources in the year 2000. In the past, people and government did not understand the consequences of many actions, and occasionally chose a course of action not realizing the harmful effects on our water.

Today, Minnesotans better understand that actions affecting land and air also affect water. We also understand that we must look at water quality and quantity, and surface and ground waters, as inter-related systems.

Understanding of the consequences of our actions and inactions is still incomplete. We have much to learn about the distribution and quality of our water resources, the inter-relationships between land, air, and water, and the characteristics that govern the response of water to environmental perturbations. We also have to learn how to make water information available to those making decisions about related land, air, and water resource matters.

Could water become minnesota's crisis of The 1990's?

Clean, clear water is a precious thing to Minnesotans. Minnesota's high quality of life is dependent on both a clean, diverse environment and a thriving economy. Both goals depend upon the wise use and



management of our water resources. Without new steps to wisely and efficiently manage this resource, these goals could be jeopardized and could become the basis of a Minnesota water crisis in the 1990's.

MAKING THE CURRENT SYSTEM WORK AT ITS BEST

Minnesota has long recognized the importance of water resources, and has built into its laws and programs the elements of a comprehensive effort to meet our water resources goals. To confront potential water problems of the 1990's, Minnesotans need not abandon the current system. The need, instead, is to build on the elements that are already in place and to make the current system work at its best. Dramatic changes are not required so much as the commitment to help state and local government do the job.

The headwaters state

Minnesota is at the headwaters of three major North American watersheds: the Great Lakes basin to the east, the Souris-Red-Rainy Rivers basin to the north, and the Mississippi River basin to the south. Minnesotans often characterize their state as water rich. In fact, Minnesota does not have the access that many states do to great amounts of water originating from outside of the state's boundaries.

In a very real sense, the state's location at the headwaters of the major basins carries with it a special responsibility to protect the quality and quantity of water leaving the state.





LIEMENTS OF THE EQB WRC'S ASSESSMENT OF WATER NEEDS

• An exhaustive assessment of the status of recommendations made by the Minnesota Water Planning Board from 1979 to 1983.

• Review of recent studies conducted by public interest groups, such as the Center for New Democratic Processes, the League of Women Voters, and the Citizens League.

• Assessments of issues judged important by members of the Committee and its inter-agency staff, the Inter-Agency Issue Team on Water Resources. THE WATER RESOURCES PRIORITY RECOMMENDATIONS

The **1987-1989 Water Resources Priority Recommendations** report of

the Environmental Quality Board is summarized in this brochure. Those recommendations with possible legislative implications are emphasized. They address the issues considered most pressing for action in the next biennium. And, they identify the responsibilities state and local governments must assume to help resolve our challenging water problems in a sound and sensible way.

The priority recommendations fall within twelve issues. Presented by the primary goal to which they respond, these are:

GOAL: SAFEGUARDING PUBLIC HEALTH

- Ground Water Protection and Management
- Toxic Substances/Health Risk Assessment

GOAL: ENHANCING ENVIRONMENTAL QUALITY

- Nonpoint Source Pollution
- Drainage
- Comprehensive Lake Management

GOAL: FOSTERING WISE ECONOMIC DEVELOPMENT

- Flood Damage Reduction
- Water Quantity Management

GOAL: IMPROVING GOVERNMENT SUPPORT

- Water Resources Communication and Coordination
- Implementation of Local Water Planning and Management
- Water Board Reorganization
- Water Information System Development and Integration
- Financing

SAFEGUARDING THE PUBLIC HEALTH

Safeguarding public health is the foremost goal of government involvement in the management of water resources. In a world where synthetic chemicals have skyrocketed in use over the last three decades, and cancer has become a widespread experience, Minnesotans must ask themselves if they are doing all that is possible to keep disease derived from water sources to the absolute minimum.

GROUND WATER PROTECTION AND MANAGEMENT

Minnesota must do a better job of protecting ground water to ensure that citizens have access to high quality drinking water supplies.

Ground water is a basic public health necessity and a key economic resource. Over 90 percent of Minnesota's public water supply systems and 75 percent of all Minnesotans get their domestic supplies from ground water. In addition, about 90 percent of the water appropriated for agricultural irrigation comes from ground water. The livelihood of many businesses and industries depends on a reliable, high quality supply of ground water.

Recent studies supported by the Legislative Commission on Minnesota Resources have found pesticides in Minnesota's ground water. Results of these studies, which have focused on areas thought to be susceptible to contamination, indicate that nearly 40 percent of the wells tested were contaminated by pesticides. At the present time, concentrations are well below recommended health levels. However, the trend has been toward a lowering of these levels as health effects become better understood. In addition, because we have done so little monitoring, we are not able to say whether or not contaminant levels are rising.

Ground water is threatened by many sources of contamination, including:

- Solid waste landfills
- Spills
- Improperly functioning on-site waste disposal systems
- Improperly constructed and abandoned wells
- Fertilizers and pesticides used on the farm and in cities
- Leaking underground storage tanks.

Recommended actions

• Enact a well abandonment program to be administered by the Minnesota Department of Health featuring:

a. Disclosure of the existence of wells on property deeds; and,

b. Incentives for proper abandonment.
Finance the preparation of county hydrogeologic atlases by the Minnesota and U.S. Geological Surveys.

• Support efforts to:

a. Maintain and improve existing monitoring systems, mapping efforts, and _____ clean-up activities;

b. Provide for increased investigation of the water quantity and quality of deep ground water systems;

c. Provide the additional ground water information needed in local water planning; and,

d. Delineate aquifers, contaminant spread, and other underground features as ongoing efforts.

TOXIC SUBSTANCES/HEALTH RISK ASSESSMENT

Minnesotans must understand the effects and assess the risks posed by the widespread use of toxic substances.

Toxics problems arise from solid and liquid



waste disposal practices, leaking storage tanks, spills, and pesticide use.

Approximately 125,000 tons of hazardous wastes are produced each year in Minnesota. Over 130 hazardous waste disposal sites have been identified in the state for priority clean-up activity due to past improper waste disposal practices. In addition, there are 60,000 underground storage tanks in the state, approximately 10 percent of which leak.

Improper waste disposal and leaking underground storage tanks can result in the contamination of ground water with synthetic volatile organic chemicals. In a recent survey of Minnesota community public water supply wells, these chemicals were found in 8 percent of the systems surveyed, with levels in 1.7 percent exceeding acceptable drinking water guidelines. Surveys have also revealed pesticide and nitrate ground water contamination attributed to agricultural practices.

In addition to budget constraints, state

WATER WELL CONSTRUCTION: AN INDICATOR OF GROUND WA-TER USE

Approximately 400 water well contractors construct between 7,000 and 12,000 wells each year. GROUND WATER RESEARCH NEEDS

• Evaluation of ground water and surface water quantity/quality relationships.

• Development and evaluation of in-place and point-of-use treatment methods for contaminated ground water.

• Development of new techniques for detecting ground water contamination, including identification of surrogate indicators.

• Evaluation of the integrity of engineering structures such as underground storage tanks.

Toxic substance research needs

• Determination of mechanisms for transport and fate of toxins to and through the state's ground water.

• Development of methods to address dioxin problems.

• Characterization of the source and magnitude of the mercury problem in northern Minnesota lakes.

• Determination of methods to achieve waste reduction and immobilization of toxic materials.



efforts to manage toxic substances are hampered by at least two major problems: 1) legal standards exist for only a relatively small number of toxic compounds, and, 2) current state laboratory capabilities are not sufficient for the analysis of the broad spectrum of toxic chemicals.

The Environmental Quality Board intends to serve as a forum for further discussion of toxic substance issues and needed state responses.

RECOMMENDED ACTIONS

• Amend the Minnesota Pesticide Control Law to strengthen enforcement and penalties, and improve record keeping,
certification and licensing requirements.
Support:

a. The Minnesota Department of Health in establishing disease registries to monitor diseases that may be attributable to hazardous substance exposure.

b. Increased state agency efforts in toxics regulation, accelerated toxics monitoring, development of laboratory facilities and methods, and assessment of health risks.

c. Research by the Minnesota Department of Agriculture, and other appropriate agencies, on pesticide use practices and their consequences; and public education about safer methods of pesticide use.

ENHANCING ENVIRONMENTAL QUALITY

Environmental quality is a key factor influencing quality of life in Minnesota. Action must be taken to ensure that the quality of our environment tomorrow will be as good as it is today.

NONPOINT SOURCE POLLUTION

Nonpoint sources of pollution must be controlled to protect Minnesota's lakes, streams, and ground waters.

Nonpoint sources of pollution are the polluted storm waters that run off the land to surface waters, or infiltrate into ground waters, transporting contaminants generated by land use activities. As water quality problems from well-defined sources have been corrected, uncontrolled nonpoint sources have assumed increasing importance in the struggle for clean water.

The Pollution Control Agency considers these diffuse sources of pollution responsible for degrading up to 90 percent of Minnesota's lakes.

Nonpoint pollution is considered the reason 51 percent of the polluted river segments (totalling 313 miles) do not fully support fishing in Minnesota.

The influence of nonpoint pollution on



Key elements of a nonpoint pollution program

• Understanding of the existence, and economic impact of water quality problems resulting from nonpoint source pollution.

• Individual land manager knowledge of the best management practices available to protect water quality.

• Adequate public and private funding to implement best management practices.

• A comprehensive approach, implemented through a coordinated federal, state, and local partnership.

• Reliance on existing programs to the fullest extent, with refocusing of programs to better address nonpoint problems where needed.

WETLANDS ISSUES

Wetland modification by agricultural drainage and urban development is one of the most emotional issues in the management of Minnesota's water. Wetland management issues are extremely complex, straddling the bounds between land and water. public and private interests, conservation and development, and tangible and intangible benefits.

A recent study by the U.S. Army Corps of Engineers determined wetland loss rates for the period from 1975 to 1980 in ten townships in southwestern Minnesota. Shallow fresh marshes experienced the greatest losses at rates of 2.8 percent by area and 4.6 percent by number annually. Deep fresh marshes also experienced significant losses at rates of about twothirds of a percent by area and nearly two percent by number annually.

ground water can be seen in the high nitrate concentrations found in southwestern, southeastern, and occasionally, central Minnesota. It is also evidenced by studies detecting pesticides in ground water supplies.

RECOMMENDED ACTIONS

• Establish a clean water partnership program to provide state financial and technical assistance to local units of government for the prevention and correction of nonpoint source pollution problems. State aid should be explicitly linked to comprehensive local water planning. The program should include:

a. Assistance for local project diagnostic studies and implementation plans.

b. Assistance for the implementation of projects.

c. Establishment of a state level priority system for awarding assistance.



Minnesota needs to reform current drainage law and improve the information used in drainage decisions.

Recent recodification has made the



Drainage Code easier to understand. However, the changes did not address:

• Equitable assessments and representation at proceedings;

• Determination of damages and benefits;

• Environmental concerns like those of flooding, water quality, erosion, sedimentation, land conversion, wetland preservation, and ground water recharge; or,

• Accountability for overseeing system facilities and performance of annual inspections.

Administrative actions are also needed to improve decisions relating to drainage. Public drainage system record keeping is incomplete, inaccurate and, in some cases, nonexistent. The exact location, specifications, construction, and maintenance history of all public drainage systems should be inventoried and accurately documented.

Management of wetlands by state and federal agencies also needs to be improved. While wetlands have long been recognized for their wildlife values, attention has only recently been given to other benefits, such as flood attenuation and water quality protection. In part, this may be explained by the absence of standard tools for assessing wetland functions. State and federal agencies should adopt the standard wetland evaluation methodology under development by a committee of the EQB for use in wetlands-related decision making.



 Amend the Drainage Code (Minnesota Statutes, Chapter 106A) to provide:

 a. Equity in assessments, procedures for establishment of and withdrawal from



petitions that better protect the rights of individual property owners, and determinations of damages and benefits by qualified, trained individuals; and,

b. Specific requirements relating to state environmental laws and policies including flood management, water conservation, wetland protection, water quality protection, erosion and sedimentation, ground water protection, comprehensive local water management, and land conversion.

• Direct the Department of Natural Resources and the Soil and Water Conservation Board to jointly conduct a comprehensive inventory of public drainage ditches in Minnesota.

COMPREHENSIVE LAKE MANAGEMENT

Minnesota needs a comprehensive approach to managing its lakes. A first step is to determine ordinary high water levels of landlocked lakes.

The EQB intends to establish an

inter-agency task force to formulate a comprehensive state policy for the use, protection and enhancement of Minnesota's lake and associated watershed resources. Recommendations for needed legislation will be submitted to the Governor and Legislature in September 1987.

RECOMMENDED ACTIONS

• Increase support of state efforts to determine ordinary high water levels for landlocked lakes with rising water levels.

LAKE PROBLEMS

Polluted runoff and infiltration. Shore erosion. Excessive aquatic plant growth. Algal blooms. Fish kills. Unwise shoreland development. Sedimentation. Deteriorating game fish/ expanding rough fish populations. Leaking sewage systems. Limited public access. **Recreational conflicts on** lake surfaces.





FLOODING FACTS

Approximately 17,000 residences and businesses and 4,000,000 acres of farm land are subject to flooding. Average annual damages exceed \$60 million.

FOSTERING WISE ECONOMIC

Wise economic development is another factor important to the quality of life in Minnesota. The steps Minnesota takes to encourage wise economic development will also aid in the protection of its environment and public health.

FLOOD DAMAGE REDUCTION

Greater state involvement is needed to resolve Minnesota's flooding problems.

Minnesota suffers significant economic,

social and environmental losses from recurrent river and lake flooding. Federal policy now dictates increased state and local shares of flood damage reduction and disaster assistance costs. Although local governments have begun to accept this challenge, they cannot be expected to bear the entire burden. Local initiatives must be supplemented by increased state financial aid.

The current emphasis on floodplain and shoreland zoning will minimize the flood risk of new structures, but the susceptibility of existing structures and facilities to flood damages must be reduced. The hydrology of extreme flood events also needs to be better understood if we are to make the wisest choices in managing floods.

RECOMMENDED ACTIONS

• Enact an expanded flood damage reduction program. State financial and technical assistance should be explicitly linked to comprehensive local water planning. Key components of the program should include cost-share grants for flood damage reduction studies and flood damage reduction measures, and an inventory of lands and facilities subject to recurrent flooding.





WATER OUANTITY MANAGEMENT

Minnesota needs a sound water quantity management program to serve as the basis for wise use, development, and protection decisions.

Several components of the state's water quantity management program are not well developed, including water conservation and drought contingency planning, ground water monitoring and investigation, instream flow protection, and state diversion policy.

Recommended Actions

 Amend Minnesota water diversion law to address inter-basin diversions and to establish consultation procedures with Great Lakes states and Canadian provinces for proposed diversions relating to the Great Lakes basin.

 Direct the Department of Natural **Resources to apply instream flow needs** methodologies for the establishment of flow protection limits for streams.

• Support water conservation, drought, and water shortage contingency planning by increasing state capacity to provide information and technical assistance to local water supply managers.

MPROVING GOVERNMENT SUPPORT

The way government supports, organizes, and manages its water-related research and management programs is a key factor in their success.

WATER RESOURCES COMMUNICATION AND COORDINATION

Minnesota needs improved coordination of state agencies and better communication with the public in protecting and managing its water resources.

EQB WATER COORDINATION RESPONSIBILITIES

• Develop and refine the state comprehensive water strategy and biennial priority recommendations.

 Evaluate agency waterrelated budget requests and legislative initiatives for consistency with the state water strategy.

 Coordinate and guide state water management activities to ensure consistency with the state strategy.

• Tap the resources of the University community to meet state water management needs.

• Develop and help carry out a water resources communications strategy.





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State drifts closer to water-short future Last of a week-long series By JANE SIMS PODESTA

land of lakes really water rich?,

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Why local involvement is important

• Land use controls, the primary responsibility of local general purpose government, are a major tool for protection and management of water resources.

• Local government is often in the best position to understand a problem and its possible solution.

• Local water planning is a good way to assure that local interests understand water-related opportunities and initiatives.

• Local water planning provides the means of setting local priorities for addressing water-related problems and opportunities. It is human nature to reduce a complex problem to series of simple choices. Minnesota's approach to managing the complex, inter-connected elements of surface and ground waters, quality and quantity concerns, and often times competing health, environmental, and economic development goals, demonstrates this.

The state's responses to these issues tend to be splintered and compartmentalized. In a field as complex as water, perhaps this is necessary to focus on such key functions as health protection and pollution control. Even so, integration of the parts into the whole is equally vital. This is the water resources coordination function. Passing the need and results on to the public is the water communication function.

Recommended actions

• Mandate improvements in state coordination instead of major reorganization of agencies.

• Require that EQB review and make recommendations to the Governor concerning agency water-related budgets and legislative initiatives.

• Assign EQB responsibility for a biennial evaluation and update of the state

comprehensive water resources strategy.

• Initiate development of a water resources communications strategy through the EQB.

LOCAL WATER PLANNING AND MANAGEMENT

Minnesota needs to build a water planning partnership between local and state governments.

Minnesota is at a cross-roads in thinking about the roles of state and local government in water management. There is a realization that state government, alone, is not the complete solution to Minnesota's water problems. Local government has a profound responsibility to participate in the protection and management of water. The state has a responsibility to facilitate and accept this local role.

The Comprehensive Local Water Management Act of 1985 (Minnesota Statutes, Chapter 110B) sets forth the framework for this increased participation by local government. But, concrete steps must be taken at both state and local levels of government to assure that this law is fully and responsibly implemented.

Recommended actions

• Enact a state financial aid program to help local units pay for comprehensive water planning, including a combination of grants for up to 50 percent of plan development and implementation costs, and low interest loans for implementation.

• Require the explicit linkage of local water-related state programs to comprehensive local water plans. By July 1991, such state assistance should be directed exclusively to those local government initiatives that are responsive to comprehensive water plans prepared under Minnesota Statutes, Chapters 110B, 112, and 473. • Amend the Metropolitan Surface Water Management Act to require preparation of county ground water plans and to include ground water as an important element of local water management plans.

• Increase state capability to provide coordinated technical assistance to local units interested in comprehensive water planning.

WATER BOARD REORGANIZATION

Minnesota needs an integrated state approach to local government and a strong voice for local water-related interests at the state level.

The state currently delivers water-related services to local government in a fragmented manner through three boards: the State Soil and Water Conservation Board, the Southern Minnesota Rivers Basin Council, and the Water Resources Board.

Fragmentation undermines the strength and authority of these boards by keeping their missions too narrowly focused and by dividing staff resources. This perpetuates a fragmented approach to the water management activities of counties, soil and water conservation districts, and watershed districts. Fragmentation also reduces opportunities for meaningful participation of local government in state decisions.



RECOMMENDED ACTIONS

• Merge the functions of the Soil and Water Conservation Board, Southern Minnesota Rivers Basin Council, and Water Resources Board into a single, independent state board.

• Designate the new board's chair as a member of the Environmental Quality Board.

WATER INFORMATION SYSTEM DEVELOPMENT

Minnesota needs better information about its water resources and better access to this information.

The quality of decisions that affect water resources is a function of the quality of information used. Over the past decade, great strides have been made in collecting and automating water data. Also, the ease of use, and usefulness, of water data has been improved by linking together data collected by various state agencies.



What a new board would accomplish

• Unify a fragmented state approach to local government.

• Provide for county and watershed district participation on the state board that addresses local water-related issues.

• Facilitate closer working relationships among counties, soil and water conservation districts, and watershed districts.

• Facilitate comprehensive approaches to water and soil resources management.

Data needs for sound decision making

• Routine and consistent collection allowing trends to be observed.

• Availability and accessibility for all users through routine automation.

• Integration with data from other sources so that people can explore the connections between land and water use or quality.

• Consistency of quality.

QUESTIONS FOR MINNESOTA. . . Year 2000

We need to ensure that water-related choices are made today with a view to protecting public health and quality of life in the future. These choices will determine the answers to questions for the year 2000 like the following:

• Will we have written off use of our shallow ground water aquifers for drinking water?

• Will water-related exposure to pesticides and hazardous wastes become recognized as a major health threat in Minnesota?

• Will Minnesotans still suffer preventable loss of life and property from floods?

• Will we have preserved available supplies for all needed uses within the state? However, cutbacks in support of long-term water monitoring activities, suffered during the budget crisis of the early 1980s, have hampered state water data systems. These cuts need to be restored if Minnesotans are to ever understand such basic elements of their water resources as where the ground water is, how much can safely be tapped for use, what its quality is, and how its quality is changing in response to land uses and other factors.

Further, if Minnesota does not do a better job of computerizing water data and tying related data together through information systems, those who need to use it, whether at state or local levels of government, or at colleges and universities, will not have real access to it.

Recommended actions

• Enact minimum compatibility standards for data collection and automation and designate EQB as the administering agency.

• Direct the Minnesota Department of Health and the Pollution Control Agency to study the feasibility and desirability of a state certification program for private laboratories.



• Support accelerated efforts in ground and surface water data collection, data automation, data integration, and delivery to users.

FINANCING

Stable funding is essential for sound management of water resources. Without it, Minnesota's attempts to protect public health and enhance environmental quality will surely fail.

State budgetary problems and the declining federal commitment to water resources are seriously testing Minnesota's ability to meet water resources needs. Combined federal spending for water resources declined by 44 percent from 1980 to 1985, while aggregate state and local spending increased by 17 percent.

Traditionally, state funding of water resources efforts has accounted for a small percentage of overall state expenditures. In F.Y. 1987, this share was less than 0.5 percent. While expenditures in such areas as solid and hazardous waste have increased, those in other important areas, such as data collection and analysis, have been on the decline, despite increasing need.

The EQB intends to examine funding alternatives to provide the stable funding base needed for sound water management. A coordinated package of recommendations for a wide range of fees and other funding approaches will be developed for legislative consideration in 1988.

RECOMMENDED ACTIONS

• Support funding for the **1987-1989** Water Resources Priority Recommendations.

• Secure permanent funding for Reinvest in Minnesota and alternative funding to make up the shortfalls in the State Wastewater Construction Grants Program. In the years to come, the Environmental Quality Board and State Planning Agency intend to carry on the process of identifying and evaluating the pressing state water resources issues, and seeking executive and legislative action to address these issues. We believe this will ensure that the state does its part in safeguarding the health and preserving the quality of life for all Minnesotans.

For more information about the issues and recommendations described in this report, or about the Environmental Quality Board and its Water Resources Committee, call (612) 296-1424, or write to:

Minnesota State Planning Agency 100 Capitol Square Building 550 Cedar Street Saint Paul, Minnesota 55101 Attention: EQB Water Resources Committee

THE EQB WATER RESOURCES COMMITTEE

The Environmental Quality Board created the Water Resources Committee (WRC) to help the state prepare for the water issues of the future. The committee is chaired by an EQB citizen member and is staffed by the State Planning Agency. Its membership includes:

- Commissioner of Agriculture
- Commissioner of Health
- Commissioner of Natural Resources
- Director, Pollution Control Agency
- Representative of the University of Minnesota
- EQB Citizen Members (2)
- Chair, Water Resources Board
- Chair, Soil and Water Conservation Board
- Chair, Southern Minnesota Rivers Basin Council

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Prepared by the Minnesota State Planning Agency, February 1987

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