WATER QUALITY PROGRAM EVALUATION SURVEY

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ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Ground Water Standards and Rule Development

Program Contact Bruce Braaten, (612)297-2810
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A. Program description.

As initially written, Minnesota Statute Chapter 7060, the Minnesota Pollution Control Agency's (MPCA) ground water protection rule, is a mixture of policy statements and technical requirements, emphasizing pollution prevention. Rule 7060, originally WPC 22, was promulgated in 1973. Portions of the rule have been effectively replaced by subsequent rulemaking in some specific areas, such as septic tanks. Similarly, many of the major environmental statutes enacted in the 1980s have contributed to the further development of ground water cleanup, management, and protection approaches. In short, portions of the rule are somewhat outdated and should be revised to reflect the current regulatory setting.

The statutory authority is: Minnesota Statute 115.03(e) (1990).

B. Description of recent efforts.

Rule changes. The Minnesota Pollution Control Agency (MPCA) is revising Minnesota Rules Chapter 7060, the MPCA's ground water protection rule. The anticipated revisions will address ground water pollution prevention and cleanup requirements for activities and facilities regulated by the MPCA.

The revised rule is expected to specifically address performance standards in permits in order to prevent ground water degradation, establish a framework for establishing cleanup goals for contaminated ground water, address sensitive areas and wellhead protection areas, and consider allowing injection related to remediation. The rule may establish a framework for applying the degradation prevention goal of the 1989 Ground Water Protection Act, the Health Risk Limits under development by the Minnesota Department of Health, and other appropriate guidelines for protection of ground water quality. The rule will not apply to areas of regulation of pesticides and fertilizers which are under the authorities of the Minnesota Department of Agriculture. The overall goal is to achieve a more comprehensive and uniform approach for protecting ground water quality in the various MPCA programs.

Other steps taken. In December 1990, an ad hoc Advisory Committee was formed to serve as a forum for discussing the issues involved with the 7060 rule revisions. The committee membership includes representatives from academia, business, environmental groups, local units of government, professional associations, utilities, and other state agencies. The Advisory Committee has completed one-half of its proposed meetings.

The rule revisions also include outreach efforts intended to inform potentially affected parties of the rule revisions and to solicit their comments early in the rule revision process. Meetings have been held with a wide variety of interested parties and articles have been published in newsletters of the MPCA, professional associations and other interest groups.

Results. It is too early in the process to report any results.

C. **Opportunities and impediments.**

Information collection. Information has been collected primarily through three mechanisms: through input from Advisory Committee members; through contacts with other states; and, through contacts to other Minnesota agencies. There is considerable information available from other states. Further discussion with the other states to determine what portions of their programs have been successful and reasons for the success would have been extremely helpful, allowing MPCA to benefit from the experiences of others.

Program integration. The rules revision is intended to achieve a comprehensive approach by which MPCA can protect the state's ground waters. In order to provide a comprehensive approach, Rule 7060 must to refer to several other state programs, such as sensitive areas, health risk limits, and wellhead protection. These programs are currently in rule development, therefore, Rule 7060 may need to be revised in the future to reflect the implementation these programs' rules.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Individual Sewage Treatment System Program

Program Contact Dave Nelson, (612)296-9274

A. Program description.

The Minnesota Pollution Control Agency (PCA) has rule 7080 that sets technical standards for construction and maintenance of individual sewage treatment systems. The PCA and the University of Minnesota conduct more than 12 three-day and eight one-day workshops at various locations around the state each year. A voluntary certification program provides a way for individuals to demonstrate knowledge and experience in the field. Over 2,000 individuals have been certified.

PCA encourages counties to adopt 7080 county-wide and also to require certified people to design, install, inspect and maintain the systems. The program has two PCA staff in St. Paul and one at the University of Minnesota.

B. Description of recent efforts.

Rule changes. Minnesota rule 7080 was revised in 1989 to update technical standards for individual sewage treatment systems.

Other steps taken. Counties are encouraged to adopt 7080 as a local standard and to require certification of people installing systems.

Results. More counties are getting involved in issue. Workshops are increasing.

C. Opportunities and impediments.

Information collection. PCA is surveying counties to further evaluate where to target resources.

Surveys of counties involvement are being compiled for further evaluate where to target resources.

D. Other comments.

This program should be mandatory; counties should be required to adopt 7080. Certification of people who design, build, inspect and maintain systems also should be mandatory. Presently if certification is not required, installation of cheaper but inadequate systems by unqualified contractors often occurs.

DNR shoreland rules increased regulations around shoreland, but not county-wide.

The program lost an engineering position. The loss of one staff position and the remaining very small staff makes implementing a statewide program difficult.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Feedlot Program

Program Contact Dave Nelson, (612)296-9474

A. Program description.

Minnesota rules 7020 authorizes PCA to require permit applications for any livestock or poultry facility that is new, the operation is changed, the ownership is changed, or an NPDES permit is required. PCA also requires a permit application if after a complaint, it determines that the feedlot is a potential pollution hazard. The permit program is a regulatory tool to require construction of pollution control structures, and use of best management practices.

Presently 16,000 of the estimated 70,000 feedlots are permitted (23%). About 400 permit applications are processed each year. Permits for facilities with less than 1,000 animal units can be delegated to counties. Twenty-two counties are now participating. PCA is hoping that more counties adopt this program. PCA has four staff in St. Paul and one in Marshall (with federal funds).

Animal waste control facilities within state shoreland areas are considered to be a potential water pollution hazard by PCA and are high priorities for receiving (USDA) Agricultural Conservation Program (ACP) cost share assistance. The BWSR also has a cost-share program available for use.

B. Description of recent efforts.

Changes in operations. PCA computerized permit writing so it can respond faster.

Other steps taken. A federally funded BWSR staff position was added in Marshall to assist in the design of pollution control facilities. Standards for manure containment structures are being tightened. A memorandum of Agreement (MOA) between various federal and state agencies regarding feedlot pollution control efforts is being updated.

Results. One more county has recently adopted the program and other counties have expressed interest. There is increased interest in the construction of pollution control facilities. Five years ago there were two feedlot pollution control basins built in Stearns County. They will construct over thirty this year.

C. Opportunities and impediments.

Information collection. Surveys of counties involvement are being compiled. Many counties have expressed interest via local water plans in strengthening their role in animal waste management by strengthening their own controls or receiving delegation.

Program integration. The BWSR's new challenge grant program was used by one county to develop a feedlot ordinance. Other counties are interested in the outcome.

Program coordination. State and federal programs affect this program. SCS designs the animal waste systems. Coordination is a problem due to the many agencies involved. An MOA is being updated. SCS, U of M, MES, BWSR and MPCA are jointly producting updated waste management guidance.

Enforcement. Enforcement is a problem. There are too many violations to follow up each one. Also, if a farmer receives a Notice of Violation, he loses an opportunity for federal cost-share. Thus the PCA is reluctant to cite a farmer. An enforcement policy will be developed with input from producer groups as well as state and federal agencies.

Staffing. Staff is not sufficient to issue permits, inspect, and enforce the program uniformly.

D. Other comments.

PCA wants to regionalize the program. It is setting up a structure where regions work with central office in program administration.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
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Program Name Clean Water Partnership

Program Contact Gaylen Reetz, (612)296-8834

A. Program description.

The Clean Water Partnership (CWP) program provides local units of government with resources to protect and improve lakes, streams, and ground water degraded by nonpoint source pollution. Phase one funding is for diagnostic studies and implementation planning. Phase two funding is for implementation of best management practices.

CWP was started in 1987 with funding of about $1.3 million a biennium. It is funded at $2 million (including $700,000 from LCMR) for the 1992-93 biennium. It presently has a staff of four. However, program administration funds were cut.

The statutory authority is: Minnesota Statute 103F.701-761. Minnesota Rule Chapter 7076.

B. Description of recent efforts.

Funding levels. Additional funding resulted in more local projects.

Rule changes. A revised rule 7076 will be going to the PCA board in June. The rule change streamlined procedures and will make program administration easier for PCA and local project managers. A program evaluation determined the need for this rule change.

Results. There are 29 diagnostic study/implementation plan projects, and one implementation project underway. With nearly all the funding going to diagnostic studies, it is still early to see results. Results should be more clear as more implementation is conducted.

C. Opportunities and impediments.

Program coordination. The new rules weight the degree a project is mentioned as a priority in a comprehensive local water plan. Thus if a project is named directly as a high priority it is given full points for that category. This ensures a direct tie to priorities in local water plans.

Funding. State funding increased from 1.3 million a biennium to about 2 million for the 1992-93 biennium including $700,000 from the Trust Fund through LCMR. PCA anticipates that federal 319 funds will be available in the future for local implementation. PCA will change the funding cycle so that EPA can directly fund implementation. It is very interested in doing this. It would be done in a manner similar to clean lakes funding. PCA also anticipates continued state funding through trust fund.

Effectiveness monitoring. There is a problem identifying water quality improvements. Nonpoint problems are not quickly rectified. It takes longer to see results than with point source pollution, e.g. the Minnesota River cannot easily be cleaned up. Lifestyle changes may be needed to correct many problems.

Transferability. The information obtained from CWP projects should be transferable to other places so preventive efforts can take place. For example, monitoring drain tiles in the Minnesota River indicate they are high in nitrate-nitrogen and phosphorus. Education will be a key in resolving these nonpoint problems.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name 319 of the 1987 Amendments to the Clean Water Act

Program Contact Dorothy Stainbrook, (612)297-8218

A. Program description.

Under 319 of the 1987 Amendments to the Clean Water Act, the EPA provides funding to the states based on the submittal of the Nonpoint Assessment Report and Management Program. Using the Project Coordination Team, created for the Clean Water Partnership, Minnesota developed an assessment report and a management program that was submitted to EPA in November 1988. It was approved by EPA in 1989.

B. Description of recent efforts.

Rule changes. Revisions to the Nonpoint Assessment Report and Management Program are currently underway.

Results. There is movement toward nondegradation due to the funding available for new or strengthened efforts in dealing with nonpoint source pollution. Funds were distributed to about 10 agencies that deal with nonpoint source issues. Local, state, and federal agencies are all part of this program effort.

C. Opportunities and impediments.

Funding. Funding has increased. In 1990, EPA awarded Minnesota $1,277,139 for nonpoint source activities as well as a $250,000 bonus grant. In 1991, EPA award Minnesota $1,564,00 for nonpoint source pollution.

Program integration. All agencies need to work together to effectively manage nonpoint pollution. Local involvement is also very important. The local level can bring lots of volunteerism and enthusiasm to address these types of problems.

However, local government needs to have technical assistance available so they can deal effectively with the problem. In addition, there is a need for an overall watershed or aquifer approach in managing nonpoint.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Solid Waste Management

Program Contact Lanny Peissig, (612)297-1781
Art Dunn, (612)296-7340

A. Program description.

The Solid Waste Management program is responsible for enforcement and permitting of solid waste facilities and remedial actions to abate pollution at sanitary landfills.

The authority for this program is in the Waste Management amendments.

B. Description of recent efforts.

Rule changes. A solid waste rule was adopted in November 1988 specifying ground water standards for sanitary landfills and has been implemented by the program.

Other steps taken. The Solid Waste Management program gives top priority to waste recycling and reuse, followed by waste processing and finally landfilling. Remedial action at contaminated landfills is also an important aspect of the program.

Results. The amount of solid waste that is landfilled is being reduced and remedial actions are occurring at contaminated landfills.

C. Opportunities and impediments.

Information collection. Waste sampling at many landfills is now underway. A solid waste information computer system recently became operational.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
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Program Name Hazardous Waste Management (Resource Conservation and Recovery Act (RCRA) Hazardous Waste Program)

Program Contact Crague Biglow, (612)297-8377
Roger Bjork, (612)297-8512

A. Program description.

The RCRA Hazardous Waste Program regulates generation, transport, treatment, storage and disposal of hazardous waste. The program works with both hazardous waste generators, and facilities that have been permitted to treat, store, or dispose of hazardous waste.

Generators are regulated by the Hazardous Waste Enforcement Unit within the Regulatory Compliance section. Remediation of hazardous waste releases to soils and ground water from generator sites is controlled by use of enforcement documents. Cleanup targets for contaminated ground water are set at the Minnesota Department of Health's Recommended Allowable Limits (RALs), unless these levels cannot be practicably reached. If RALs cannot be reached, either Alternate Concentration Limits (ACLs) are established for the remediating the site, or a risk assessment is performed to determine what further actions are needed. Cleanup targets for contaminated soils are determined on an individual basis at these sites and are set to insure protection of human health and the environment, including underground waters.

Facilities are regulated primarily by the Hazardous Waste Permit and Review Unit. The remediation of hazardous waste releases to soil and ground water from permitted units is controlled by permit. Cleanup targets for contaminated ground water are set at the U.S. Environmental Protection Agency's Maximum Concentration Limits (MCLs), or at RALs if MCLs are unavailable. If the MCLs or the RALs cannot be practicably reached, either ACLs are established or a risk assessment is performed to determine what further actions are needed. Ground water at Hazardous Waste Disposal sites is monitored for at least 30 years after the facility has been closed. Soil contaminated by releases from regulated units is removed or decontaminated to background levels.

The statutory authority is: The Hazardous Waste Program was initiated in 1980 under Minnesota Statutes 115 and 116. The U.S. EPA has authorized the MPCA to operate the RCRA Subtitle C Hazardous Waste Program in Minnesota based upon an equivalence determination between Federal rules and Minnesota Hazardous Waste Rules Chapters 7001, 7045, and 7046.

B. Description of recent efforts.

Prior to 1989, the Minnesota Pollution Control Agency's (MPCA) Hazardous Waste Program was not authorized to oversee the cleanup of Solid Waste Management Units (SWMUs), waste management units at permitted facilities that received hazardous waste or solid waste before 1980. In 1989 in accordance with the Hazardous and Solid Waste Amendments to RCRA of 1984, U.S. Environmental Protection Agency authorized the MPCA's Hazardous Waste Program to require

Corrective Action of SWMUs at permitted facilities. SWMU Cleanup targets are similar to those used at generator sites.

Rule changes. Revisions to the hazardous waste ground water protection rules became effective on January 8, 1991. The new ground water protection rules are more stringent than the previous rules. They require more statistically significant data to be collected as part of the monitoring program and, as a result, monitoring is more effective at detecting hazardous waste disposal facility releases.

Other steps taken. In 1985 the Hazardous Waste Program had one staff hydrologist. The program now has five hydrologists to address increasing numbers of newly identified enforcement sites and remediation of SWMUs under the newly authorized corrective action program.

Results. Enforcement staff educate generators through workshops on the proper management of hazardous waste. Through inspections, staff identify sites where waste has not been properly managed and where releases have occurred.

C. **Opportunities and impediments.**

Information collection. The Hazardous Waste Program is compiling data on ground water quality, geology, and well construction from each of its sites. This information will be entered into integrated Ground Water Information System, the Agency's new data management system.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
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Program Name Solid and Hazardous Waste Management - MPCA Site Response Program

Program Contact Gary Eddy, (612)296-7758

A. Program description.

Implementation of the Minnesota Environmental Response and Liability Act to take emergency action in response to releases of hazardous waste and to investigate and clean up hazardous waste disposal sites and closed solid waste landfills through liable responsible parties or the expenditure of state and federal Superfund monies. The MPCA also regulates two aspects of solid waste incineration: air emissions and ash disposal. Ash, including solids from air pollution control equipment, will be disposed of primarily in specially designed landfills.

B. Description of recent efforts.

Rule changes. Minnesota Rules Chapter 7060 is being revised by the Program Development section of the Division of Ground Water and Solid Waste to make it more specific in the protection of ground water. Please see the MPCA program description "Ground Water Standards and Rule Development" for details.

In March 1988, the Division of Water Quality put into effect a new nondegradation provision applied to all waters in Minnesota with the revision of Minnesota Rules Chapter 7050. The rule applies to both point and nonpoint sources of pollution and can be applied to discharges to ground water as well as surface waters. The rule includes aquatic life standards for a number of chemicals for the protection of aquatic habitats. These standards will govern the need for ground water cleanup at hazardous waste sites.

The MPCA is currently nearing completion of incinerator ash disposal rules. One particularly important aspect is that both legislative requirements and the proposed rules will reflect the reducing of ash toxicity, thereby reducing the potential for ground water contamination. This reduction in ash toxicity will also reduce the amount of metals and contaminants in any resulting landfill leachate which will discharged after treatment by wastewater treatment facilities. Rules for air pollution equipment for incinerators are currently being developed by the MPCA.

Other steps taken. The Division of Ground Water and Solid Waste has developed an Approach of Superfund Program Ground Water Cleanup. The approach is based on a compilation of ground water rules and regulations and is used in selecting response actions (both remedial and removal) to address the quality of ground water affected by a release of hazardous waste. It selects remedies consistent with Minnesota Environmental Response and Liability Act (MERLA), Minnesota Applicable or Relevant and Appropriate Regulations, Rules and Standards identified for specific sites and the National Contingency Plan. It also establishes ground water cleanup and degradation goals contingent on a site specific evaluation of risks and other factors. Many of the concepts of this approach will be included in the revision of Minnesota Rules Chapter 7060.

The Site Response section has also developed the generic Request For Response Action (RFRA) document and Exhibits A and B. The Approach of Superfund Ground Water Cleanup is an attachment to Exhibit A. The generic RFRA document establishes site specific response action objectives and cleanup levels based on the selection of permanent remedy for the site. This will result in more ground water treatment versus containment remedies.

Results. Because all of these actions are recent, it is too soon to address what impact they are having on reducing or eliminating degradation of water. It is anticipated that they will have a major affect on achieving this goal in the Superfund program.

C. **Opportunities and impediments.**

Information collection. The Site Response section has hired a staff engineer to research and network treatment technology information. This will enhance our ability to require responsible parties and multi-site contractors to use permanent treatment remedies for cleanup of contaminated ground water.

Statutory authority/direction. More rule authority is needed in the setting and enforcement of ground water cleanup standards.

D. **Other comments.**

Cost effectiveness is a major impediment for the treatment of ground water. Cost analyses will be done to prove that source removal and treatment of ground water will be cheaper than containment for an indefinite period of time.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Tanks and Spills

Program Contact Stephen Thompson, (612)297-8603
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A. Program description.

The Tanks and Spills section employs 65 full-time employees in four programs: Underground Storage Tanks, Above Ground Storage Tanks, Spills, and Leaking Underground Storage Tanks. Each of these programs is related to the goal of "non-degradation of either surface or ground water."

The Underground Storage Tanks (UST) program directs its efforts toward preventative methods through regulations, training, and certification programs. The Above Ground Storage Tanks (AGT) program works on both regulatory controls and clean up of contaminated sites. Both the Spills and Leaking Underground Storage Tanks (LUST) programs direct cleanup operations.

The UST program has developed programs for the training and certification of UST installers, repairers, and removers of UST systems. They also regulate and administer the UST upgrading program. The goal of the program is to prevent releases by increasing UST owners' awareness of laws and rules governing USTs, and improving management of USTs. Tank workshops are provided for owners/operators of USTs, real estate agents, and local government officials.

The purpose of the AGT program is twofold. It regulates and administers the leak and spill prevention program for all types of AGTs. In addition, it directs cleanups of releases from bulk storage facilities of over one million gallons capacity.

The Spills program responds to and directs cleanups from approximately 1,300 spills and environmental emergencies per year. There were 1,358 "incidents" recorded in 1990. Approximately 60-100 times a year a state contractor is sent out to clean up spills for which there is no responsible party.

The LUST program directs cleanup operations resulting from releases from petroleum USTs and from AGT facilities of less than one million gallons. There are approximately 4,000 known UST releases to date.

In the LUST program a significant effort is put into removing the source of contamination, typically leaking tanks and contaminated soil. Contaminated soil is considered a "source" since it can continue to release contaminants to the ground water, even if the tank is removed. New ways have been developed to treat contaminated soil, both in situ and after excavation. Free product is removed whenever it is found to be present. Dissolved phase contaminants in ground water are removed to the extent practicable. Of the approximately 2,000 sites where ground water has been impacted, many have had ground water cleanup systems installed.

The statutory authority is: UST: Federal Technical Requirements 40 CFR Part 280, UST Tank Training and Certification-Minnesota Rule Chapter 7105, UST Technical Requirements-Minnesota Rule Chapter 7150, Minnesota Statute 116.46-116.50. AGT: Minnesota Rule Chapter 7100, State Petrofund-Minnesota Statute Chapter 115C. SPILLS: Federal Oil Pollution Act, State Superfund-Minnesota Statute Chapter 115B, State Petrofund-Minnesota Statute Chapter 115C, State Spill Bill-Minnesota Statute Chapter 115E. LUST: State Petrofund-Minnesota Statute Chapter 115C.

B. Description of recent efforts.

Rule changes. AGTs: The AGTs group has been working over the past year to revise and update the 1964 rules regulating AGTs. The updated rules will govern tank testing and secondary containment quality much more stringently.

Other steps taken. LUST: The LUST program is encouraging expedited investigation and remediation of leak sites. Innovative technologies are being considered for use in the LUST program's investigatory, soil cleanup, and ground water remediation efforts. For example, options for treating contaminated soil include thermal treatment facilities, natural bioremediation through the application of contaminated soil on farm lands, and subsurface venting of contaminants. Ground water remediation techniques include pumping of contaminated water and treating it on the surface and the sparging of contaminated aquifers with clean air, allowing natural bioremediation to occur.

Results. UST: Ten Tank Workshops for Owners with over 1,000 participants were held in 1990. Over 700 people participated in Contractor Certification Training, including approximately 415 supervisors and 195 companies. The UST program is cooperating with the Board of Water and Soil Resources on an interagency project to develop County Water Plan Handbooks. UST staff are called upon to make presentations at public meetings on the average of five times a month.

AGT: Twelve of 42 above ground storage tank facilities of over one million gallons are undergoing cleanup operations supervised by the AGT program.

SPILLS: Cleanup instructions were issued to all identified responsible parties (RP) for all spills. Cleanups for "orphan spills" (spills with no identified RPs) were conducted using state contractors and state funds.

LUST: Of the approximately 4,000 identified LUST sites, approximately 1,000 have been cleaned up. If current trends continue, at some point this year the number of sites cleaned up may exceed the number of new sites being identified. According to U.S. Environmental Protection Agency Headquarters, Minnesota would be the first state to achieve that goal.

C. Opportunities and impediments.

UST: There are more than 14,000 facilities with more than 40,000 UST in the state and there are only 4 UST inspectors at the MPCA.

LUST: There are approximately 4,000 LUST sites and there are only 15 project managers and nine hydrologists. It is common for a single person to have a case load of over 200 sites. The work load (and potential backlog) has been kept manageable by delineating clear, detailed work specifications, and by training consultants, contractors, and the regulated community.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Wastewater Treatment and Disposal

Program Contact Debra McGovern (Industrial), (612)297-1831
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A. Program description.

The Minnesota Pollution Control Agency's (MPCA) activities in the area of Wastewater Treatment and Disposal are divided between two sections in the Division of Water Quality. These sections, the Municipal and the Industrial sections, are concerned with governmental and non-governmental dischargers, respectively.

The staff in these sections perform a variety of tasks relating to wastewater treatment and disposal. Both sections review engineering reports and Plans Specifications to ensure that facilities are adequately designed and cost-effective. They also issue permits to dischargers and monitor compliance with the permits. Inspections are conducted and, as needed, enforcement activity is undertaken.

In the Municipal Section, the staff manages federal and state grant and loan programs that provide financial assistance to municipalities. The staff helps communities understand the complex and changing federal and state programs. Staff also provide training and certification programs for wastewater treatment plant operators.

The statutory authority are: The federal Clean Water Act and Minnesota Statutes 115 and 116.

B. Description of recent efforts.

Rule changes. In the last five years, the MPCA has written rules for: grants to small communities for on-site treatment systems; privatization of wastewater treatment plant construction and operation; the Clean Water Partnership Program; new toxics standards; and for the transition from a federal grants program to a state-run loan program, a major effort to reduce the requirements imposed on prospective grantees.

In the next few years, there will be rules on pretreatment of industrial discharges, aquaculture, and on permit fees on 401 certifications and other activities.

Other steps taken. Several major studies have been done. The most notable are the Minnesota River Remedial Action Plan, the Duluth Harbor Remedial Action Plan, and a study of the impact of phosphorus on Lake Pepin. Studies such as these determine the current level of environmental degradation and outline the steps needed to address those problems. In addition, many waste-load allocation studies are performed each year.

In January 1991, the Office of Legislative Auditor undertook an audit of the MPCA. The agency is already taking action to address the Auditor's comments (Section 3, below).

A major change in focus over the past five years has been the increased attention to nonpoint-source pollution. This area is now addressed by a separate section, the Nonpoint section, within the Division of Water Quality.

A major shift to "compliance attainment and maintenance" has occurred in wastewater priorities. In the past, the Division focussed exclusively on building new facilities to deal with existing pollution problems. This is still often needed, but future pollution problems can be reduced by proper maintenance of facilities. To promote this, the MPCA's "Operator Outreach" program provides training and operator certification.

Similarly, the Agency has placed increasing emphasis on Pollution Prevention, to prevent pollution, rather than clean it up. An example of this can be seen in the new Lake Superior Partnership.

A related development is increased attention on community outreach. In 1990, the Division reorganized to integrate technical review, permitting, and enforcement activities and to provide "one-stop shopping" for clients who need to deal with the Division. It also promotes communication between staff dealing with the same clients.

The MPCA has long needed an enforcement tool for responding to lesser permit violations. The Administrative Penalty Order authority was obtained during the latest legislative session, giving the agency the power to issue fines to permit violators.

The federal government is phasing out its Construction Grants Program, replacing it with a revolving loan program. The MPCA is working with the Public Facilities Authority, a national leader in leveraging this loan money in innovative ways, to maximize the pollution abatement funds available in Minnesota.

The MPCA is putting more effort into the area of industrial discharges; indeed there is now an Industrial Section within the Water Quality Division. Greater emphasis is being placed on facilities for land application sludge. In addition, the MPCA now deals with the water quality issues relating to the mining industry in a comprehensive and coordinated manner.

To assess pollution impacts, the MPCA now employs composite monitoring methods, broad-based assessments that are much more likely to give an accurate reflection of the actual state of the environment.

Results. When the MPCA was created, three of Minnesota's major river systems had poor water quality. Recreational use and fish populations were declining. Since then great progress has been made. A clear measure of this is provided by the return of animal species that are very sensitive to pollution. For example in the last few years, the mayfly has again become a common inhabitant of the metropolitan area because the quality of the Mississippi River has so improved.

Over the years, $1.2 billion of state and federal assistance to approximately 385 Minnesota municipalities has been invested in wastewater treatment facilities. Ninety-nine percent of the sewered population of the state is now served by facilities capable of secondary treatment. In the

past five years, a major effort was undertaken to speed the separation of storm sewers from sanitary sewers in St. Paul, Minneapolis, and South St. Paul to prevent the discharge of raw sewage in the Mississippi River during heavy rain. This separation will be completed in 1995, rather than in 2025 as previously expected.

C. Opportunities and impediments.

Information collection. New computer capabilities provide MPCA with significant opportunities to efficiently collect, disseminate, automate, and share information. For example, permittees will be able to transmit discharge reports directly to the MPCA's computers, increasing the speed of data transfer and reducing coding and data entry costs. Similarly, the MPCA will be able to transfer reports and raw data to clients and other agencies, allowing them to easily undertake independent analysis.

Program integration. Another area of opportunity is program integration. The Division of Water Quality has already made major progress in this area with its reorganization in 1990. This reorganization integrated the enforcement, permitting, technical review, and sludge/hydrology staffs of different geographical areas of the state into the same units. Staff dealing with a single municipality's wastewater problems previously were divided among several different sections and units. In addition, every effort is also being made to coordinate effectively with the Nonpoint Section of Water Quality Division.

Another area of opportunity was recently provided when the legislature granted the MPCA authority to issue Administrative Penalty Orders. This authority allows the agency to issue fines for lesser permit violations and will allow practical enforcement activity in areas where, according to the January 1991 Legislative Auditor's Report, we need to improve.

The major impediment faced by the MPCA is the conflict between our need for more staff, especially enforcement staff, and budgetary problems facing both the federal and state governments. The MPCA is trying to accomplish more with existing resources, by automation and regionalization. Nevertheless, such measures help only on the margin, and the gains can be quickly overcome by a push for more enforcement or by new programs or mandates.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Surface Water Toxics and Standards - Rule 7050 Revisions

Program Contact Gerald Blaha, (612)296-7245
Duane Anderson, (612)296-8852

A. Program description.

Minnesota Rules Chapter 7050 establishes water quality standards and use classifications for waters of the state. In addition to general language dealing with prohibitions of nuisance conditions and maintenance of water quality standards, this rule establishes the nondegradation provisions for Outstanding Resource Value Waters (Minnesota Rules part 7050.0180) and for all waters as specified in Minnesota Rules part 7050.0185. The nondegradation provisions are considered when regulating new or expanded discharges from point and nonpoint pollution sources.

The statutory authority are: Minnesota Statute 115.03 and 115.44.

B. Description of recent efforts.

Rule changes. In order to fulfill the requirements of Section 303(c)1 of the Clean Water Act, Minnesota Rules Chapter 7050 is reviewed and revised on a triennial basis. Since 1984, three rulemaking revisions to Chapter 7050 have occurred; each included amendments relating to the issue of nondegradation. These rule amendments are summarized below.

1984 Rule Revision: In November 1984, the nondegradation provisions applicable to Outstanding Resource Value Waters (ORVWs) became effective. Waters assigned the ORVW designation are unique in that they are exceptional recreational, cultural, aesthetic or scientific resources. ORVWs are grouped into one of two categories. The prohibited discharges category, as the name implies, prohibits new or expanded discharges to waters within this category. The restricted discharges category prohibits new or expanded discharges to the waters within this category unless there is no prudent and feasible alternative to the discharge.

1987 Rule Revision: In March 1987, nondegradation provisions were generally extended to all waters of the state. The applicability of these provisions depends on the classification of the receiving water and the significance of the discharger as defined in part 7050.0185, subp.2. Additional treatment requirements (beyond those which would be necessary solely to maintain water quality standards) can be imposed on new or expanded significant discharges. Additional Scientific and Natural Areas, lake trout lakes, and calcareous fens were also designated as ORVWs during the 1987 rulemaking revision.

1990 Rule Revision: The major amendments adopted during this revision included 53 numerical standards for toxic pollutants and a procedure for deriving criteria for toxic pollutants for which there are no adopted numerical standards. Three additional calcareous fens were added to the ORVWs list during this revision.

Other steps taken. The nondegradation provisions in Minnesota Rules parts 7050.0180 and 7050.0185 are considered in the course of evaluating permit issuances and effluent limitations. To date, one ORVW-related Minnesota Pollution Control Agency Board decision has been made regarding a new direct discharge of domestic wastewater to Lake Superior. Another proposal likely to require Board action deals with a plan to extend a County State Aid Highway through a wetland area adjacent to a calcareous fen at Savage, Minnesota.

C. Opportunities and impediments.

Potential impediments to responsive consideration of additional ORVWs are the rulemaking requirements specific to Minnesota Rules Chapter 7050. These requirements include: the need to enter into rulemaking proceedings for any amendment to Chapter 7050 and to meet rule amendment noticing requirements. A bill has been proposed in the legislature that would align these requirements with the rulemaking requirements of Minnesota Statute Chapter 14. This bill is slated for consideration during the next session.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Air Toxics and Acid Deposition

Program Contact John Salts, (612)296-7801
Dave Thornton (Air Quality), (612)296-7265
Duane Anderson (Water Quality), (612)296-8852

A. Program description.

The Minnesota Pollution Control Agency (MPCA) has programs directed at research and regulation of air emissions that result in long range transport and deposition of acidifying and toxic substances. The program includes routine and special purpose air and rain monitoring, rulemaking, policy development, and toxicity and transport research.

B. Description of recent efforts.

Rule changes. A rule regulating acidic deposition was adopted in 1987. This rule sets a sulfate deposition standard for sensitive areas of the state, and sets a cap on the amount of sulfur emitted from major utilities. MPCA is currently in the process of writing a rule to control emissions of "air toxics" from major air pollution sources. The environmental stability and aquatic toxicity of a chemical will be considered.

Other steps taken. Routine and special purpose monitoring are also in process. The Air Quality Division has developed a Source Review Guide to guide the permitting of air sources while rules are being developed. This guide considers a limited number of persistent chemicals that may affect water quality. The Agency has also signed the Great Lakes Air Permitting Agreement, committing the Agency to control emissions (from major sources of air pollution to the greatest extent possible) of 11 chemicals thought to be harmful to the Great Lakes. The Air and Quality Divisions have also studied the sources of mercury in Minnesota's lakes and air shed.

Results. Minnesota sources are in compliance with our acid emission cap. Acid deposition monitored in the state meets the acid deposition standard. New major sources of air toxics are reviewed using the Source Review Guide. Many existing air toxics sources have been reviewed for air toxics emissions and a database of toxic chemical concentrations in air and rain is beginning to be formed.

C. Opportunities and impediments.

Information collection. More data needs to be developed on the sources and ambient levels of toxic chemicals. Based on this information, pollution prevention and reduction efforts need to be focussed on emitters of certain persistent chemicals, whether these sources are large or small.

Program integration. The air quality rule development process is intended to integrate water quality criteria with air emission information in a regulatory setting. If successful, this will be the first approach of its kind in the nation. A regulatory approach is also being developed that integrates pollution prevention and control efforts. This effort is in its infancy and many impediments exist.

Statutory authority/direction. No new statutory authority has been sought by the MPCA. The federal Clean Air Act provides new authority for U.S. Environmental Protection Agency and new requirements for states. It will require a major increase in effort at both the federal and state levels.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Pollution Prevention

Program Contact Eric Kilberg, (612)296-8645
Paul Hoff, (612)296-7796

A. Program description.

Pollution Prevention means reducing the generation of pollution at the source, within the manufacturing process, by a combination of methods that include product reformulation, process revisions, inventory control, increased mechanical efficiencies, and housekeeping. The idea is that wastes that are not generated will never pose a threat to the quality of ground water, air or surface water.

The statutory authority is: Minnesota Toxic Pollution Prevention Act of 1991.

B. Description of recent efforts.

Rule changes. Not applicable.

Other steps taken. The Minnesota Pollution Control Agency (MPCA) has established a Staff Team consisting of members of management and senior technical staff people to review how best to integrate pollution prevention into existing programs at the MPCA. The MPCA will be responsible for reviewing annual progress reports submitted pursuant to the Toxic Pollution Prevention Act of 1991.

The Agency is organizing a multimedia inspection/compliance assistance pilot project in the Minnesota portion of the Great Lakes Basin. This inspection program is the first formal effort in Minnesota to integrate inspection efforts across all environmental media -air, water, and land. It will also be the first effort to integrate subsequent enforcement actions and it will include a substantial pollution prevention component in that it identifies opportunities for pollution prevention, for further evaluation by the inspected facility.

The pollution prevention Staff Team has also formulated a policy that states that pollution prevention is to be implemented across all agency activities: environmental review, permitting, inspection, enforcement, and rule promulgation.

Results. Program in implementation stage.

C. Opportunities and impediments.

Information collection. We do not have total confidence in the quality of TRI data, although this is improving. More important is the need to integrate various regulatory and permit data bases.

Program integration. Pollution prevention will best be accomplished when it is integrated into the existing regulatory fabric. Coordinated multimedia inspections can be used to identify and to avoid cross-media transfers of pollutants, as well as identifying pollution prevention strategies. Enforcement, where appropriate, will serve as a strong inducement to implement pollution prevention strategies. Pollution prevention strategies should be included in the alternatives reviewed during EIS preparation. Permit negotiations could address pollution prevention strategies.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Ground Water Sensitivity Criteria & Mapping

Program Contact Sarah Tufford, (612)297-2431

A. Program description.

Develop criteria for assessing sensitivity of groundwater to pollution; adopt criteria in rule; identify sensitive areas by mapping or other means.

The statutory authority is: Minnesota Statute 103H.001 - 103H.151.

B. Description of recent efforts.

Rule changes. Criteria developed and published in draft form. About to be released in final form. Criteria tested in several counties.

Other steps taken. Extensive technical evaluations of methods and factors for sensitivity determination.

Results. About to be published in reports to the LCMR by the various project participants.

C. Opportunities and impediments.

Information collection. Varies with location; inadequate for detailed analysis in many parts of the state. Part of the geologic mapping program of the MGS to develop this information.

Program integration. Request coordination with MGS. Sensitivity determinations desired by many local units of government. Ag and PCA need program information for GMP development.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Protected Waters Permit Program

Program Contact David B. Milles, (612)296-0516

A. Program description.

A protected waters permit is needed to do any work which will change or diminish the course, current or cross-section of any lake, marsh or stream that is designated as a protected water or wetland on the Department of Natural Resources's Protected Waters and Wetlands Inventory maps. Any work done below the ordinary high water mark of protected waters or wetlands requires a permit. Examples of such work include draining, filling, dredging, channelizing, construction of dams, harbors or permanent offshore structures, and placement of bridges and culverts [See Minnesota Statute Section 103G.245, subd. 1 and Minnesota Rules Part 6115.0150].

B. Description of recent efforts.

Permit transactions: During FY 1990, the Division of Waters received 1,747 applications for permits to work on protected waters: 69.9% (1,221) were issued; 2% (35) were denied; 3.9% (69) were withdrawn from consideration; 1.9% (33) were for work not needing a permit; and 22.3% (389) are in pending status.

Public hearings: A total of 42 contested case public hearings were demanded as a result of permit actions during calendar years 1989 and 1990. One half of these cases were resolved through prehearing negotiation. 95% of all hearing requests originated from the protected waters permit program.

Permit violations: Over 650 violations of Minnesota water laws were reported to the Division of Waters during calendar years 1989 and 1990. 90% of the violations originated from the protected waters permit program. Most of these violations were resolved through after-the-fact permit applications. Those which could not be satisfactorily resolved resulted in criminal (misdemeanor) prosecution or civil restoration action. A total of 25 civil restoration orders were written by the Division of Waters during calendar years 1989 and 1990. Approximately one half of the orders were satisfactorily complied with and the remaining orders are being enforced by the Attorney General's staff through the District Courts.

Permit Information Exchange (PIX) Data System: The Division of Waters is currently implementing a new Permit Information Exchange (PIX) Data System. The system has been installed in all six regional Division of Waters' offices and additional programming is being completed to generate routine letters and permit forms. Additional functions will be added as the system expands.

State Water Bank Program: Landowners who apply for protected waters permits to drain wetlands for agricultural purposes are eligible for the State Water Bank Program. During the 1988-1989

Biennium, 35 new State Water Bank projects were completed, covering 1,636 acres at a total cost of $509,817. During FY 1990, 16 additional projects were completed covering 858 acres at a total cost of $245,338. Continuing payments of $167,912 were made on 72 active State Water Bank Agreements and leases covering 3,387 acres.

National Wetlands Inventory Digitization: During the 1990 legislative session, the Legislative Commission on Minnesota Resources (LCMR) allocated $300,000 to the Division of Waters to begin the digitization of the U.S. Fish and Wildlife Service's National Wetland Inventory (NWI). A contract was signed with the U.S. Fish and Wildlife Service to begin the production of digital products. The digital products are being supplied to the Land Management Information Center at the Department of Administration and will be used in the implementation of the Wetland Conservation Act of 1991. The second phase of this project, which would complete the digitization of the NWI and digitize the Protected Waters Inventory and watershed information, has also been funded by the LCMR.

Coordination with other agencies: The Division of Waters continues to coordinate its protected water permit activities with both the U.S. Army Corps of Engineers and the Minnesota Pollution Control Agency. These activities are carried out under Memoranda of Agreement that were first signed in 1985. In addition, the Division of Waters has recently developed a joint brochure with the St. Paul District of the U.S. Army Corps of Engineers. The brochure will explain the regulatory roles of the Department of Natural Resources and U.S. Army Corps of Engineers for projects affecting lakes, wetlands and watercourses. This will foster a better understanding of state and federal water regulatory roles.

C. Opportunities and impediments.

Wetland conservation: The Wetland Conservation Act of 1991 should address many of the deficiencies of the present protected waters permit program. Although the Department of Natural Resources has had great success in protecting and preserving "protected" waters, we have been unable to regulate or influence the degradation of "unprotected" wetlands. Even the federal Section 404 permit program was unable to protect the vast majority of Minnesota's smaller wetlands. As the Department of Natural Resources and Board of Water and Soil Resources move to implement the 1991 Act, all of the State's surface waters will come under legal protection.

1988-1989 Drought: The drought of 1988-1989 had a dramatic effect on Division of Waters permit transactions. Low water levels in lakes and streams, coupled with increased demands for crop irrigation, resulted in significant increases in both Protected Waters permits and Water Appropriation permits from fiscal year 1988 through fiscal year 1990. As the drought recedes, it is expected that Division of Waters permit transaction will return to historically "normal" levels.

Water Permit Applications Received Since 1987			
Year	Protected Water Permits	Water Appropriation Permits	TOTAL
1987	1,033	334	1,367
1988	1,267	375	1,642
1989	1,600	563	2,163
1990	1,645	861	2,506
1991*	1,200	400	1,600
*estimated			

Permit Program revenues: As an outgrowth of 1989-1989 drought, the 1989 and 1990 Legislatures substantially increased Division of Waters fees for water use reporting (AKA pumping report fees). This resulted in a dramatic increase in Division of Waters fee collections. Although the Division of Waters does not retain any of these fees (all monies go to the General Fund), the revenue generated could defray the cost of major water management initiatives - particularly wetland protection. In view of the State's present financial situation, it seems likely that the legislature may have to utilize such a revenue strategy. As the cost of managing water resource programs increases, it is expected that water permit program fees will also increase.

Fee Collections Since Fiscal Year 1987: (in thousands of dollars)						
Year	Prot. Waters	Water Approp.	Dam Safety	Field Inspctn.	Pumping Report	TOTAL
1987	$105	$10	$ 6	$2	$ 196	$ 319
1988	$112	$11	$ 3	$2	$ 193	$ 321
1989	$133	$41	$26	$2	$ 192	$ 394
1990	$190	$74	$47	$4	$ 848	$1,163
1991*	$150	$30	$20	$4	$4,500	$4,704
*estimated						

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Shoreland Management (SLM) Program

Program Contact Ogbazghi Sium, (612)296-0444

A. Program description.

The SLM program, Minnesota Statute Section 103F.201-221, is created to provide standards to guide land use development adjacent to Minnesota's rivers and lakes in order to preserve and enhance environmental and economic values of land and water resources. The standards are enforced through ordinances administered by local units of government.

B. Description of recent efforts.

Rule changes. The SLM rules were revised to address emerging land use issues and became effective July 3, 1989. Rules are now being implemented by local units of government.

Other steps taken. Emerging land use issues were identified through an extensive program evaluation in 1980-83, followed by a rule revision that ended in July 3, 1989.

Results. Upgrading SLM ordinances of about 240 communities is underway. About 800 local units of government (LUG) were trained on the SLM rules during 1990-91.

C. Opportunities and impediments.

Information collection. Department of Natural Resources staff work very closely with LUG in ordinance adoption. The Department of Natural Resources will monitor how effectively LUG enforce their ordinance. A new computer program is available to help collect information from LUG.

Program integration. The SLM program is a component of Department of Natural Resources's land use programs which include floodplain and wild and scenic rivers programs. The programs are integrated through coordinated implementation.

Statutory authority/direction. Under Minnesota Statute Section 103F.201-221, the goal of the SLM program is to provide for developing and preserving shorelands without impairing water quality and land resources.

D. Other comments.

SLM ordinance adoption by about 240 communities will be the main thrust of the program in the next one-three years. This program impacts over nine million acres in Minnesota.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Water Appropriation Permit Program

Program Contact David B. Milles, (612)296-0516

A. Program description.

A water appropriation permit is needed to appropriate or use waters of the state for any domestic use serving more than 25 persons and for any other use which exceeds 10,000 gallons in any one day, or 1,000,000 gallons in a year [See Minnesota Statute Section 103A.201, and Section 103G.271 subd. 1, and Minnesota Rules Part 6115.0600].

B. Description of recent efforts.

Permit transactions: During fiscal year 1990, the Division of Waters received 903 applications for permits to appropriate or use waters of the state: 54.3% (490) were issued; 5.1% (46) were denied; 3.5% (32) were withdrawn from consideration; 1.1% (10) were for uses not needing apermit; and 36% (325) are in pending status.

Permit fee increases: Legislative changes to water use pumping fees in 1989 and 1990 resulted in a significant increase in fees associated with Division of Waters permit programs. During fiscal year 1990, the Division of Waters collected a total of $1,163,000 from all water permit program fees. Fiscal year 1990 fee collections for water appropriation permit activities were distributed as follows: $74,000 from water appropriation permit applications and $848,000 from water use reporting fees. All fees collected by the Division of Waters are returned to the state's General Fund.

Consumptive Water Use Study: During 1990, the Division of Waters completed a study of consumptive water uses in Minnesota. The study focusses primarily on the use of groundwater for once-through heating and air conditioning of commercial buildings. Legislation resulting from this study included: the protections of the Mt. Simon-Hinckley Aquifer from use other than potable water supply purposes; a requirement that all permitted installations for appropriating water be equipped with flow meters or other flow measuring devices approved by the Department of Natural Resources; all once-through heating and air conditioning systems must be converted to water efficient alternatives within the life cycle of existing equipment, but no later than 2010. The Department of Natural Resources also submitted a plan to the Legislative Water Commission that outlined the process to be used to ensure compliance with conversion requirements.

Informational Letters: During the summer of 1990, the Division of Waters sent several letters to all water appropriation permittees to inform them about the status of the drought and legislative changes affecting water use fees.

Suspension of Water Level Augmentation Permits: Because of the continuing decline in many lake levels following the 1988 drought, the Department received numerous inquiries and requests to use groundwater to augment water levels of lakes, ponds and wetlands. Permits that had been

previously issued to use groundwater for maintaining or augmenting water levels of surface waters were suspended in April of 1990. This type of water use is not considered a reasonable use of high quality groundwater. Suspensions were initiated to protect groundwater supplies for higher priority uses, such as domestic and public water supply.

Accelerated review of groundwater permits: In August of 1990, a streamlined process for technical review of groundwater permit applications was implemented. While still providing environmental protection, this procedure improved customer service and gave regional staff more time to address other responsibilities and ever increasing work loads.

Water use position papers: During 1990, the Division of Waters developed written policy documents related to the use of groundwater for lake level augmentation and the reuse of treated water from contamination pump outs. These policies were intended to protect and encourage efficient use of groundwater supplies.

Conservation and contingency planning for cities: During 1990, the Division of Waters produced a document for public water suppliers for use in developing water conservation and contingency plans. The document encourages each water supplier to develop a plan to address water supply problems resulting from drought or contamination.

Domestic well interference: During the last three years the Division of Waters received 55 formal domestic well interference complaints. Sixteen were found to be valid, while four others would have been valid if the appropriator had continued pumping. The 55 filed complaints are broken down as follows: six complaints were related to public water supply systems; 22 complaints were related to agricultural irrigation; and 27 complaints were related to industrial/commericial water use.

C. Opportunities and impediments.

1988-1989 Drought: The drought of 1988-1989 had a dramatic effect on Division of Waters permit transactions. Low water levels in lakes and streams, coupled with increased demands for crop irrigation, resulted in significant increases in both Protected Waters permits and Water Appropriation permits from fiscal year 1988 through fiscal year 1990. As the drought recedes, it is expected that Division of Waters permit transactions will return to historically "normal" levels.

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1991*	$150	$30	$20	$4	$4,500	$4,704

*estimated

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Aquatic Plant Management

Program Contact Steve Enger (612)296-0782

A. Program description.

Lakeshore homeowners have the right to use and access the lake from their property. Dense aquatic vegetation often prevents or impedes their access. The Aquatic Plant Management Program is designed to allow property owner access while preventing unnecessary harm to aquatic resources and protecting human health. Aquatic vegetation control activities are regulated by Commissioners Order 2210. Statutory authority for the program is found in: M.S. 84.091 establishes ownership of aquatic vegetation in protected waters with the Department of Natural Resources, M.S. 103G.615 allows the Commissioner of the DNR to issue permits for the control of aquatic vegetation and organisms, M.S. 103G.617 establishes the basis for the Eurasian watermilfoil program and outlines the directions and responsibilities of the program, M.S. 1987 86.78 establishes the purple loosestrife control program.

B. Description of recent efforts.

Rule changes. The promulgation of administrative rules is being considered, however the Department of Natural resources has not received legislative authority to proceed. A detailed program review has been suggested to facilitate the rulemaking procedure.

Other steps taken. Herbicides used to control aquatic vegetation in Minnesota must receive EPA registration for that use and be approved by the MDA and Mn DNR. Where the spread of an exotic species is not a concern the Department of Natural Resources recommends mechanical control of vegetation. APM specialists and pesticide enforcement officers conduct routine inspections of commercial applicators to ensure safe effective use of appropriate aquatic pesticides.

The pesticide enforcement program has been in place since 1980 and is conducted in cooperation with the MDA and funded by the EPA. The program has 2 full-time field positions (1 is currently vacant) to conduct investigations of alleged aquatic pesticide misuse. Statewide investigations of pesticide misuse are the responsibility of these two individuals. Prosecution of violators in the Brainerd Region has been successful on a number of cases. Prosecution of violators in Region 6 has not met with the same kind of success because of the variety and seriousness of other crimes committed in the seven county metropolitan area.

Since 1987, herbicide residues have been monitored to determine the fate of herbicides in lakes. An investigation of mail order aquatic herbicide sales was conducted in 1987-88 to examine non-permitted use of pesticides in aquatic sites.

An annual report is written to document the use of pesticides in protected waters and to identify trends in aquatic nuisance control for the state. These reports are available from 1956 to 1989.

C. Opportunities and impediments.

Information collection. The administration of the aquatic plant management program, specifically the issuance of permits for control, is out-growing the available manpower. Time allotted for field inspections of alleged nuisance conditions and evaluation of best control alternatives is consumed by the permit process. Regions 3 and 6 have dealt with the increase in permits by hiring additional personnel.

Exotic aquatic plant species control programs are currently integrated in the APM program. Permits are issued free of charge in most cases when either the department or private individuals are controlling exotic vegetation. The exotic plant purple loosestrife has been placed on the states primary noxious weed list which mandates control. The program budget and size of the infestations makes the control mandate unrealistic on public lands in many cases. Legislation passed in the session ending May 20, 1991 requires prioritization of treatment sites and should help resolve this problem.

Exotic species programs have placed additional responsibilities on APM program staff. The 1991 legislature passed legislation which authorizes the formation of an exotic species program which should alleviate some of the workload.

D. Other comments.

An impartial program review and evaluation of the program is necessary . The administrative rule making procedure will also provide additional information and identify ways to improve the program.

The aquatic plant management program,in large part, treats symptoms of poor watershed management practices. As watershed development continues and the quality of runoff and surface water is compromised the interest in controlling nuisance aquatic conditions is expected to increase. Improved watershed management practices and plans are long overdue for the metropolitan and agricultural areas of the state.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Environmental Review (Mining Response and Reclamation), DNR Division of Minerals

Program Contact Vicki Hubred, (612)296-1068

A. Program Description.

The environmental review program reviews and assesses the risk and magnitude of potential impacts from mineral activities. The Department of Natural Resources is the Responsible Government Unit (RGU) for mining proposals with the potential for significant environmental impacts, which are reviewed under rules provided by the Minnesota Environmental Policy Act. Other statutory authority which the program follows is contained in Minnesota Statute Chapters 84 and 93 regarding mineral leasing, and Minnesota Statute Chapter 103I regarding exploratory boring.

In addition, the environmental review program reviews all parcels offered in metallic mineral lease slaes for potential land use conflicts, water and aesthetic impacts, and impacts on sensitive features in the environment. All proposals for exploration activity on state-owned land are logged and monitored. Exploration activity on parcels identified for additional restrictions and review is carefully guided and monitored by the Department.

The goal of environmental review program is to ensure the environmental soundness of mineral leasing and mineral activity proposals through a comprehensive program of environmental review.

Water quality is one of the elements of the environmental review process for all mining proposals with the potential for significant environmental impacts.

All parcels offered in metallic mineral lease sales are evaluated for potential water impacts. This is accomplished by excluding from mineral lease lands within the Boundary Waters Canoe Area Wilderness (BWCAW), Voyageur's National Park, and the upper Mississippi Headwaters Corridor. In addition, lands located within the following areas are not offered for lease at public lease sales: the BSCAW Mineral Management Corridor: within 1/4 mile of Voyageur's National Park; the setback areas of the Black Bay Management Area; the North Shore Lake Superior Orientation Zone; the beds of all meandered waters; the beds of lakes greater than ten acres; and the beds of major rivers.

Other lands are offered for lease subject to special condition. Areas which have special conditions placed on them due to water quality reasons are those which contain any of the following features: designated trout stream; state canoe and boating route; Black Bay Management Area; adjacent to lakes being studied by MPCA for acid rain; shore of Rainy River; Birch Lake area of St. Louis County; within one mile of Voyageur's National Park.

B. Description of recent efforts.

Changes in program priorities, operations or focus. During this past year, the Division of Minerals has been making efforts to improve its communication of the requirements for conducting exploration under all state metallic mineral leases, especially those leases containing "special conditions." More information about special condition leases and their requirements is being sent not only to state lessees, but to others who deal directly with the environmental review process, such as the DNR Area Foresters, DNR Area Wildlife Managers, DNR Trail Coordinators, DNR Area Fisheries Managers, County Land Commissioners, and the State Historic Preservation Offices. The Division will be holding meetings this summer to discuss the upcoming lease sale with those involved in the environmental review process.

The Division of Minerals has also been improving its internal communication between the Environmental Review Section in St. Paul and the Operations Section, located in Hibbing, which oversees the monitoring of exploration and drilling activities. Together the two sections will assist exploration companies in understanding special condition requirements and insure that the appropriate surface managers are contacted for site planning.

Other steps taken. The environmental review program is in the process of creating a database of the information we use to conduct our review. This database will make our reviews more efficient.

This past year the environmental review program completed a map of the BWCAW Minerals Management Corridor. The corridor consists of small surface watershed flowing into the BWCAW, lands within 1/4 mile of the BWCAW, and principal recreation and travel corridors leading into the BWCAW. State lands within the corridor are excluded from state mineral lease sales.

The program has also drafted a generic environmental review map which identifies areas of environmental concern to aid Division staff in quickly identifying areas in which exploration may be of concern.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Mineland Reclamation (Mining Response and Reclamation)

Program Contact Arlo Knoll, (218)262-6767

A. Program description.

The Department of Natural Resource's Mineland Reclamation Program implements Minnesota's Mineland Reclamation Act which became Law in 1969 (see Minnesota Statutes 93.44 to 93.51). The program has established comprehensive rules relating to mineland reclamation, and enforces compliance through a permitting process. Permits are required of all active metallic mineral mining operations regardless of size, and peat mining operations which exceed 40 acres in size.

Minnesota's Reclamation Program addresses all aspects of mining from pre-planning efforts including siting; through actual mining activities; to reclamation activities, closure, and any continued maintenance that might be necessary after operations have ceased. The overall goals of the program are to: 1) reduce environmental impacts of mining; 2) ensure public review and input through the reclamation permitting process; and 3) conduct studies to determine the most effective reclamation techniques which are available, or that can be developed.

Much of the effort that goes into individual mining and reclamation plans is designed to address potential adverse impacts on water resources. With the type of operations currently active in the state, (iron ore, taconite, and peat) problems have mainly been associated with suspended solids in the waters. Utilization of common erosion practices that are required by the rules have and will continue to be essential to the prevention of water quality degradation in Minnesota.

Since 1975 the reclamation staff has been involved with research efforts associated with acid mine drainage, and the associated release of heavy metals from sulfide mine waste. Such mine waste currently exists at one active taconite mine, but could be encountered elsewhere if non-ferrous metallic mining were to develop in the state. Techniques for predicting and ultimately mitigating water quality problems, associated with wastes which can be produced and disposed of in Minnesota, have been the focus of research efforts that have and will continue to be performed by the DNR.

B. Description of recent efforts.

In addition to the ongoing efforts in permit issuance, rule enforcement, and research efforts, the reclamation staff has recently circulated a draft set of rules designed to guide reclamation of non-ferrous metallic mineral mining, should the exploration efforts currently being conducted in Minnesota prove successful.

The Staff has also been active in the development and review of the EPA's proposed Federal regulations for the disposal of mine wastes. Such a Federal program will ultimately require significant state involvement in primacy states, which Minnesota is likely to become.

The DNR, MPCA, and representatives of the mining industry and environmental groups recently completed a review of the adequacy of state programs to regulate potential non-ferrous metallic mineral development. Recommendations from this review (the Report on the Mining Simulation Project) have been incorporated into the proposed reclamation rules, mentioned above.

In addition the DNR, in response to recommendations of the Governor's Task Force on Sand and Gravel, is preparing a reclamation handbook for use by sand and gravel operators, and the county officials who are responsible for regulation of the sand and gravel industry.

C. Opportunities and Impediments.

The DNR's Reclamation Program has been successful in achieving water quality degradation prevention goals at all but one of Minnesota's iron ore, taconite, and peat mining operations, and significant improvement will be accomplished at the remaining operation within the next 12 months.

The Reclamation program will be challenged in the future should non-ferrous metallic mining become a reality. The achievements in prediction of acid mine drainage, and heavy metals mitigation research, provide promise that future degradation can be prevented. To ensure that this is the case, additional efforts in mine waste characterization and water treatment technology must be continued on representative mine wastes from Minnesota.

Continued efforts in public involvement and public education with respect to environmental impacts of mining will also be essential if Minnesota is to continue its history of providing metals to the nation and the world.

ENVIRONMENT QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Pesticide Management

Program Contact Greg Buzicky, (612)296-5659
Paul Liemandt, (612)297-4872
Michael Fresvik, (612)296-8547

A. Program description.

Pesticide Management involves the regulation of the use, handling, storage and disposal of all pesticides as well as the development of Best Management Practices (BMPs) for the protection of water resources. Waste Pesticide Collection, emergency response and pesticide contamination remediation also are components of Pesticide Management.

Pesticide Management encompasses broad areas of responsibility and has undergone tremendous statutory and policy changes in recent years. The program is authorized under Minnesota Statutes Chapters 18B, 18D, 18E and 103A (1990).

B. Description of recent efforts.

Statutory changes. The Minnesota Pesticide Control Law was significantly amended in 1987. Authority for ground and surface water monitoring, protection and civil penalties were established.

The Minnesota Ground Water Protection Act of 1989 contained major revisions to the Minnesota Pesticide Control Law. New programs and authorities established by the Act include Waste Pesticide Collection, Best Management Practices and the Agricultural Chemical Response and Reimbursement Account (ACRRA). The Minnesota Department of Agriculture (MDA) was also given equal access and authority under the Minnesota Environmental Response and Liability Act (MERLA/Superfund).

Rule changes. The Bulk Pesticide Rules were promulgated in 1988. Pesticide Chemigation Rules were promulgated in 1989. Agricultural Chemical Response and Reimbursement Account Rules were promulgated in 1991. In addition, Atrazine Best Management Practices were published in May, 1991.

Studies, reports, surveys. Pesticides and Groundwater: Surveys of Selected Minnesota Wells, Prepared for the Legislative Commission on Minnesota Resources, 1988; Report to the Legislature of the State of Minnesota: The Efficacy of Ranking Agricultural Chemicals According to Their Potential Health Hazards, 1990; Water Quality Monitoring Biennial Report for Monitoring Years 1988 and 1989; Superfund - Report on Use of the Minnesota Environmental Response Compensation and Compliance Fund (MERLA), 1990; Report to the Minnesota Legislative Water Commission and the Legislature of the State of Minnesota, Prepared Pursuant to 1989 Laws of Minnesota, Chapter 326, Article 8, Section 8, 1990; Recommendations of the Nitrogen Fertilizer Task Force on the Nitrogen Fertilizer Management Plan to the Minnesota Commissioner of Agriculture, 1990; Report

of the Agricultural Chemical Response Compensation Board (ACRRA Board) to the Minnesota Legislative Water Commission, House of Representatives Committee on Appropriations and Senate Finance Committee, 1990; Agricultural Chemical Incident Guidance Documents, 1991; Appropriateness of Hazardous Ranking System Criteria for Agricultural Chemicals/Ground Water Protection, 1991; Pesticide Use Survey (in progress); and Waste Pesticide Container Study (in progress)

Other steps taken. The MDA has developed a comprehensive agricultural chemical incident response program to address sudden and long-term incidents involving pesticides and fertilizers. Emergency response, technical support and project oversight are components in the remediation of pesticide spills.

Currently, prevention of releases into the environment at mixing and loading sites is being addressed by secondary containment and rinse pad requirements that must be built for all bulk pesticide storage by the 1992 growing season. Pesticide container collection projects have been held in counties across the state; waste pesticide collections have also been conducted and have been extremely successful within the confines of available funding.

The MDA is currently formulating a state mandated Pesticide Management Plan that defines prevention and response to pesticides that may contaminate water resources. This plan will comply with federally-mandated programs to manage pesticides that impact ground water. Increased educational efforts are coupled with a revised Pesticide Applicator Training (PAT) program to promote sound voluntary and regulatory practices that are designed and intended to prevent ground water degradation.

C. Opportunities and impediments.

Minnesota has a significant opportunity to address agricultural chemical environmental management with a comprehensive and innovative approach. The programs currently being implemented by the MDA address pesticide "point" and "nonpoint" concerns and are implemented through a dynamic voluntary - regulatory process. Few models are available nationally for many of the new programs; therefore, significant problems related to the implementation of these varied programs must be overcome:

- Lack of information and research nationwide on assessment, remediation and costs associated with accidental and incidental agricultural chemical releases. This may directly affect cost containment opportunities.

- Lack of any available federal funding for cleanups of agricultural chemical contaminated sites; a lack of recognition of these issues and coordination at the federal level; an increasingly large number of identified contaminated sites currently strains available resources; and no ready means of obtaining additional, needed resources (financial and staffing).

- Coordination, acceptance and support for voluntary Best Management Practices (BMPs) to address nonpoint pesticide concerns. Education and coordination of public and private organizations so that the pesticide user adopts the voluntary BMPs approach that is necessary. Support from MES, the College of Agriculture and agri-industry is vital.

- Funding levels for states provided service programs such as the Waste Pesticide Collection Project, need to be reevaluated. Pollution prevention of this type is cost effective over the long-term, but only addresses a small portion of the problem due to resource restrictions.

- Coordination with state agencies as well as private programs. The inter-relationship of programs such as ACRRA, MERLA, Petrofund, Nonpoint, Wellhead Protection, Wetlands, MES and other programs need improved coordination.

- Development and funding for long-term research and demonstration projects for BMPs, fate and transport of agricultural chemicals, bioremediation and development of alternative approaches to traditional agricultural chemical use habits needs to be addressed.

ENVIRONMENT QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Fertilizer Management

Program Contact Greg Buzicky, (612)296-5639
Gary Braun, (612)296-3016
Bruce Montgomery, (612)297-7178

A. Program description.

Fertilizer Management involves the regulation of the use, handling, storage and disposal of fertilizers, plant and soil amendments and liming materials as well as development of Best Management Practices (BMPs) for the protection of water resources. Emergency response and spill site remediation are also aspects of Fertilizer Management. Recent changes to Minnesota state statutes resulted in increased responsibilities for the Minnesota Department of Agriculture (MDA) to address "nonpoint" and "point" problems. Authority is found in Minnesota Statutes Chapters 18C, 18D, 18E and 103A (1990).

B. Description of recent efforts.

Statutory changes. The Minnesota Fertilizer, Plant Amendment and Soil Amendment Law was amended in 1988, 1989 and 1991. The most significant modifications were as a result of the Minnesota Ground Water Protection Act of 1989. Fertilizer, plant and soil amendments were evaluated to the same enforcement, remediation and reimbursement status as pesticides. In addition, authority for regulation of the "use" of fertilizer was established. A framework for the prevention and response to ground water contamination was established in Chapter 103A (1990) for the normal use of fertilizer.

Rule changes. Soil Testing Laboratory Certification. Agricultural Chemical Response and Reimbursement Account Rules were promulgated in 1991. Fertilizer Chemigation Rules currently being promulgated (1991). Secondary Containment Rules are in the process of being amended (1992). Fertilizer Labeling Rules are in the process of being amended (1992). Anhydrous Ammonia Rules are in the process of being amended (1992). Agricultural Lime Rules currently being promulgated (1991). In addition, Nitrogen Fertilizer Best Management Practices were published in May, 1991.

Studies, reports, surveys, etc. Appropriateness of Hazard Ranking System Chemicals/Ground Water Protection, 1991; Agricultural Chemical Incident Guidance Documents, 1991; Recommendations of the Nitrogen Fertilizer Task Force on the Nitrogen Fertilizer Management Plan to the Minnesota Commissioner of Agriculture, 1990; Pesticides and Groundwater: Surveys of Selected Minnesota Wells, Prepared for the Legislative Commission on Minnesota Resources, 1988; Water Quality Monitoring Biennial Report for Monitoring Years 1988 and 1989; Nitrogen Study (in progress); and By-Product Lime Materials Demonstration/Research Project, 1991.

Other steps taken. The MDA has developed a comprehensive agricultural chemical incident response program to address sudden and long-term incidents involving pesticides and fertilizers. Emergency response, technical support and project oversight are components in the remediation of pesticide spills.

The MDA is currently reviewing, with the Minnesota Pollution Control Agency (MPCA), the nitrogen status pertaining to ground water contamination. In addition, a program is being established to promote Best Management Practices (BMPs) for the efficient use of nitrogen in crop production while providing protection of water resources. This program will result in a coordinated approach of public and private entities.

C. Opportunities and impediments.

Minnesota has a significant opportunity to address fertilizer management in a comprehensive manner. Minnesota is unique in having authority to promote voluntary BMPs, regulate use if necessary, oversee spill site remediation and provide reimbursement for remediation of fertilizer incidents.

Significant problems must be addressed however:

- The scope of the nitrate ground water contamination stresses resources available to adequately develop and promote voluntary BMPs and assess contamination situations.

- Coordination, acceptance and support for voluntary BMPs and to address nonpoint fertilizer concerns. Education and coordination of public and private organizations so that the fertilizer user adopts the voluntary BMPs approach that is necessary. Support from MES, the College of Agriculture and agri-industry is vital.

- Spills of liquid fertilizer account for a significant portion of the agricultural chemical incidents in Minnesota. Remediation techniques and rule changes must be developed.

- Funding levels for states provided service programs such as the Waste Pesticide Collection Project, need to be reevaluated. Pollution prevention of this type is cost effective over the long-term, but only addresses a small portion of the problem due to resource restrictions.

- Development and funding for long-term research and demonstration projects for BMPs, fate and transport of agricultural chemicals, bioremediation, and development of alternate approaches to traditional agricultural chemical use habits needs to be addressed.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Integrated Pest Management Program in the Energy and Sustainable Agriculture Program at the Minnesota Department of Agriculture

Program Contact Dr. Mary Hanks, (612)296-1277

A. Program description

The Integrated Pest Management Program (IPM), as part of the Energy and Sustainable Agriculture Program, promotes and facilitates the use of integrated pest management in both the public and private sectors, through education, technical or financial assistance, information and research. The program will assist state agencies in adopting integrated pest management techniques in their management of public lands. The program operates under M.S. 1989, Chapter 326, Article 2, Section 2, 17.114, Subd. 4 and Article 5, Section 18, 18B.063.

B. Description of recent efforts

The IPM Program began in November of 1990. A legislative report, "The Status of Integrated Pest Management in Minnesota," is in the last stages of preparation. The report will propose recommendations for policy and funding decisions and development of a state approach to the promotion of IPM.

Information collection activities dominate recent efforts: Personnel in state and local government agencies were interviewed from September, 1990 through March 1991, to determine current pest management responsibilities and practices.

A number of surveys were distributed to: all Soil and Water Conservation Districts (Dec. 1990); all state post-secondary educational institutions (Nov. 1990); all metro area regional parks (Nov. 1990); a sample of Independent School Districts (Nov. 1990); and a sample of counties (Nov. 1990)

Follow-up county right-of-way pesticide surveys were distributed to County Agriculture Inspectors to complete the inventory of pesticide use on county roadsides (June, 1991).

The research, education, and extension activities at the University of Minnesota related to IPM were inventoried.

C. Opportunities and impediments.

Information collection. An agricultural pesticide use survey has been completed by the MDA and should serve as a base-line for future evaluation of program effectiveness in the agricultural sector. An urban pesticide use survey should be a high priority to provide this same base-line information for urban use. Attitudinal surveys are also needed to complement the pesticide use surveys to provide direction to future information dissemination and educational efforts. The Minnesota

Extension Service Integrated Pest Management Program provides excellent opportunities for cooperative surveying and information collection including IPM research.

Information dissemination and education. Many existing educational programs in MDA, including the Energy and Sustainable Agriculture Grant and Demonstration Programs provide opportunities for disseminating IPM information. The Minnesota Extension Service Integrated Pest Management Program also provides excellent opportunities for IPM education and information dissemination.

Program integration. Intra-agency coordination of existing programs provides opportunities to implement IPM practices on many levels and integrate IPM philosophies into current recommendations and regulation. This MDA IPM program will work to increase inter-agency coordination of DNR, MnDot, and other agency programs and technical expertise to fulfill the Groundwater Act mandate that public lands be managed with IPM techniques.

Statutory authority/direction. The Groundwater Act statutory mandate that the state use IPM techniques in its management of public lands should be broadened to include all public land including that controlled by counties, townships, school districts, cities, etc.

Funding. Current funding for IPM has decreased since the 1989 Minnesota Groundwater Protection Act. For example, three IPM positions were lost at the Minnesota Extension Service because state funding was not extended. The loss of these positions drastically affects the ability of the state and the Extension Service to disseminate IPM information, carry on IPM research and demonstration, and provide technical assistance to farmers, public agencies and other consumers.

Staffing. The IPM program has a staff of one full time coordinator and about one-half of a full time research analyst.

ENVIRONMENT QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Energy & Sustainable Agriculture Program/Minnesota Department of Agriculture

Program Contact Douglas Gunnink, (612)296-7673

A. Program description.

The Energy and Sustainable Agriculture Program (ESAP) was established within the department to demonstrate, promote and encourage the adoption of sustainable farming practices. Sustainable farming practices are defined as those which maintain or improve environmental quality; maintain profitability; lessen the use of non-renewable resources; and to the extent feasible, use indigenous resources. The major thrust of the program is to work directly with producers (and secondarily with others, such as public agencies) to help integrate sustainable practices into their current management practices. The assistance includes on-farm demonstrations, workshops, information and referral, and other forms.

The ESAP was initially started by the department in 1987 utilizing Exxon Oil overcharge funds. In 1988, the Minnesota legislature established a Sustainable Agriculture Grant and Loan Program. State policy and the responsibilities of the department were clarified further in the 1989 Groundwater Protection Act. The ESAP operates under authority contained in Minnesota Statute 17.114-17.116.

B. Description of recent efforts.

Much of the effort of the Sustainable Agriculture program is to investigate and demonstrate practices which reduce pesticide and fertilizer applications. The decrease in or more efficient use of agricultural chemicals will help prevent groundwater degradation. Most of the practices demonstrated reduce the potential for water quality problems by reducing or eliminating off-farm inputs.

Most of the grants and the on-farm research has shown higher economic returns to the farmer while reducing or eliminating off-farm inputs. Many of the practices studied reduce the potential for water quality problems.

The department has developed the following programs:

On-farm Research/Demonstration Program. Utilizing Exxon funds, the department has responded to requests from farmers to help them conduct on-farm research. Farmers want to experiment with alternative practices before they adopt them. To accomplish this, ESAP staff work with farmers to set up plots that are randomized, with at least four replications, and are field-size research plots. The major emphasis of the on-farm research has been how to use mechanical weed control to replace herbicides. Other projects include the use of alternative nitrogen sources for maintaining soil fertility, while reducing risk of nitrate leaching into surface and groundwater.

Sustainable Agriculture Grant Program. The department has made 31 grants to conduct on-farm demonstrations of sustainable techniques or practices. The purpose of the demonstration is to integrate sustainable practices into current management regimes. Of the 31 grants, four demonstrated reductions in pesticide application, five demonstrate reductions in fertilizers, and the remainder address various practices that reduce inputs. These practices have the potential to reduce non-point water quality problems.

A total of 64 technical resource people assist grantees to design and implement their demonstrations. The assistance helps assure that the results are measurable and comparable. As part of each grant, recipients are required to conduct public information activities such as field days. Over 4,000 people attended the field days held by sustainable agriculture grant recipients during the summers of 1989 and 1990.

Sustainable Agriculture Loan Program. Loans up to $15,000 at 6% interest to assist the adoption of management practices that are environmentally sound, conserve soil and/or energy. Currently there are 120 participants in the program, and a total of $1,150,000 in loans have been made to date. Of the loans, about two out of every three contribute to improving water quality by implementing management practices such as conservation tillage, manure management or agri-chemical reduction or targeting.

Sustainable Agriculture Information Program. The major vehicle for information dissemination is the annual "Greenbook," a summary of the demonstrations, on-farm research projects and loans. In addition the ESAP has compiled materials from land grant University research and successful farmer implementation of the sustainable techniques and made this information available to the public. The department, with the Board of Vocational Technical Education and U of M, sponsored a conference in St. Cloud in May, 1990, for about 325 professionals on sustainable agriculture research and information.

A directory of regional organizations working in sustainable agriculture has been compiled as a resource document for the public. The directory will be widely disseminated.

Sustainable Agriculture Farmer Communication. - The department took several steps to identify and articulate producer needs in the area of sustainable agriculture when the program was first initiated. Seven focus group meetings were held throughout the state during the fall of 1987. In 1988, the department sponsored a major day-long workshop at Wilder Forest in which 50 representatives of sustainable agriculture groups presented and discussed their needs with approximately 20 U of M administrators, specialists and researchers. The department also conducted a formal mail survey of sustainable producers to ascertain needs. The information has been used by the department and shared with other appropriate persons or organizations.

Discussion groups, workshops, and informational meetings are held on an ongoing basis to provide an exchange of ideas on sustainable agriculture systems.

Integrated Pest Management. This program coordinates efforts of Minnesota organizations, and agencies and farmers to implement IPM practices as part of their regular management program.

Sustainable Agriculture Report. A legislative report is in process of being prepared. It will include recommendations for policy and funding decisions.

C. Opportunities and impediments.

The ESAP is developing an Advisory Task Force which will include non-profit organizations, the University of Minnesota, state and federal agencies, farmers and other appropriate persons or agencies. The Task Force will help identify research and educational needs for sustainable agriculture while assisting with program planning, information sharing and coordination.

Educational materials, such as case studies of sustainable farms, will be added to further sustainable agriculture efforts. Farms that use conservation tillage, animal or green manures for fertility, and very little pesticide will be studied in depth to collect more data on management strategies as well as the economics of sustainable practices.

The department will initiate a lending library of videos, publications and/or other resource materials. In addition, a transition manual is being prepared to assist producers with understanding the steps that are necessary to integrate sustainable practices into their management regimes.

ENVIRONMENT QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Agriculture Land Preservation Program/Minnesota Department of Agriculture

Program Contact Douglas L. Wise, (612)296-5226

A. Program description.

The Agricultural Land Preservation Program was created by the 1984 Agricultural Land Preservation Policy Act to preserve and conserve agricultural and forest lands, preserve and conserve soil and water resources, and encourage the orderly development of urban and rural land uses.

After completion of a pilot program by five counties, eligibility for participation in the program was extended to all nonmetropolitan counties in 1987. (A similar program entitled "The Metropolitan Agricultural Preserves Program" is available to local units of government in the twin cities metropolitan area.) Local units of government participating in the program must prepare and adopt farmland preservation plans and official controls to implement the plan. Technical and financial assistance is provided to local units of government by the Department of Agriculture.

After approval of the plan and official controls by the Commissioner of Agriculture, property owners in agricultural zoning districts may voluntarily place restrictive covenants on their land creating an "Agricultural Preserve" which restricts the land's use to only agriculture or forestry. Property owners filing a covenant will receive a $1.50 per acre per year property tax credit and other benefits limiting local government's ability to annex the property and assess it for nonfarm public improvements.

B. Description of recent efforts.

Major accomplishments. Five pilot counties prepared farmland preservation plans and official controls under the program, three are actively recording restrictive covenants. As of November, 1990, 111,618 acres were covered by restrictive covenants. In 1988, the Minnesota Agricultural Land Preservation Program received the American Farmland Trust's Agricultural Conservation Award for State Policy and Program Development. In 1989, an informational video explaining the Agricultural Land Preservation Program was completed. In 1989, a study analyzing the costs of rural nonfarm development was completed for the program. The study resulted in a major finding that the cost of providing public services in rural areas was almost $500 per housing unit more than the taxes generated by the housing unit, compared with costs exceeding revenues by $115 in the City of Buffalo. The 1989 Legislature appropriated funding for a full-time program administrator. In January, 1990, Mr. Douglas Wise was hired to administer the program.

Current activities. Mailings of information about the program have been sent to all counties in the state (except metropolitan counties and pilot counties).

Staff has been actively discussing the program with twenty different counties. Ten of these counties have requested presentations on the program to their county boards and/or planning commissions. Five counties are either beginning or are in the process of updating their comprehensive plans; tow of the five counties have already indicated that their plans will comply with the requirements of the program. Five counties have had program staff conduct a preliminary review of their existing or draft plans and/or ordinances.

Program staff have made presentations, sent information and loaned the informational video to a number of organizations and individuals. Formal presentations were made to the Minnesota Association of County Planning and Zoning Administrators' annual conference, the Board of Soil and Water Resources, and the County Weed Inspectors annual seminar. Program staff has appeared on the PBS television show "Minnesota Issues" and the MPR "Midmorning Radio Program" to discuss the program. Staff also participated in forums on farmland preservation conducted by the Land Stewardship Project, and Board of Soil and Water Resources workshops for counties preparing local water plans.

Staff is currently preparing a handbook for use by counties preparing farmland preservation plans and official controls. A computerized information database for the program is also being developed by program staff to monitor participation and trends related to agricultural land preservation.

C. **Opportunities and impediments.**

Information collection. Staff has been compiling existing data on the loss of agricultural land to other uses in Minnesota. Although the data is limited, it clearly shows the need for the program. There is a serious need for data which better quantifies the loss of agricultural lands in the state. Additional resources are necessary to obtain this data and better analyze the resulting impact.

Program integration. Although the program is designed to be integrated with other programs (such as local water planning, shoreland management, etc.), the distribution of administrative roles among different agencies and levels of government makes integration and coordination difficult. The local water planning legislation mandates integration of that program with this program. There is a need to build more bridges between local water planning and agricultural land preservation. The direct relationship between water quality and land use should receive more emphasis in the water planning process.

Statutory Authority/Direction. The law (Chapter 40A) directs MDA to provide matching grants to counties for preparation of plans and official controls. The legislature has only appropriated enough funds to provide grants to the five pilot counties. This is a major impediment to implementation of the program. The local water planning program illustrates the effectiveness of matching grants as an incentive to obtain county participation in voluntary programs.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Well Management Program

Program Contact Virginia Reiner, (612)627-5124

A. Program description.

The well management program at the Minnesota Department of Health regulates the location, construction, maintenance, repair and sealing of all wells and borings in the state through the enforcement of the well code and boring rules and the licensing of persons involved in well and boring construction. The statutory authority for the program operation is Minnesota Statutes, Chapter 103I.

B. Description of recent efforts.

Rule changes. In response to new permitting and notification requirements and expanded licensing requirements in the Groundwater Protection Act, the MDH revised or added portions to the well code twice in 1990 to include the administrative processes related to these issues. The entire well code is presently undergoing a rewrite and restructuring to improve ease of use and clarity. The technical construction portion is being revised in a two step process. The first phase in the revised construction code will be proposed in November. The second phase which will consist of construction issues where more research and input are needed to complete the proposal, will be proposed in Spring after soliciting more technical comment. Additionally, work will begin this fall on rules for the issuance of well construction advisories and revising and expanding the rules for exploratory borings. Both these sets of rules will be proposed in 1992.

Other steps taken. Prior to passage of the 1989 Groundwater Protection Act, MDH struggled to oversee the construction of thousands of different wells and boring with a limited staff of eight operating from its Minneapolis office. Due to the resources provided in the Act, MDH now has 40 staff dedicated to regulating well construction, encouraging the sealing of abandoned wells, and promoting wellhead protection. Half of these staff operate from the MDH district offices in greater Minnesota at Bemidji, Duluth, Fergus Falls, Mankato, Marshall, Rochester and St. Cloud. Five field inspection staff operate in the metropolitan area.

To operate the field inspection component of the program, MDH devised a new classification in State civil service, that of "Well Inspector." These staff have substantial actual field experience in the drilling and construction of wells. They are paired with technically educated Hydrologists to form an effective compliance inspection team that communicates well with the regulated clientele.

The actual numbers of wells and borings drilled in the state is also better defined now as a result of the permit and notification processes established in the Act. In 1990, MDH received 10,310 notifications of well construction and processed 2,079 permits for monitoring well construction.

Important to ground water protection is the correct construction of wells. The field inspection staff is currently inspecting 25% of new wells constructed and has increased awareness of construction concerns. One of the ways in which MDH hopes to increase the inspection rate for wells is through delegation of the program to local boards of health. Currently, one full-time staff member is dedicated to promoting the delgation of the program and assisting counties with concerns and questions. Eight counties are currently delegated the management of the well program on the local level; seven more counties have actively expressed interest, as well as three cities. MDH has worked with 80 counties on the implementation of their comprehensive local water plans, dealing with issues such as private wellhead protection, water quality testing, water well inventories, and abandoned well inventories.

Another step toward the goal of degradation prevention was taken by the increased awareness and effort to deal with the problem of abandoned wells within the state. Abandoned wells are wells that are no longer used but which remain unsealed, posing a threat to public health and the integrity of the ground water. The numbers of these wells are unknown but estimates range from a half a million to a million and a half. They are not a problem that will be resolved quickly but encouraging statistics are being seen. In 1988, the number of wells sealed doubled over that in 1987; in 1990, 6,500 wells or five times as many wells were sealed as in 1987. Aiding the growing awareness of the problem has been increased detection through a greater field presence and through the disclosure requirements in the Act. As property buyers and sellers, real estate agents, title companies and mortgage lending companies become more aware of the potential liabilities associated with owning an abandoned well, the promotion of sealing should continue to escalate.

C. **Opportunities and impediments.**

Information collection. Although MDH has established a computerized information system for the well management program, and it is effective in tracking fee receipts, licenses, permits, registrations, notifications, more progress is needed to automate the data and make it accessible to a multitude of users including district offices and other agencies. MDH is automating a data base of information on wells from property disclosures, construction reports and reports of sealing. In the 1991 session, MDH received funding from the Legislature to purchase an optical disc storage system to electronically store the well disclosure statements, well construction reports and reports of sealing. This equipment will significantly improve the efficiency of storage and handling of thousands of documents as well as the ease and speed of access to the information on these reports.

MDH has also made an effort to improve education opportunities available to both the regulated community and local government staff interested in the well program. Conferences on special topics such as monitoring well construction and well inspection have been well attended and well received. More comprehensive training opportunities are planned at different locations in Minnesota, but the training effort currently is limited by demands for staff time related to the development and refinement of new administrative procedures established to meet the expanded responsibilities in the Act.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Wellhead Protection

Program Contact Tomas Klaseus, (612)627-5169

A. Program description.

The Wellhead Protection (WHP) program is currently being developed by the Minnesota Department of Health (MDH). The intent of the program is to protect public wellhead areas in the state from contaminants which may have an adverse affect on human health. The term WHP area refers to the surface and subsurface area surrounding a public well through which contaminants are likely to move toward and reach the well. The state is required to develop and implement a WHP program under the 1986 Amendments to the federal Safe Drinking Water Act. Pursuant to Minnesota Statutes, section 103I.101, subd. 5 (9), the Commissioner of Health is authorized to adopt rules establishing WHP measures for wells serving public water supplies.

B. Description of recent efforts.

Rule changes. Rules will be drafted in 1992 and implemented in 1993.

Other steps taken. A WHP work plan was prepared and submitted to the U.S. EPA in June ,1989. Four hydrogeologists were hired for the WHP program and an unclassified public information officer will be added this summer. Two of the four hydrogeologists and one clerical position are supported by monies generated as a result of the Groundwater Protection Act of 1989. Ad hoc technical and policy workgroups were established to provide advise to the Department on major technical and policy issues related to WHP program and rule development. MDH received an U.S. EPA grant to develop a WHP geographic information system and will be contracting with U.S. GS to construct a computer data base of aquifer properties which is needed to define WHP areas. MDH also received funding from the U.S. EPA to conduct a groundwater age-dating study (using tritium) for purposes of assessing well/aquifer vulnerability. MDH is working with several pilot WHP projects funded by the MPCA's Clean Water Partnership program and will be conducting a pilot contaminant source inventory project this summer. Numerous educational and training programs have been conducted for public water suppliers, local/state governmental officials and the general public, and a WHP video was produced with funding from the STEP program.

Results. A work plan was completed which provides a three-year framework for developing a state WHP program. Staff have been hired and trained. The Ad Hoc WHP Technical Workgroup completed their deliberations in February, 1991, and submitted a technical advisory report to the Commissioner of Health in April, 1991. Computer hardware/software, digitizer and plotter were purchased for the WHP geographic information system and development of the system has been initiated. The cities of Clear Lake, Maple Grove, Moorhead, Rochester and St. Peter are conducting WHP projects.

C. **Opportunities and impediments.**

Information collection. The WHP program will collect, generate and utilize a tremendous amount of information/data on public well construction/location, local hydrogeologic conditions, local contaminant sources, water quality monitoring data, WHP area delineations, etc. MDH will enter data into a WHP geographic information system and will exchange data with numerous parties, especially other federal, state and local agencies, public water suppliers and consultants. Significant WHP information/data may be unavailable or incomplete in many areas. Where available, this information/data may be collected or generated by a variety of sources and the accessibility and useability of the information/data will vary by the source of the information/data. There is a significant need to coordinate data management activities among the various sources and to establish common data elements, standards and collection/storage procedures to enhance data transferability and useability. There is also a need to determine appropriate data clearinghouses.

Education of clientele/public. Public/clientele education and support for WHP are essential to the successful development and implementation of the state's WHP program. There is a significant need to develop and provide WHP information and educational materials to public water suppliers, local governmental officials, consultants and the general public. MDH will be receiving a U.S. EPA grant to hire an unclassified public information officer for purposes of developing and coordinating public/clientele outreach activities. This individual will conduct a public/clientele informational needs assessment, prepare a public/clientele outreach plan and develop WHP educational materials. MDH will also be developing a guidance document for WHP area managers covering the procedures for preparation of a WHP area management plan. These educational/informational materials will be disseminated to interested clientele and the general public.

Program coordination. Water and land use programs or activities in Minnesota are administered by numerous state and local agencies and boards. Many of these programs or activities will impact WHP. The participation and cooperation of these state and local agencies and boards are essential to the success of the WHP program in Minnesota. The Ad Hoc WHP Policy Workgroup has representatives from local units of government and from the major state agencies with water-related programs. One charge to the Workgroup is to identify water and land use management programs that would support or interact with WHP and to recommend strategies for coordinating these efforts. The Workgroup report should be available this fall. MDH will work through the Environmental Quality Board to establish coordination among state agencies at the policy level. MDH will also work with appropriate state agencies to develop memoranda of understanding. Development of such memoranda with the Minnesota Pollution Control Agency and the Minnesota Department of Agriculture are particularly important because these agencies administer most of the contaminant source control programs in the state. The coordination of WHP with local units of government will be conducted largely through the comprehensive county water planning process and through direct MDH interaction with local public water purveyors.

Research. The Ad Hoc WHP Technical Workgroup identified the following research needs in their report to the Commissioner of Health: continued local and regional aquifer studies to acquire baseline aquifer data and maps; assessments of aquifer and well vulnerability to contamination in order to develop effective contaminant source management strategies and monitoring schemes. Tritium monitoring was suggested as a cost-effective and expedient technique that could be used to assist in evaluating the potential vulnerability of the aquifer/well to sources of contamination; studies

to improve our understanding of the vertical movement and contaminant transport characteristics of confining units; development and testing of WHP area delineation methods. The sensitivity of data input and parameters should be evaluated to determine the level of data accuracy required to achieve SHP goals and to determine their effect of the size, shape and orientation of WHP areas; and studies to assign and rank contaminant source risk. Not all contaminant sources within a WHP are pose the same level of risk to the public well. It is important to direct limited resources toward those sources posing the greatest risk.

Funding. Federal, state and local resources currently available for WHP are limited. The Ad Hoc WHP Policy Workgroup has been asked to examine state and local alternatives. Current sources of MDH program funding include state general funds, regulatory fees and federal WHP program development monies from Section 106 of the Clean Water Act. These funds support four hydrogeologists and one clerical position.

D. Other comments.

Development of a WHP program in Minnesota presents a tremendous challenge. The task of establishing WHP area for approximately 2,500 community and 15,000 noncommunity wells is formidable. In addition to the sheer number of wells, the task is complicated by the diversity of hydrogeologic conditions in Minnesota, the need to coordinate the WHP protection program with many other related state/local water and land use programs and the limited resources currently available for WHP at the federal, state and local level. Developing an effective WHP under these constraints will require methodical and creative solutions and phased implementation.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Section of Health Risk Assessment, Division of Environmental Health, Minnesota Department of Health.

Program Contact David Gray, Chief Section of Health Risk Assessment

A. Program Description.

The Health Risk Assessment Program is involved in the identification and quantification of human health risk resulting from exposures to hazardous substances in the environment. The following are section activities that pertain to preventing, reducing, and eliminating degradation of groundwater:

Health Assessments: This activity is directed toward the development of assessment of human health risk to populations near state and federal Superfund sites. The primary problem is usually groundwater contamination potentially impacting private or municipal drinking water wells. Estimates of existing and future health risk are developed and published in report form.

Health Risk Limit Development: The Groundwater Protection Act of 1989 directed Minnesota Department of Health to develop health-based limits for groundwater for use in the application of Water Resource Protection Requirements. Rules to implement these limits are estimated to be completed in the fall of 1991.

EIS/EAW Review: This activity is involved in the review of Environmental Impact Statements and Environmental Assessment Worksheets for proposed projects which have potential public health impacts. Such projects include solid or medical waste incinerators, paper mill expansions, refinery expansions, landfill expansions, etc. may have potential impacts on surface and or groundwater.

The statutory authority is: Authority to develop health risk limits is given by Minnesota Statutes, section 103H.201.

B. Description of recent efforts.

Rule changes. Rulemaking for developing health risk limits for groundwater was initiated in July of 1990 when the hiring of staff was completed. In August 1990 a technical advisory work group was formed to assist the Department of Health in addressing issues related to the use of risk assessment to set health-based exposure standards. The work group met six times and finished its deliberations (including reviewing several rule drafts) in March 1990. Rulemaking is estimated to be completed in the fall of 1991.

C. Opportunities and impediments.

One unique feature of the health risk limits rulemaking effort is an extensive outreach effort. A risk communication, health education specialist is employed to conduct the outreach program. Outreach has entailed creating a two-way information channel between the Minnesota Department of Health and interested parties, including local water planning and community health agencies, University extension, and other public and private organizations.

Health risk limits cannot be developed for all substances found to degrade Minnesota groundwater. Some substances lack adequate toxicologic and or health effects data to develop a reliable exposure limit.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Public Water Supply Protection

Program Contact Richard Clark, (612)627-5180

A. Program Description.

Under a primacy agreement with the United States Environmental Protection Agency, MDH administers and enforces the requirements authorized by the Safe Drinking Water Act for public water supplies in Minnesota. U.S. EPA develops federal rules applicable to public water supplies nationwide. In return for federal funding, MDH adopts state rules at least as stringent as the federal rules and conducts a safe drinking water program to implement and enforce these rules. In general, the safe drinking water rules establish maximum acceptable limits for contaminants, establishes monitoring frequencies and requirements for public notification. Minnesota has approximately 12,000 public water supplies that are regulated by the safe drinking water rules. The 12,000 public water supplies are subdivided into three categories; community-1,000, nontransient noncommunity-1,000, and transient noncommunity-10,000. The Public Water Supply Unit currently has a staff of 27 persons to administer and enforce the safe drinking water rules. The major activities of the PWS Unit are conducting sanitary surveys at public water supplies, reviewing plans for public water supply construction projects, monitoring drinking water for contaminants, providing technical assistance to public water supplies, providing water operator training and certification, and ensuring that drinking water contamination problems are corrected.

The statutory authority is: Minnesota Statutes Sections 144.381 to 144.387 is the enabling legislation for the public water supply program.

B. Description of recent efforts.

Rule changes. Minnesota Rules Chapter 4720 Public Water Supplies were amended effective February 25, 1991. These amendments pertained to three portions of the rule dealing with: (1) revision of coliform bacteria requirements, (2) amending and greatly expanding the performance standards for surface water treatment systems, and (3) establishing construction standards for surface water treatment facilities. As previously mentioned, these rule amendments were made as part of our primacy agreement with EPA to promulgate state rules as stringent as federal rules. EPA has promulgated two additional drinking water rule packages: Phase II Regulations for 38 Inorganic and Synthetic Organic Chemicals, January 30, 1991 and Lead and Copper Regulations, May 30, 1991. MDH now has 18 months from the time of federal adoption of these rules to promulgate them as state rules to retain primacy.

Other steps taken. As a result of funding provided by the Ground Water Protection Act of 1989, MDH was able to add 15 positions in the public water supply program. Most of these positions were assigned to the noncommunity portion of the public water supply program which previous to 1989 had received little attention. Additionally, 1.5 million dollars were budgeted for fiscal years 90 and 91 to MDH to cover the costs of the analyses required by the greatly expanding federal safe

drinking water rules. If this money had not been provided to MDH, then the public water suppliers would be required to bear the financial burden of the analyses which could be financially prohibitive for many of the small suppliers.

Results. With the funding provided by the Ground Water Protection Act of 1989, MDH has been able to inspect and monitor the drinking water quality at approximately 4,500 noncommunity systems that had previously not been visited. The funding provided for analytical services has enabled MDH to monitor 80% of the 1000 community and 1000 noncommunity nontransient water systems for the contaminants regulated by Safe Drinking Water rules at this time. The remaining 20% of water systems will be monitored during state fiscal year 92. Several water systems have been identified as having contamination above acceptable levels and steps have been taken to correct these situations and to reduce or eliminate the exposure to these drinking water contaminants.

C. **Opportunities and impediments.**

Information collection. The single greatest need the public water supply program has at the present time, aside from receiving adequate funding to support the program, is to have a fully automated data management system. The data produced by a program that regulates 12,000 public water supplies, at least 2,000 of which will eventually be routinely tested for more than 100 contaminants are enormous. The program presently lacks an adequate data management system, however, with the assistance of U. S. EPA we are beginning to develop the framework for such a system that will hopefully expand in years to come to meet our future needs. We also hope to add a position to our staff that would handle public education since this is an area in which we have been address adequately in the past.

Program integration. Development of an automated data management system will allow us to share our public water supply data with other agencies and programs in a manner which will be productive and useful to all the water related programs in the state. The complexity of the new federal drinking water rules and the expansion of related programs such as wellhead protection make it imperative that we have a state-of-the-art data management system.

D. **Other comments.**

To date MDH's public water supply protection program has been quite successful at providing public health protection to consumers of drinking water in Minnesota. However, as federal drinking water requirements continue to expand additional funding of the public water supply program will be needed to keep pace with these demands.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Comprehensive County Water Planning
(Comprehensive Local Water Planning and Management)

Program Contact Doug Thomas, BWSR, (612)297-5617

A. Program description.

The Minnesota Legislature enacted the Comprehensive Local Water Management Act (Minnesota Statutes, Sections 103B.301 to 103B.355) in 1985. This legislation set forth a framework for local water management outside the Twin Cities seven county metropolitan area. Plan preparation is voluntary and the process is flexible. Each county develops its own plan. Plans must be coordinated with adjacent counties and address issues within a watershed context. Planning must address ground and surface water quality and quantity and related land use issues. Public participation is required in plan development.

Currently 78 of the 80 Greater Minnesota counties are involved in preparing and/or implementing local water plans. 53 counties have approved plans, 14 counties have plans in state review, and 11 counties are in plan development. In 1990 the BWSR awarded 26 planning grants, 52 base implementation grants and 22 challenge grants to counties totalling $2.385 million through the Local Water Resources Protection and Management Program as authorized by the 1989 Groundwater Protection Act.

B. Description of recent efforts.

Rule changes. Program rules (Minnesota Rules, Chapter 9300) were adopted in 1987. Program changes made by the 1989 Groundwater Protection Act, 1991 Wetland Conservation Act, and other legislation have created a need for the BWSR to consider rule revisions.

Other steps taken. As a result of comprehensive local water planning, the BWSR has engaged in a program to develop inventory guidebooks to assist local governmental units in contaminant source and resource inventories. The BWSR is also marketing the EPPL7 geographic information system through a distribution agreement with the Land Management Information Center.

Results. 53 counties are implementing approved comprehensive local water management plans. Actions include increased efforts in education and information, monitoring and data collection, and enforcement and/or development of land use regulations. Local water planning has also improved communication and cooperation between local governmental units and state agencies.

C. Opportunities and impediments.

Information collection. Opportunities exist to improve the collection, use, and transfer of natural resources data as counties become users of this data. This will occur most rapidly by the state taking an active role in development of computer software that bridges the gap between data collection and

use of data through geographic information systems.

Program integration. Opportunities exist to integrate many of BWSR's incentive programs as well as other agency incentive programs into local water management plan implementation. Integration of these incentive programs has the opportunity to minimize duplicative local and state efforts as well as maximizing the state's investment through coupling programs to a single comprehensive plan.

Statutory authority/direction. State incentive programs should consider, as a factor in eligibility requirements, whether or not a local governmental unit has empowered itself with and is enforcing existing regulatory authorities for natural resources protection and management, such as soil loss, shoreland regulation, on-site sewage treatment, and feedlots.

D. Other comments.

The Comprehensive Local Water Management Act has been effective in pursuing the state's degradation prevention goal by building county level capabilities in natural resources planning and protection, and creating an improved local-state partnership.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Metropolitan Ground Water Planning
(Comprehensive Local Water Planning and Management)

Program Contact Eric Mohring, BWSR, (612)297-7360

A. Program description.

In 1987 legislation was enacted (now Minnesota Statutes, Section 103B.255) giving metropolitan counties discretionary authority to prepare and adopt ground water plans. The basic requirements for plans and their implementation are set forth in the law.

B. Description of recent efforts.

Rule changes. The program does not require the adoption of agency rules.

Other steps taken. Guidelines for plan content were developed from interpretation of the statute, relevant parts of the comprehensive local water planning rules, and development work done by Hennepin and Washington counties. The guidelines provide suggestions and guidance for fulfilling requirements set forth in statute, and to provide minimum requirements for administering the grants.

Plan development grants totalling $15,600 were awarded to 6 of 7 metro counties. Counties with approved ground water plans will be eligible for matching grants to implement items in the plans.

Results. Hennepin and Washington counties are well along in the planning process. Hennepin will likely have a draft plan ready for review in late 1991. Washington will follow shortly thereafter. The other metro counties are just beginning the planning process. County geologic atlases are underway or completed in 5 metro counties. Other results will be measurable as plans move into the implementation phase.

C. Opportunities and impediments.

Information collection. Planning and plan implementation will enhance data collection and coordination at the local level. There is an opportunity to create a framework for data management at the local level.

Funding. Increasing budgetary constraints on county governments and decreasing state funds available for water planning will pose substantial impediments to implementation of county ground water plans. County ground water planning activities may not receive the same priority as other essential services provided by counties.

Program integration. Much of the success of groundwater plan implementation will depend on close integration with metropolitan surface water management plans. Counties which are responsible for groundwater planning and watershed management organizations which are responsible for surface water planning must cooperate with each other. An enhanced state role of providing technical and financial incentives would be the most effective method to enhance the neccessary cooperation.

Statutory authority/direction. Several potential impediments exist to plan implementation and attainment of degradation prevention goals. Goals set at the county level may need to be implemented through local ordinances. Hennepin and Ramsey counties are restricted from enacting zoning ordinances. The inherent time delays between establishment of county goals and implementation at the municipal level may pose a substantial impediment.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Erosion, Sediment and Water Quality Cost-Share

Program Contact Chuck Niska, BWSR, (612)296-3767

A. Program description.

First funded in 1978, the Cost-Share Program provides funding to soil and water conservation districts (SWCDs) for the purpose of providing land owners and occupiers with financial incentives and technical assistance to address the high priority erosion, sedimentation and water quality concerns identified within the district through a local priority and planning process.

The statutory mandate under which this program operates is Minnesota Statutes, Section 103C.501. Accompanying rules are found in Minnesota Rules, Chapter 8400.

Since the program began, $1,500,000 has been allocated annually by the legislature for this program, with: 70 % of the funding allocated for high priority erosion, sedimentation and water quality projects; 20 % for lower priority erosion projects and technical and administrative assistance provided by SWCDs; and 10 % for special projects or secondary erosion, sedimentation and water quality problems. Currently, there are eight general practices for which cost-sharing is available.

In 1984, the BWSR was given the ability to retain program appropriations until spent. As a result of this, the BWSR has regularly reallocated unspent funding in June and December to SWCDs that demonstrate a need for additional funding to solve local erosion, sedimentation or water quality problems.

B. Description of recent efforts.

Rule changes. The current program rules were promulgated in 1985. Efforts are underway to revise the rules to make the program more effective at treating erosion problems at their source and thereby obtain additional water quality benefits.

Concurrently, the issue of whether or not to recalculate SWCD allocations based on additional and updated resource information has been considered. Program funds are allocated to each SWCD based on a formula which considers, among other factors, cropland acres, soil erodibility and numbers of feedlots within a district's shoreland areas. Rule revisions are expected to expand the opportunities of SWCDs to use program funds. It is anticipated that these changes will be made by July 1, 1992.

Other steps taken. As program funds are allocated for projects in each SWCD, they must be accounted for by the BWSR. This is accomplished through a program audit, in which records of payments to landowners and individual land occupier contracts are scrutinized by BWSR field staff as to their correctness. Individual program files are accumulated for each year, and are on file at the BWSR office in St. Paul.

Results. An extensive evaluation of the effectiveness of this program is expected to be undertaken as soon as all of the accumulated program records on file are computerized, and are retrievable for statistical analysis by BWSR staff.

C. **Opportunities and impediments.**

Information collection. SWCDs maintain records of the use of program funds, and summaries are supplied to the BWSR when program audits are completed. There is no direct water quality data collection component to the program.

Program integration. SWCD staff members are, in many cases, either members of local water planning task forces, or are the lead implementors of local water plans. As such, they are being encouraged to use this program as a tool to solve erosion/sedimentation/nutrient loading problems identified in local water plans. The BWSR expects that this tie will increase the effectiveness of the program in preventing water quality degradation.

D. **Other comments.**

Cost-share program funding has remained static since the program was first funded in 1978. Inflation since 1978 has virtually halved the original resources available under the program.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Well Sealing Cost-Share Grants

Program Contact Eric Mohring, BWSR, (612)297-7360

A. Program description.

The Ground Water Protection Act of 1989 provided $357,000 in state funds to establish a cost-share program to seal abandoned wells. The legislation directed the BWSR, in consultation with other agencies, to select counties to receive grant monies for well sealing and to establish priorities for well sealing. Well sealing grants ranging from $1,200 to $35,000 were made to 18 counties in the latter part of 1990. Cost-sharing will provide up to 75% of the total well sealing cost, not to exceed $2,000 per well. Participating counties are being given substantial flexibility to implement the program according to local needs. The BWSR's expectation is that funds be used to seal priority wells, and that the wells be sealed according to state code.

B. Description of recent efforts.

Rule changes. The program does not require the adoption of agency rules.

Other steps taken. An interagency advisory group was assembled with representation from BWSR, the Department of Health, the Department of Natural Resources, the Pollution Control Agency, and counties. The work group developed a procedure for selecting counties and for prioritizing abandoned wells for sealing. Local water planning authorities were asked to provide input. An initial survey was sent to counties to determine interest in the program, identify contacts, and assess the extent of inventory activities at the local level. Well sealing grants ranging from $1,200 to $35,000 were made to 18 counties in the latter part of 1990.

Results. To date, approximately 15 high-priority wells have been sealed in Jackson, Polk, Houston, Benton, and Washington Counties. The other grant recipients are currently inventorying, prioritizing, and/or accepting applications. The availability of cost-share funds has increased public awareness of the need to seal abandoned wells and has stimulated efforts to conduct inventories.

C. Opportunities and impediments.

Information collection. The program has encouraged inventory efforts somewhat, but in general the program is impeded by a lack of inventory data on abandoned wells. County-scale inventories of abandoned wells are either non-existent or just starting. It is difficult for counties to prioritize wells for sealing without the benefit of adequate inventory data. The implementation of a well sealing cost-share program will be much more straightforward and successful several years in the future after counties have had the opportunity to conduct inventories of abandoned wells.

Funding. Limited funding is a problem for the well sealing cost-share program. The current allocation provides only enough funding to seal several hundred of the 800,000 to 1,600,000 abandoned wells statewide: Clearly, substantial prioritizing will need to be done.

Public education. The program offers opportunities for education of clientele and the general public through well sealing demonstrations and heightened awareness of the issue.

D. Other comments.

Funding was recently authorized for the next biennium in the area of well sealing. The legislature budgeted $200,000 for conducting abandoned well inventories and $750,000 for well sealing cost-share grants to counties.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Environmental Agriculturalist Education

Program Contact Mel Sinn, BWSR (612)297-2622

A. Program description.

The Environmental Agriculturalist Education Program was established by the 1989 Ground Water Protection Act to educate agricultural producers on the impacts of farming practices on water quality and alternative methods of reducing chemical inputs. The goal of the program is to help farmers make a profit while protecting the environment. The program awards contracts to public and private organizations to carry out environmental agriculturalist education projects.

B. Description of recent efforts.

Rule changes. The program does not require the adoption of agency rules.

Other steps taken. The BWSR awarded 15 contracts with the $400,000 available in the F.Y. 1990-91 biennium to a mix of public and private organizations. Activities funded included demonstration plots of various water quality protection practices, field tours, development and distribution of educational materials, local workshops, environmental audits, an environmental agriculturalist education program plan, and a directory of sustainable agriculture practices that was published as an insert to the Farmer magazine.

Results. The 15 projects brought hundreds of agricultural producers onto field plots that demonstrated various best management practices. Thousands of producers received program educational information and materials at local workshops, by mail, and through newspaper articles. The Beltrami SWCD low-input sustainable agriculture project included phone surveys before and after the project to help measure program effectiveness. The program increased many producers' awareness of agricultural impacts on water quality and profitable low-input practices.

C. Opportunities and impediments.

Information collection. Final project products (reports, brochures, videos, etc.) will be available for use by other organizations in promoting sustainable agriculture concepts.

Program integration. BWSR will market final project products to local governments for use in implementing the educational components of comprehensive local water plans.

Statutory authority/direction. A targeted environmental agriculturalist education program should be a component of the state's long-range environmental education plan.

D. Other comments.

No legislative appropriation was made to carry out the program in the F.Y. 1992-93 biennium.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Excessive Soil Loss Control Program

Program Contact David H. Behm, BWSR (612)297-3432

A. Program description.

Minnesota Statutes, Sections 103F.401 to 103F.455, provides for an excessive soil loss control program administered by the BWSR. Local units of government may voluntarily adopt the model ordinance which provides administrative and technical guidance regarding performance standards, procedures, and enforcement actions.

B. Description of recent efforts.

Other steps taken. BWSR staff prepared a "white paper" evaluation of the statute, administrative rule, and model ordinance in August 1989. The "white paper" attempted to identify the amendments necessary to achieve the legislative intent of adequately addressing off-site impacts of erosion as well as maintaining soil productivity. The "white paper" has served to guide further staff discussions of the need to revise the program law. Legislative amendments were not pursed in 1991 due to the belief that a statewide mandatory erosion control program would have been proposed. Staff do not believe that a majority of local governments are yet willing to assume a mandatory erosion control program, nor do they believe the BWSR would be able to provide the necessary statewide assistance under current staffing and budget levels.

Staff, coordinating with the Minnesota Department of Agriculture (MDA) in July 1989, conducted a discussion with the staff of three counties and SWCDs implementing their respective agricultural land preservation (ALP) programs. Part of the session was devoted to discussing how the excessive soil loss control program provisions apply to the ALP program. Following that session, BWSR staff prepared an outline to encourage and assist SWCD staff to prepare uniform advisory statements as required by the ALP program. BWSR staff will also seek the cooperation of MDA to further refine the relationship of the two programs and the overall standard of performance expected of ALP program enrollees.

Excessive soil loss control program training was provided to regional BWSR staff in April 1989 regarding the needed revisions to the program as well as to enable staff to better address questions from the local clientele they assist. An "Excessive Soil Loss Control Program Handbook" was prepared for staff use as a result of the training session.

Results. Unfortunately, no local unit of government has yet adopted the model ordinance. Consequently, the BWSR will convene an advisory committee to prepare model language for an erosion control ordinance for counties to voluntarily adopt through existing statutory planning and zoning authorities. The intent of this effort will be to provide guidance to local governments to adopt and enforce such land use controls. The advisory committee is expected to complete its tasks by the end of 1991.

C. **Opportunities and impediments.**

Information collection. With total soil erosion in the state estimated to be in excess of 150 million tons per year, the need for adoption of local erosion control regulations is becoming more evident to many local government officials. Local water planning activities have also renewed local officials' interest in considering erosion and sediment control regulations. This opportunity must be supported with technical and administrative guidance to assist those counties intending to adopt and enforce such local land use controls. The BWSR is currently tracking the intentions of counties with approved local water plans regarding erosion control regulations.

Program integration. With the on-going local revisions to shoreland management ordinances and the expressed interest by counties in erosion control regulations, there is an opportunity to provide local governments with appropriate model ordinances and the necessary assistance to properly integrate these local land use controls into a comprehensive water and soil resource protection program. Therefore, the BWSR will convene an advisory committee to address this issue as discussed above.

Statutory authority/direction. Staff believe that Sections 103F.401 - 103F.455 must be substantially revised or repealed. The convening of an advisory committee should greatly assist BWSR efforts in further evaluating the program.

D. **Other comments.**

The most obvious problem with the program is that no local unit of government has, to date, adopted the model ordinance. Staff have identified the following as reasons why counties have not adopted the model ordinance: 1) the statute and model ordinance require administrative procedures that are deemed as too cumbersome; 2) the statute is too administratively restrictive regarding performance standards; and 3) counties see no reason to use a statute other than their planning and zoning authorities to address land use control issues.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name RIM Reserve

Program Contact RIM Reserve Coordinator, BWSR, (612)296-3767

A. Program description.

The Minnesota legislature enacted the RIM Reserve Program (Minnesota Statutes, Section 103F.501) in 1986. The purpose of RIM Reserve is to retire certain marginal and agricultural lands from production and to restore drained wetlands via acquisition of conservation easements. By returning marginal agricultural lands and drained wetlands to their natural state landowners are able to focus their management efforts on their better lands while protecting soil and water resources and providing valuable wildlife habitat.

B. Description of recent efforts.

Rule changes. Several recent rule changes have impacted the program's ability to protect our soil and water resources. The most important of these changes was to make drained wetlands without a cropping history eligible for the program. This change has increased the program's effectiveness at restoring drained wetlands. Another rule change that is underway will allow certain non-cropped lands adjacent to drained wetlands to be eligible. This will improve the integrity of many wetland restoration easements by providing the ability to enroll a protective buffer strip surrounding the restored wetlands.

Other steps taken. Based on current legislative direction, RIM Reserve places the highest priority on wetland restorations and sensitive ground water areas. Cooperative agreements between several agencies and organizations have increased the dollars available for restoring drained wetlands on RIM Reserve perpetual easements. These agencies and organizations include the North American Wetlands Conservation Council, the U.S. Fish and Wildlife Service, Ducks Unlimited, and Pheasants Forever.

Results. Approximately 36,000 acres have been enrolled into RIM Reserve since 1986 with the majority of the easements being perpetual. This includes 268 wetlands which will be restored on perpetual easements totaling almost 2,650 acres. Applications have been approved for 1,351 acres in sensitive ground water areas.

C. Opportunities and impediments.

Information collection. Many local units of government are currently collecting information and completing inventories of eligible RIM Reserve lands, including drained wetlands and riparian lands. The BWSR has helped develop guidance material to assure this data collection is done in a uniform statewide format that can be easily converted and digitized into the state's geographic information system.

Statutory authority/direction. An opportunity exists for several monitoring programs that would indicate how the program is contributing towards improving the state's soil, water, and wildlife resources. Several biological and hydrological studies could be performed on restored wetlands to determine the direct and indirect benefits to wildlife and water quality.

D. Other comments.

Overall, RIM Reserve has been a very successful tool for local units of government to improve the state's soil and water quality. It also will serve as the vehicle for acquiring easements under the 1991 Wetland Conservation Act to help achieve the state's water quality degradation prevention and wetlands protection goals.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Office of Waste Management - Pollution Prevention

Program Contact Paul Moss, (612)649-5746

A. Program description.

The Office of Waste Management's (OWM) pollution prevention program focuses on the implementation of the Minnesota Toxic Pollution Prevention Act (TPPA), Minnesota Statute 115D, which was enacted in May 1990. The TPPA declares that it is the policy of the state to encourage toxic pollution prevention. Pollution prevention is defined by the TPPA as "eliminating or reducing at the source the use, generation, or release of toxic pollutants, hazardous substances, and hazardous and industrial wastes." The preferred means of preventing pollution are considered to be those that minimize the transfer of toxic pollutants from one environmental medium to another (for example, from air to water). The OWM works closely with the Minnesota Pollution Control Agency (MPCA) in implementing the TPPA.

A key element of the TPPA is a requirement that the approximately 400 Minnesota manufacturers reporting releases under the Toxic Chemical Release Inventory (TRI) must prepare a pollution prevention plan for their facility and report on their progress in preventing pollution annually. In 1989, these facilities reported releasing over 80 million pounds of toxic chemicals into the air, water, and land. The first pollution prevention progress reports from these facilities will be due in October, 1992.

The OWM pollution prevention program has developed a number of non-regulatory activities which facilitate the adoption of the pollution prevention approach by industrial and other facilities. The Office provides technical assistance through a grant to University of Minnesota to fund the Minnesota Technical Assistance Program (MnTAP), awards pollution prevention feasibility grants, develops training materials, workshops, and conferences, and works to promote policies that encourage the integration of pollution prevention into industrial, commercial, governmental, and educational activities in Minnesota.

B. Description of recent efforts.

Other steps taken. In January 1991, the OWM cosponsored the First Annual Minnesota Conference on Pollution Prevention (attendance over 450) and a Corporate Executive Breakfast on Pollution Prevention (attendance over 125). The first Governor's Awards for Excellence in Pollution Prevention were announced in January 1991 as well.

The OWM provides funding to MNTAP which offers free non-regulatory technical assistance to companies which release pollution and generate waste. Staff at MnTAP has been expanded from six to 15, and efforts have been refocused to include an emphasis on pollution prevention.

The Minnesota Guide to Pollution Prevention Planning will be distributed shortly to all companies in Minnesota which report releases of toxic chemicals on TRI and to all large quantity generators of hazardous waste. Six training workshops for pollution prevention planning have been held by MnTAP this spring (attendance over 150), and more are planned for the fall.

Seven pollution prevention feasibility assessment grants were awarded to Minnesota businesses this spring. These grants are designed to support multi-media pollution prevention demonstration projects which have applicability to industries and problem chemicals in the state.

The Report on the Barriers to Pollution Prevention was completed in spring 1991. This report analyzed regulatory, economic, educational, and institutional barriers to pollution prevention and presented recommendations for overcoming them.

Over $1.1 million dollars have been collected in pollution prevention fees from TRI reporters and large quantity generators of hazardous wastes. These fees, due annually, fund pollution prevention activities at the OWM, MPCA, and the Minnesota Emergency Response Commission (ERC).

Results. The OWM is directed to write a Toxic Pollution Prevention Evaluation Report for the legislature in cooperation with the MPCA and ERC by December 15 of each year beginning in 1992. This report will evaluate progress being made in achieving the objectives of the TPPA.

C. **Opportunities and impediments.**

Information collection. As discussed in the Report on Barriers to Pollution Prevention, data gathering and management systems have generally developed along media-specific lines and focus on end-of-pipe emissions. Reliance on single-media data can mask cross-media transfers and make conclusions about overall environmental impacts difficult.

The TRI data base provides the only multi-media data base currently available. However, present TRI reporting requirements provide incomplete data for comprehensive regulatory, policy and planning purposes.

The legislature has directed the OWM to prepare and submit a report evaluating the utility of requiring companies to prepare toxic pollutant use reports and reduction plans by January 1, 1993. The benefits to be gained from a requirement to report such data will be analyzed as will the costs and problems associated with its collection.

Program integration. There is a need to further integrate the pollution prevention approach into a broad range of activities in the state. These opportunities include: to further integrate pollution prevention into the environmental regulatory system, to internalize external costs of waste and pollution in order to assure appropriate market signals, to better incorporate pollution prevention into educational activities directed at engineers and scientists, and to encourage companies and organizations throughout the state to make pollution prevention a high priority. To facilitate program coordination and integration, the OWM has created a Pollution Prevention Task Force. This group, which meets monthly, is made up of representatives from industry, labor, citizens' groups, and government. In addition, OWM staff members work closely with MPCA staff in implementing the TPPA.

Statutory authority/direction. The Report on Barriers to Pollution Prevention recommended three changes for legislative action. One recommendation was for the Legislature to remove the $30,000 cap on the pollution prevention fee. It was also recommended that the Legislature adopt the recommendations of a recent ERC report to expand TRI reporting in Minnesota by requiring non-manufacturers to report releases. The report also suggested that the Legislature amend the TPPA to require all facilities reporting releases under Minnesota's TRI requirements (instead of Federal requirements) to prepare pollution prevention plans.

ENVIRONMENTAL QUALITY BOARD
Solid Waste Program
Evaluation Survey

Program Name County Solid Waste Planning, Waste Education, State Solid Waste Policy Planning, and Solid Waste and Market Development Grants

Program Contact Ted Troolin, (612)649-5760

A. Program description.

The Office of Waste Management (OWM) administers a number of solid waste management programs including: comprehensive solid waste management planning for counties in Greater Minnesota as required by Minnesota Statute 115A.46; SCORE recycling requirements and pass-through grants as specified in Minnesota Statute 115A.551; waste education programs as specified in Minnesota Statute 115A.072; and grants for solid waste reduction, solid waste processing, and market development for recyclable materials as specified in Minnesota Statute Chapter 115A.54, 115A.53, and 115A.48. These programs have an effect on water quality as they encourage alternatives to reliance on land disposal as a county's primary method of waste management. Programs are also designed to lessen the toxicity of the waste stream. Landfills have been shown to contaminate ground water. Seventy-one sites on the State Superfund list are landfills or abandoned municipal dumps.

Key elements of the programs include development of State policies to promote improved waste management and assistance to counties in the development of county solid waste management plans for Greater Minnesota. These plans contain strategies for waste reduction, recycling, yard waste composting, the management of vehicle batteries, used appliances, household hazardous waste, resource recovery, and land disposal.

The waste education and grant programs are designed to promote proper waste management and help counties implement solid waste management programs.

Since 1985, the OWM, formerly the Waste Management Board, has awarded grants to Minnesota cities and counties totaling nearly $24 million. These grants have been used to fund recycling centers, yard waste composting facilities, waste incinerators, waste processors, solid waste transfer stations, waste composters, and projects for special waste streams.

During fiscal year 1990 and 1991, the OWM disbursed nearly $21 million in recycling pass-through grants to counties for waste reduction and recycling programs.

B. Description of recent efforts.

Rule changes. None. The Comprehensive Solid Waste Planning and Certificate of Need Rule (Chapter 9215) is currently being revised.

Special surveys, studies, or program evaluations conducted. Solid Waste Policy Report in 1988 and 1990; Solid Waste Incinerator Ash Quantity and Toxicity Reduction Report in 1990; County

Implementation Manual -- Solid Waste Reduction and Recycling Programs in 1990; Recycling Directory in 1990; SCORE Recycling Report in 1990; Development of budgeting tool to assist counties in projecting future costs of land disposal and ground water clean-up.

Other steps taken. The OWM will continue to encourage regional solid waste management solutions. The agency will encourage counties to close small landfills and cooperate with neighboring counties on resource recovery alternatives.

Results. Of the 133 permits issued by the MPCA for mixed municipal solid waste disposal facilities, only 52 were operating as of 1990; the development of numerous recycling facilities, solid waste incinerators, waste processing facilities, and solid waste composting plants as documented in the 1990 Minnesota State Solid Waste Policy Report; increases in the recycling rate statewide. Over 2.2 million state residents have access to curbside recycling programs. Citizens can also leave recyclables at nearly 600 drop-off sites.

C. Opportunities and impediments.

The OWM will develop a problem materials report in 1991 as required by Minnesota Statute 115A.956. This report should help the state target its efforts in the area of problem materials.

The OWM will continue to focus attention on the environmental problems associated with on-site disposal of solid waste at farms and in rural communities of the state.

The OWM will develop a strategy for reducing the quantity and toxicity of packaging in the waste stream.

The OWM will work with the Legislative Commission on Waste Management, the MPCA, the Association of Minnesota Counties, and others to examine the impediments to siting needed solid waste management facilities.

The OWM will spearhead a compost marketing study. The OWM is projecting that 70,000 tons of solid waste compost will be produced annually in the state once five large scale facilities are operational.

The OWM will continue to encourage regionalization of solid waste management facilities to ensure that facilities can be made affordable.

The OWM will continue to promote landfill abatement, resource recovery, and source reduction.

D. Other comments.

Changes in agency or program priorities, operation or focus: Since the passage of the waste reduction and recycling program that went into effect in October of 1989, the OWM has devoted a significant amount of staff time to administration of new waste reduction and recycling programs, including grant and loan programs, distribution of county pass-through funding, and review of county recycling plans.

ENVIRONMENTAL QUALITY BOARD
Water Quality Program
Evaluation Survey

Program Name Highway Management

Program Contact Jim O'Connor, MnDOT, (612)725-2365

A. Program description.

1. Pre-construction monitoring activities:

   A. Determining ambient conditions (levels of constituents).

   B. Monitoring holding ponds.

2. Post-construction monitoring activities:

   A. Effects of chlorides in lakes (run-off collections from de-icing studies).

   B. Monitoring holding ponds.

3. Soil testing for leaching effects (soil and ground water):

   A. Salt storage sites.

   B. Fuel storage tank sites.

4. Studying the effects of recycled payment--for future use as construction material.

Statutory authority and rule changes don't apply; these were all part of MnDOT initiatives, although they are probably related indirectly to the Clean Water Act.