

Minnesota Board of Water and Soil Resources. Minutes.

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Version 3
August 20, 2018

BOARD OF WATER AND SOIL RESOURCES
90 West Plato Blvd.
Conference Room A
St. Paul, Minnesota 55107
March 23, 1988

AGENDA

9:00 a.m.	1. Call Meeting to Order - Chairman Ogaard
	2. Adopt Agenda
	3. Approve Minutes of February 24, 1988 Meeting
	4. Chairman's Report - Don Ogaard
	5. Report of BWSR Personnel Committee - Bill Cofell
	6. Delegation of Hiring Authority - Don Ogaard
	7. Retreat Follow-Up - Jim Birkholz a) Board/Staff Feedback b) Proposed Board Planning Process c) Board Planning Committee
10:00 a.m.	8. Proposed Rabbit-Mustinka Bois de Sioux Watershed District - Mel Sinn a) Report from Hearing Committee b) Review and Discuss Administrative Law Judge Findings c) Board Direction
Noon	Lunch
1:00 p.m.	9. Environmental Quality Board/Water Resources Committee Report - Loni Kemp a) Groundwater Strategy b) Pest and Nutrient Management Strategy
1:30 p.m.	10. Koochiching SWCD Return of State Grant Funds - Terry Aitchison and Becky Flynn
	11. Ramsey SWCD Request for Change of Headquarters
2:00 p.m.	12. Metropolitan Water Planning (509) a) Board Action on Richfield-Bloomington WMO Plan - Kim Benson b) Staff Report on Strategy for Developing Rules - Mel Sinn
	13. Legislative Update - Jim Birkholz
	14. Board Action on Minett-Kranz Partial Payment - Jim Birkholz
	15. Advisor Comments
	Adjourn

MINUTES OF MARCH 23, 1988 MEETING
OF THE
BOARD OF WATER AND SOIL RESOURCES

Appointed Members in Attendance

Don Ogaard
John Williamson
John Boulton
Don Warner
Eugene Kalmes
Dougals Bade
Lowell Moen
James Hoese
Natalie Haas Steffen
John Brooks, Jr.
Loni Kemp
Howard Peterson
Jack Graba
William Cofell
Loren Harste
Ken Schellack

Others in Attendance

Carl Anderson, Minnesota Association of Soil & Water Conservation Districts
Mary Peterson, Minnesota Association of Soil & Water Conservation Districts
Gary Nordstrom, Soil Conservation Service
Ron Nargang, Minnesota Department of Natural Resources
Wayne Anderson, Minnesota Pollution Control Agency
Paul Burns, Minnesota Department of Agriculture
Allen Dornfeld, Minnesota Association of Watershed Districts
Tom Halbach, University of Minnesota, Extension Service
Nels Nelson, BARR Engineering
Paul Strandberg, Attorney General's Office
Judy Erickson, Lobbyist, Minnesota Association of Soil & Water Conservation Districts
John Wells, State Planning Agency
Bill Downing, Ramsey Soil & Water Conservation District
Don Granholm, WARZYN Engineering
Becky Flynn & Terry Aitchison, Koochiching Soil & Water Conservation District
Those in attendance regarding the Rabbit-Mustinka Bois de Sioux: Steve Rufer, Attorney from Fergus Falls; Charles Foss and Sidney Bordson, Concerned Citizens for Water Management; Dennis Stock, Ottertail County; Gerald Lacey, Grant County Commissioner; and Lyle Alvstad, Grant County Commissioner.

Staff in Attendance

Jim Birkholz
Mel Sinn
Kim Benson
Dennis Pond
Denice DeFrates
Mary Jo Anderson

Call Meeting to Order - Chairman Ogaard called the meeting to order at 9:00 a.m., in Conference Room A, Department of Agriculture Building, 90 W. Plato Blvd., St. Paul, Minnesota.

Adopt Agenda - Loni Kemp asked about the LCMR request for issues for the next biennium. Chairman Ogaard asked that Board members contact staff or him with any input, and staff will then forward input to LCMR. Natalie Haas Steffen asked that an additional item be added to the agenda: 12c., regarding discussion
88-53 on rule-making authority. Moved by Warner, seconded by Haas Steffen, to adopt the agenda as presented: Ogaard, Williamson, Boulton, Warner, Kalmes, Bade, Schellack, Moen, Hoese, Haas Steffen, Brooks, Jr., Harste, Peterson, Graba, Kemp, and Cofell. Opposed: None. Carried.

Chairman Ogaard introduced Paul Burns, Planning Division, Minnesota Department of Agriculture, who will be representing the Department at the Board meetings. Also introduced was Tom Halbach, University of Minnesota Extension Service.

88-54 **Approval of Minutes of February 24, 1988** - Moved by Cofell, seconded by Bade, to approve the minutes of February 24, 1988 as circulated. Affirmative: Ogaard, Williamson, Boulton, Warner, Kalmes, Bade, Schellack, Moen, Hoese, Haas Steffen, Brooks, Jr., Harste, Peterson, Graba, Kemp, and Cofell. Opposed: None. Carried.

Chairman's Report - Chairman Ogaard stated that he and staff have been very busy during this past month with the legislature in session. He feels that the legislature expects participation from the Board during the next year. Joint "discussion type" meetings have been held in several areas of the state with watershed districts and soil and water conservation districts, addressing responsibilities of both districts. Comprehensive local water planning is also being discussed at these meetings. Chairman Ogaard has met with the watershed district managers and soil and water conservation district supervisors in the metro area. A joint meeting will be held in April with both organizations. Chairman Ogaard has received requests to hold a joint meeting with watershed districts, soil and water conservation districts, and water management organizations. Chairman Ogaard reported that the financial situation for the Board is moving along. Senate Semi-States Division approved $433,000 for the Board budget through general funding.

Report of BWSR Personnel Committee - Bill Cofell reported that the Personnel Committee first met on November 24 to discuss hiring of an executive director. On March 1-3, a packet of 41 resumes were distributed to the Personnel Committee. On March 5, the Personnel Committee selected ten candidates. Of the ten candidates, six were selected to be interviewed. On March 18, the Personnel Committee met to discuss and select interview questions. On March 19, the Personnel Committee interviewed the six candidates. On March 22, the Personnel Committee met with Cindy Valentine, Department of Employee Relations, to discuss the implication of hiring, and review the compensation level requirements to the Committee. The Personnel Committee then selected Jim Birkholz as Executive
88-55 Director. Moved by Cofell, seconded by Williamson, to approve the Personnel Committee's appointment of Jim Birkholz as Executive Director. Affirmative: Ogaard, Williamson, Boulton, Warner, Kalmes, Bade, Schellack, Moen, Hoese, Haas Steffen, Brooks, Jr., Harste, Peterson, Graba, Kemp, and Cofell. Opposed: None. Carried. Jim Birkholz accepted the position of Executive Director. It was explained that this position is unclassified.

88-56 Moved by Cofell, seconded by Warner, that the Executive Director involve the Personnel Committee when hiring the Assistant Director. Affirmative: Ogaard, Williamson, Boulton, Warner, Kalmes, Bade, Schellack, Moen, Hoese, Haas Steffen, Brooks, Jr., Harste, Peterson, Graba, Kemp, and Cofell. Opposed: None. Carried. It was explained that to fill the Assistant Director position, the Board needs to follow the DOER process. This will be a classified position, with the option of filling through statewide promotional. The Personnel Committee will bring before the Board, the guidelines, and details for filling this position.

88-57 Moved by Peterson, seconded by Warner, that the Personnel Committee's minutes from their meetings become permanent records of the Board. Affirmative: Ogaard, Williamson, Boulton, Warner, Kalmes, Bade, Schellack, Moen, Hoese, Haas Steffen, Brooks, Jr., Harste, Peterson, Graba, Kemp, and Cofell. Opposed: None. Carried.

88-58 **Delegation of Hiring Authority** - Moved by Haas Steffen, seconded by Brooks, Jr., to authorize the Executive Director to act on behalf of the Board as the appointing authority for all classified service positions, except that consent of the Chair shall be obtained for appointments and terminations. Affirmative: Ogaard, Williamson, Boulton, Warner, Kalmes, Bade, Schellack, Moen, Hoese, Haas Steffen, Brooks, Jr., Harste, Peterson, Graba, Kemp, and Cofell. Opposed: None. Carried.

Retreat Follow-Up - Jim Birkholz, on behalf of the staff, felt that the retreat was a very good opportunity for staff to interface with Board members. He stated that the Board Representatives, being the backbone of the Board's delivery system, appreciated the opportunity to meet and work with Board members. Jack Graba felt that it was a very informative retreat, and was pleased Jim Connolly could be there to assist building the relationship between Board and staff. Doug Bade felt that he now has a better understanding of the Board Representative position. Jim Birkholz explained that the staff Policy and Planning Work Group (Jim Birkholz, Greg Larson, Mel Sinn, Dave Peterson, and Dennis Pond) developed a proposed process for the Board's strategic plan. The proposal was discussed by the Board. Haas Steffen asked that the "sub-committee" to work on parts of the plan be clarified, and that both metro and greater Minnesota members be included on it. It was felt that the strategic planning process and the biennial budget plan should be integrated with the September 30 biennial budget proposal. Loni Kemp stated that the Environmental Quality Board/Water Resources Committee report is to be finalized in September, and this should be taken into consideration. It was then asked if a sub-committee be formed to work

88-59 on the plan with staff. Moved by Haas Steffen, seconded by Kalmes, to accept the proposed process for development of the Board's strategic plan including the appointment of a policy task force sub-committee. Affirmative: Ogaard, Williamson, Boulton, Warner, Kalmes, Bade, Schellack, Moen, Hoese, Haas Steffen, Brooks, Harste, Peterson, Graba, Kemp, and Cofell. Opposed: None. Carried.

Chairman Ogaard appointed the policy task force sub-committee: John Brooks,

88-60 Jr., Doug Bade, Howard Peterson, Loni Kemp, and Bill Cofell. Moved by Hoese, seconded by Schellack, to approve the Chairman's appointment of the policy task force sub-committee. Affirmative: Ogaard, Williamson, Boulton, Warner, Kalmes, Bade, Schellack, Moen, Hoese, Haas Steffen, Brooks, Jr., Harste, Peterson, Graba, Kemp, and Cofell. Opposed: None. Carried.

Proposed Rabbit-Mustinka-Bois de Sioux Watershed District - Chairman Ogaard recommended that no action be taken at the meeting today. Board members were asked to hear argument regarding exceptions to the administrative law judge's report today, and take action on this at the April meeting. Chairman Ogaard stated that: no new evidence can be received; aggrieved parties have the right to be heard; they must address their comments to the findings of the administrative law judge; an overview of the record will be given by Mel Sinn; and the Hearing Committee of the Board will make its report. Mel Sinn gave an overview of the record. He stated that the record consists of all the exhibits and testimony from the hearing held in Wheaton, the post-hearing submissions, and the administrative law judge's report. Mel stated that the following information is available to Board members if they are interested in reviewing it: the hearing transcript, post-hearing briefs, miscellaneous correspondence, post-hearing submissions, and the report of the administrative law judge. Mel asked that Board members take home and review the packet of information they received which includes: a four-page summary of the testimony, final briefs, four of 18 post-hearing letters which were received (2 pro and 2 con), a letter from Big Stone County with opposition resolutions from three township Boards, a list of the collateral decisions that would have to be made if the proposed district is established, and returned questionnaires from manager nominees. Chairman Ogaard stated that formal parties would each be given 15 minutes to present argument. Paul Strandberg, Attorney General's office, was in attendance on behalf of the Board. Mr. Standberg stated that the final decision needs to be made by the full Board, not just the Hearing Committee. Mr. Cofell reported on behalf of the Hearing Committee, which endorsed the administrative law judge's recommendation. The Hearing Committee also made the following additional recommendations: that the name of the watershed district be the "Bois de Sioux Watershed District"; that its principal place of business be located in Wheaton, and that it have nine managers distributed by counties in the manner recommended by the law judge. Several persons were present in opposition to the petition. Charles Foss, President of Citizens Concerned for Water Management, addressed the law judge's findings number 11, 13, 14 and 18, and conclusion number 3, and said he would like to see Grant and Ottertail Counties excluded. Sidney Bordson, of Citizens Concerned for Water Management, felt that some of the statements in the law judge's report were not factual and he addressed findings 12, 18, 22, and 36, and the law judge's memorandum. Gerald Lacey, County Commissioner from Grant County, restated his opposition to the formation of the watershed district and commented on findings 25 and 36. Dennis Stock, Ottertail County, stated his opposition. Lyle Alvstad requested that copies of his opposition letter be read by the Board. A copy was distributed to each Board member. Steven Rufer, attorney from Fergus Falls, and representing Citizens Concerned for Water Management, spoke in opposition to the petition. He stressed the "diversity" involved in the proposed watershed district in terms of the three major rivers, the topography, and public opinion. He criticized the law judge's report for not including a finding that the Bois de Sioux River outlets to the north. He said the record contains no scientific evidence as to the cause of the flooding problems, nor did it spell out any proposed solutions. He reminded the Board of the existence of two water control structures on the Mustinka River, at Lightning Lake and Pine Ridge, which the law judge did not mention. He said much of the findings discuss 1986 problems, which he felt was unfair because the area received more than 10 inches of excess rainfall that year. He then presented specific exceptions to the law judge's findings number 18, 23, 27,

29, and 37, and conclusion 3. He stated that the final decision on whether the proposed district would serve the "public interest and public welfare" requires use of the "balancing test." He said the Board needed to determine that the benefits of the proposed district would outweigh its costs or disadvantages, in order to establish it. Finally, he argued that several of the "purposes" referenced in the law judge's conclusion number 3 were not even mentioned in the hearing record other than in the nominating petition. In his opinion, these "purposes" needed to be supported by hard evidence in the record. Gerald Lacey stated that the six affected counties have signed a joint powers agreement for comprehensive local water planning. Paul Strandberg stated that findings must be based on what's in the record. Chairman Ogaard walked through the findings of fact with the Board. Ron Nargang was asked to summarize the DNR's report on the petition, which recommended in favor of the establishing the proposed watershed district. Chairman Ogaard asked that the Board digest the information presented, and be ready to vote on all of the issues at the April meeting. The entire record is available to Board members if they so desire. Gerald Lacey charged that Chairman Ogaard was biased, due to the success of the watershed districts he has been involved with. Mel Sinn stated that the Board's responsibility in regard to the formation of watershed districts is really a quasi-legislative function. He said most special-purpose governmental units with broad authorities like a watershed district are created by special law, rather than agency action. He stated that the Board needs to look at the public interest question in terms of whether the proposed district is needed to carry out coordinated water management throughout the watershed. He urged the Board not to get hung up on how well or how poorly the petitioners documented existing water problems because under the law a district could be established as a prevention tool as well as a remedial one.

Chairman Ogaard recessed the meeting for lunch at 12:15 p.m. The meeting reconvened at 1:15 p.m.

Chairman Ogaard asked Carl Anderson, President, Minnesota Association of Soil and Water Conservation Districts, to introduce their lobbyist Judy Erickson.

Environmental Quality Board/Water Resources Committee Report - Loni Kemp explained that the Minnesota Pollution Control Agency has put together the Minnesota Groundwater Protection Strategy. At the last meeting of the EQB/Water Resources Committee, they discussed the national groundwater protection law. She stated that there is a section in that which emphasizes the state and local role in designation of acquifer protection areas. The Water Resources Committee will be further discussing the recodification of the drainage law. She asked Board members to get involved in the upcoming public meetings that will be held statewide on groundwater protection. This is a good opportunity for people to have input. The public meetings are designed to be an open process, with time available for formal testimony. The EQB/WRC will be attending each hearing. Every strategy will go to each agency for approval and input. The Board has until May to formalize a summary. It was asked that the Board consider sending the water resources strategy out. Loni Kemp felt that a sub-committee from the Board is necessary to develop a response on the groundwater protection

88-61 and pest and nutrient management strategies. Moved by Cofell, seconded by Kalmes, that the Board name a sub-committee on these strategies, with advice from appropriate staff. Affirmative: Ogaard, Williamson, Boulton, Warner,

Kalmes, Bade, Schellack, Moen, Hoese, Haas Steffen, Brooks, Jr., Harste, Peterson, Graba, Kemp, and Cofell. Opposed: None. Carried. Chairman Ogaard asked for volunteers for the sub-committee. Eugene Kalmes volunteered.

Gary Nordstrom, Soil Conservation Service, stated that SCS will be working with the University of Minnesota on pesticide and nutrient management guidelines for their technical guide. SCS is in the process of developing a national draft groundwater strategy. The action plan is to be in place by 1990. Gary Nordstrom stated that SCS has a new State Resources Conservationist, Roger Mussetter, who replaces Richard Baird. They also have a new Water Resources Staff Leader, Nick Pearson, who replaces Ivan Wilkinson.

Koochiching SWCD Return of State Grant Funds - Jim Birkholz introduced Terry Aitchison, Supervisor, and Becky Flynn, District Manager, of the Koochiching SWCD. The Koochiching SWCD is requesting that the Board change their decision from the February 24, 1988 meeting, stating that the SWCD withhold $998.93 from general services grant, $515.50 from cost-share grant, and $1,538.46 from the TED grant, from the FY89 grant allocations. The SWCD feels that they will have a financial hardship if this money is taken at one time. Discussion followed. Becky Flynn stated that the accounting problem has been corrected and apologizes for the inconveniences it has presented. The SWCD supervisors have requested the Board Representative to go over the books on a quarterly basis. Dennis Pond stated that the SWCD's fund balance as of December 31, 1987 was just under $8,000 of uncommitted funds. Chairman Ogaard excused the Koochiching SWCD representatives and Dennis Pond to go over their budget situation and see if a deficit would occur.

Ramsey SWCD Request for Change of Headquarters - Jim Birkholz stated soil and water conservation districts need approval from the Board for a change in
88-62 headquarters to ensure that official records are kept up-to-date. Moved by Haas Steffen, seconded by Warner, to approve the Resolution for Change of Headquarters for the Ramsey SWCD. Affirmative: Ogaard, Williamson, Boulton, Warner, Bade, Schellack, Moen, Hoese, Haas Steffen, Brooks, Jr., Harste, Peterson, Graba, Kemp, and Cofell. Opposed: None. Carried.

Metropolitan Water Planning (509) - Kim Benson introduced Brian Borg, City of Bloomington, who was the principal author of the Richfield-Bloomington Watershed Management Plan. Kim briefed the Board on the issues that had been raised in the plan review process and the manner in which the WMO responded to them with specific plan amendments. She said staff was satisfied with the amendments and recommended that the Board adopt the draft Order approving the plan. Kim also reported that this plan would be effective through the year 2000. Haas Steffen stated that she needed more information on this plan to feel comfortable about approving it. She would rather delay action on the
88-63 plan than have problems with it later. After discussion, it was moved by Graba, seconded by Moen, to adopt the draft Order approving the Richfield-Bloomington WMO Plan on the condition that no written request for hearing is received through March 24, 1988. Affirmative: Ogaard, Williamson, Bade, Schellack, Hoese, Brooks, Jr., Harste, Peterson, Graba, Kemp, and Cofell. Opposed: Boulton, Warner, Kalmes, Moen, and Haas Steffen. Carried.

Staff Report on Strategy for Developing 509 Rules - Mel Sinn explained that a staff workgroup was formed after the February Board meeting to formulate

a strategy to develop rules for the Metropolitan Water Management Act (509). Mel presented the workgroup's report and alternatives for addressing the issue of rule applicability. Discussion followed. Haas Steffen suggested that development of full-blown rules for the 509 process at this time would not be fair because they could not be equally applied to all WMOs. Cofell stated that the intent of his motion at the February meeting was limited to the uniform erosion and sediment control issue.

Chairman Ogaard asked the Board if policy or rules was the intent of the Board. It was the consensus of the Board that policy is most important at the present time. Staff will be left to decide whether comprehensive rules should be proposed at a later date. The Board would like to be more fully briefed on WMO plans. Chairman Ogaard suggested that staff brief the Board on the plan

88-64 and then bring the plan back for Board action at the following meeting. Moved by Kemp, seconded by Cofell, that staff is empowered to develop rules limited to uniform erosion and sediment control standards for 509 plans in the metro area. Affirmative: Ogaard, Williamson, Boulton, Kalmes, Bade, Schellack, Hoese, Peterson, Kemp, and Cofell. Opposed: Warner, Moen, Haas Steffen, Brooks, Jr., Harste, and Graba. Carried. This action is a clarification of Bill Cofell's motion of last month regarding development of 509 rules.

Dennis Pond and Becky Flynn and Terry Aitchison, Koochiching SWCD, returned to the meeting. Dennis reported that the total expenditures for Koochiching SWCD for FY87 (July 1 - December 31) was $15,124. The projected expenditures for FY88 is $35,000. Revenues total $26,150 (county - $15,518; state - $9,632 (TED $132.00; general services $6,650; cost-share $350; and RIM $2,500), and Other - $1,000. This totals $8,850. With estimated expenditures through December 31, the overall projected shortfall is $900 for FY88. Discussion

88-65 followed. Moved by Moen, seconded by Warner, that if legally possible to do so, Koochiching SWCD would be allowed to keep the $998.83 of their general services grant. Affirmative: Moen, Warner, and Kalmes. Opposed: Ogaard, Williamson, Boulton, Bade, Schellack, Hoese, Haas Steffen, Brooks, Jr., Harste, Peterson, Graba, Kemp, and Cofell. Motion defeated. Williamson stated that although this is an unfortunate situation, the Board is setting precedent here,

88-66 as problems would arise from doing this. Discussion followed. Moved by Graba, seconded by Boulton, that the Board adopt policy for return (payback of funds) over a two year period. Return of general services and cost-share funds in FY89 and return of TED grant in FY90. Affirmative: Williamson, Boulton, Warner, Kalmes, Bade, Moen, Hoese, Brooks, Jr., Harste, Peterson, Graba, Kemp, and Cofell. Opposed: Schellack, and Haas Steffen. Carried.

Legislative Update - Jim Birkholz briefed the Board on the Environmental Trust Fund status. He also briefed the Board on several groundwater bills which included provisions for a BWSR/SWCD cost-share program to identify and properly seal abandoned wells and to expand the RIM Reserve program to include susceptible groundwater areas. A soil and water stewardship bill calls for $80,000 for curriculum materials on this subject. A pilot sediment and erosion control program for Ramsey County (part of 509 water planning is also progressing), with a clause stating that any rules of the Board would supersede the Ramsey County.

Board Action on Minett-Kranz Partial Payment - Jim Birkholz explained that the Minett-Kranz Reservoir in Pipestone County is the sixth major flood control structure to be built in study area II. This payment request is the first

of many before the project is completed in the fall of 1988. The request for payment is for land rights and associated costs for the Minett-Kranze Reservoir.

88-67 The Board's share of the payment is $26,449. Moved by Boulton, seconded by Schellack, to approve the payment of $26,449 for the Minett-Kranz Reservoir. Affirmative: Ogaard, Williamson, Boulton, Warner, Kalmes, Bade, Schellack, Moen, Brooks, Jr., Peterson, Kemp, Harste, and Cofell. Opposed: None. Carried.

Chairman Ogaard asked how much time will be needed at the April meeting for the Rabbit-Mustinka Bois de Sioux Watershed District. It was decided that three hours should be adequate.

88-68 Moved by Brooks, Jr., seconded by Bade, to adjourn the meeting at 4:10 p.m. Affirmative: Ogaard, Williamson, Boulton, Warner, Kalmes, Bade, Schellack, Moen, Brooks, Jr., Harste, Kemp, Peterson, and Cofell. Opposed: None. Carried.

Respectfully submitted,

Donald Ogaard
Chairman

RECOMMENDED RESOLUTION

To authorize the Executive Director to act on behalf of the board as the appointing authority for all classified service positions, except that consent of the Chair shall be obtained for appointments and terminations.

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STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS

FOR THE MINNESOTA BOARD OF WATER AND SOIL RESOURCES

In the Matter of the Petition
for the Establishment of the
Mustinka-Rabbit River-Bois
de Sioux Watershed District
Filed on July 27, 1987

FINDINGS OF FACT,
CONCLUSIONS,
RECOMMENDATION
AND MEMORANDUM

The above-entitled matter came on for hearing before Peter C. Erickson, Administrative Law Judge, on January 11, 1988, in Wheaton.

Appearing on behalf of the Petitioners was Timothy E. J. Fox, Wilkin County Attorney, P. O. Box 214, Breckenridge, Minnesota 56520, and Jeanne L. Bringgold, Traverse County Attorney, P. O. Box 26, Wheaton, Minnesota 56296. Appearing on behalf of Citizens Concerned for Water Management, Inc., a nonprofit corporation opposed to the formation of the District, was Stephen F. Rufer, Rufer & Hefte, Attorneys at Law, 111 North Mill Street, P. O. Box 866, Fergus Falls, Minnesota 56537-0866. Appearing on behalf of the Dispute Resolution Committee of the Minnesota Board of Water and Soil Resources was Special Assistant Attorney General Paul Strandberg, 525 Park Street, S-200, St. Paul, Minnesota 55103. There were four Board members present at the hearing: Chairman Donald Ogaard, Loren Harste, William Cofell, and Jack Graba.

The record in this matter closed on February 10, 1988.

Notice is hereby given that, pursuant to Minn. Stat. § 14.61 the final decision of the Board shall not be made until this Report has been made available to the parties to the proceeding for at least ten days, and an opportunity has been afforded to each party adversely affected to file exceptions and present argument to the Board. Exceptions to this Report, if any, shall be filed with the Minnesota Board of Water and Soil Resources, 90 West Plato Boulevard, First Floor, St. Paul, Minnesota 55107. The Board's next regularly scheduled meeting is set for March 23.

STATEMENT OF ISSUE

Have the petitioning counties demonstrated that the establishment of the proposed district would be for the public welfare and public interest and would serve the purposes of Minn. Stat. Chapter 112?

Based upon all of the proceedings herein, the Administrative Law Judge makes the following:

FINDINGS OF FACT

Procedural History and Jurisdiction

1. On July 27, 1987, a petition seeking the establishment of a Mustinka-Rabbit River-Bois de Sioux watershed district was filed with the Minnesota

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Water Resources Board. The Petition was signed by the chairman of the county boards of the counties of Wilkin, Traverse, Big Stone and Stevens. Attached to the Petition was an affidavit of service by mail of the Petition on the county auditors of Wilkin, Traverse, Stevens, Otter Tail, Grant and Big Stone Counties, as well as on the Commissioner of the Department of Natural Resources. Those were mailed on July 15, 1987.

2. On August 19, 1987, the Water Resources Board considered the Petition. The Board found the Petition sufficient, subject to receipt of proof of service on the Director of the Division of Waters of the Minnesota Department of Natural Resources. The Board granted the Director an extension of time to prepare his report, and directed its staff to begin the process for scheduling a hearing on the Petition.

3. On August 31, 1987, a copy of the nominating Petition, accompanied by an affidavit of service by mail on the Director of the Division of Waters of the Minnesota Department of Natural Resources, was filed with the Water Resources Board.

4. On October 27, 1987, the Director of the Division of Waters of the Department of Natural Resources filed his report on the Petition. The report concludes that the Department supports the formation of the proposed district because it would have the opportunity to provide coordinated water resource management over the entire hydrologic basin.

5. On November 30, 1987, a preliminary watershed map prepared by the Department of Natural Resources was filed with the newly created Minnesota Board of Water and Soil Resources.

6. On December 8, 1987, the Board issued its Notice of and Order for Hearing in this matter. The Notice set the hearing for January 11, 1988 in Wheaton, Minnesota.

7. On December 15, 1987, copies of the Notice of and Order for Hearing were mailed to the county auditors of Big Stone, Grant, Otter Tail, Stevens, Traverse and Wilkin Counties. Copies were also mailed to the mayors of cities and clerks of townships within the boundaries of the proposed district, to county soil and water conservation districts in the affected area, to legislators representing the affected area, to three newspaper editors in the affected area, and to various other interested individuals.

8. On December 16, and again on December 30, the Notice of and Order for Hearing was published in the Grant County Herald, accompanied by a map showing the boundaries of the proposed district. On December 17, and again on December 24, the Notice and map were published in the Daily News of Wahpeton-Breckenridge, the Wheaton Gazette, the Morris Tribune, and the Northern Star.

Description of the Proposed District

9. The proposed district is roughly rectangular in shape, and includes all of Traverse County, as well as portions of Wilkin, Otter Tail, Grant, Stevens and Big Stone Counties. It constitutes the drainage basins of Lake Traverse and the Bois de Sioux River. The major tributaries are the Mustinka River to the south and the Rabbit River to the north.

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10. The area of the proposed district is approximately 1,435 square miles. This is broken down among the various counties as follows:

County	Square Miles	% of Total
Traverse	546	38 %
Grant	381	27
Wilkin	198	14
Stevens	144	10
Big Stone	103	7
Otter Tail	63	4
	1,435	100

11. The dominant geographical feature of the district is the very flat plain which was the bed of glacial Lake Agassiz. That flat plain covers approximately 80 percent of the proposed district. The remaining 20 percent consists of ridges (allegedly old beach lines) and "upland" areas to the east of the ridges. The ridges and upland areas are to the east of the flat plain.

12. The counties of Traverse and Wilkin have very few wetlands or lakes which can serve to hold water after spring snowmelt or a rainstorm. Parts of Wilkin and Traverse Counties had large shallow water basins in years past, but they were drained many years ago. On the other hand, the counties of Otter Tail, Grant, Stevens and, to a lesser extent, Big Stone have numerous water bodies ranging in size from only a few acres to several hundred acres. Most of the larger water bodies are above the ridge. Tr. 113.

not true

13. Agriculture is the dominant use in virtually the entire area proposed for inclusion in the district. The land has been intensively drained over the years. One of the primary causes of the flooding (which will be discussed more fully below) is the piecemeal and unplanned nature of this drainage. As more and more acres have been taken from slough, pasture or hay into row crops, they have been drained without attention to the cumulative downstream effects. When larger county ditches or joint ditches were engineered in the past, they were not engineered to carry all the water which is now being placed in them. While the rivers are, for the most part, natural (there has been some channelization and cleaning), they suffer from the same problem--inadequate capacity. They may have been adequate to carry the water that was placed in them in 1930, but they are not adequate to carry all the water that is being placed in them today.

Current Problems: Flooding

14. The extreme flatness of the Lake Agassiz basin causes large areas to be flooded by relatively small quantities of water. In the absence of roads, dikes, or other obstructions, water moves from field to field and section to section with relative ease. A pilot who had flown over the Rabbit River area during times of very high water found that the river was out of its banks by up to one and one-half miles. Tr. 45. Even in normal years, Wilkin County has 15 sites where highways and bridges are damaged each spring by the normal spring runoff. These sites will also be under water if rainfall in the area exceeds three inches. Tr. 14.

MAR 11 88

15. In serious flood years, up to 60 highways or bridges have been damaged in Wilkin County alone. Years such as 1969, 1978, 1979, 1984 and 1986 have all presented serious financial problems for Wilkin County and its townships. Tr. 15 and 70.

16. Traverse County has experienced similar damage to its highways and bridges. In 1969, there was $80,061 in documented damages. In 1978, there was $119,307; in 1984, $55,100; in 1986, $41,155. Tr. 94.

17. Similar damages have been imposed upon farmers and town people. The record is replete with photographs and testimony showing whole fields covered by water. Many of these flood problems have occurred after crops have been planted, oftentimes destroying the crop entirely. Ex. 10, p. 37. The Rabbit River came out of its banks seven times, for example, in the bad year of 1986. Tr. 56. In the city of Breckenridge, the Red River met or exceeded flood stage four different times that year. Tr. 33.

personal opinions / not true

18. Long term residents report that prior to 1950, flooding was not too much of a problem (with some notable exceptions, such as 1916). But since 1950, flooding has become more intense and more frequent. Tr. 80. Some say there is too much water coming too fast, while others say that there is probably the same amount of water, but it's coming much faster than it used to. Tr. 81 and 109. It is found that there is both more water, and it is coming faster. The primary reason for this change is the evolution of high intensity agricultural practices which permit the growing of row crops on well drained soils which, in the past, were too wet to support them. Drainage has permitted these lands to become far more productive, but it has had a negative effect on the productivity of downstream lands. In summary, flooding is a problem, and artificial alteration of the natural drainage system is one of the causes.

inconsistency in testimony Rafter

Other Current Problems

19. Erosion caused by flood waters is a serious problem. A supervisor on the Traverse County Soil and Water Conservation District Board characterized the erosion problem in Traverse County as "massive". Tr. 103. The erosion is a direct result of the quantity of water and the velocity at which it travels.

20. Siltation is a serious problem in Lake Traverse, the Bois de Sioux and Red Rivers, and at least some of the rivers and ditches that feed them. In February of 1985, for example, the City of Breckenridge contacted the Army Corps of Engineers to inquire about the possibility of dredging the Red River in order to increase its capacity. The Corps responded with the suggestion that the City work with local soil conservation service units to reduce the amount of erosion upstream of the river. Ex. 9 and Tr. 95.

21. The Department of Natural Resources has documented fish kills in Lake Traverse which are the result of excessive algae. Non-point source runoff is a common contributor to algal populations. Heavy rains will frequently cause nutrients to be washed away along with the eroded soil, delivering the nutrients to algae and other organisms.

22. There is also concern about groundwater quality. At least one person who recently dug a new well to an 86-foot depth has found that excessive nitrates in the water make it unsuitable for human consumption.

no relation to used

MAR 11 88

23. The crop losses and soil erosion which result from flooding have caused landowners to seek reduced tax valuations from their local assessors. Assessors have lowered valuations, but township boards note that this occurs at the same time that they need to raise money for road and bridge repairs. Tr. 109.

No causation Ruffer

24. Antagonisms, disputes and even litigation have arisen over water problems in this area. Landowners who are paying for ditches do not mind paying their fair share, but if the ditch is carrying water from upstream landowners who are not being assessed, those who are being assessed do object. While in some cases landowners have been able to cooperate across county boundaries -- as happened between Wilkin and Grant Counties in connection with County Ditch 20 (see, Tr. 19 and 25) -- other situations have resulted in litigation and unpleasant relations. Tr. 25 and 110.

History of Attempted Solutions

25. Approximately 25 years ago, a committee was formed to try to establish a watershed district. The project was dropped, however, in exchange for promises of informal cooperation. Tr. 75 and 78.

26. In August of 1984, the Wilkin County Board sent out a letter to adjoining counties soliciting their ideas about a possible watershed district. Ex. 31. All expressed interest, and in November of 1984, an initial meeting was held in Breckenridge.

27. During 1985, engineers and others were consulted about the feasibility of a watershed district. One of the ideas that arose from that consultation was that a district which encompassed only the Rabbit River Watershed was probably too small to be effective. Tr. 22.

statement of record Ruffer

28. In July of 1986, Senator Charlie Berg organized a meeting to hear complaints about Lake Traverse, and in September of 1986, the Corps sponsored a public meeting to attempt to define the problems. These meetings led to the Problem Appraisal Report, Ex. 10.

29. In January of 1987, the Corps of Engineers issued the Problem Appraisal Report on the Lake Traverse Reservoir Operation Plan. This report focused upon the details of the operations of the White Rock Dam and the Reservation Control Dam, but it verifies many of the problems outlined above. The report noted:

> Water resources experts tend to agree that extensive drainage, such as found in the flat glacial Lake Agassiz area, can affect downstream flood levels under certain conditions. Comprehensive watershed planning, management, and public education in the project area could help control ditching, drainage, and abuse of marginal and flood plain lands . . . Watershed districts should be activated to accomplish the planning and management needed. The Soil Conservation Service and state resources agencies can help watershed districts to plan and implement land-use measures and runoff retention projects.

nothing talks of upstream - erroneous Ruffer

MAR 11 88

30. In February of 1987, the Traverse County Board of Commissioners initiated the formal actions necessary to establish a watershed district, and meetings were held in the spring and summer of 1987 to refine the proposal.

31. In July of 1987, the Petition was filed with the Board.

Other Factors Favoring the Establishment of the District

32. A watershed district would be able to coordinate water management across county lines, just as a county board is able to deal with problems that cross township lines. An obvious example of how this can be helpful occurs in connection with planning a ditch repair project. In a major project, the engineer is going to want to know how much water must be carried at different points along the ditch. A county board can figure out, with some certainty, how much water will be contributed by lands in the county. It is helpless, however, to determine how much water will be contributed by lands on the other side of the county line. It has no control over ditch work done by upstream counties or private landowners upstream. In a watershed district, the engineer can gather data and make projections on both sides of the county line. Tr. 14, 21, 50-51. Also, in a watershed district, an engineer can consider options that involve more than one county, and so the options presented can be those that are most technically feasible, without the limitations imposed by political boundaries. Tr. 106.

33. Joint powers agreements or joint county ditches are both alternatives to a watershed district. There are a fair number of joint ditches already in existence. There are ditches between Wilkin and Grant, Wilkin and Traverse, Wilkin and Otter Tail, Traverse and Big Stone, Traverse and Grant, and even one involving Traverse, Wilkin and Grant. Tr. 16, 51, 97, 98 and letter dated January 19 from Steven Raguse. Sometimes these units have worked well, and other times they have not. Tr. 97-98. Their scope, however, is limited to one ditch system, rather than a whole drainage basin. While they certainly can solve an immediate problem, they may just pass it on downstream, and not contribute to a basin-wide solution.

34. A watershed district can deal with a whole host of water-related problems, not just flooding. Water quality problems involving algae in Lake Traverse or nitrates in drinking water are caused by water flows well beyond the scope of any one ditch or ditch system. While they may even be caused by factors outside the boundaries of the proposed district, a district is better equipped to deal with them than a joint ditch board.

35. Watershed boards are made up of managers who, by law, do not hold other public offices. Oftentimes they are able to devote more time and attention to water problems than can reasonably be expected from a county board, which must deal with many other issues. The minutes of the Grant County Board in the record reflect frequent water-related discussions and decisions, but they are a very small percentage of the total work of the County Board. There are only so many meetings that officeholders can attend, and a watershed board allows others to share the work presently being borne by the county board. Tr. 16 and 30.

Other Factors Opposing the Establishment of the District

36. There is substantial opposition to the Petition from landowners in three of the affected counties. A watershed district was opposed by the

MAR 11 88

County Boards of Otter Tail and Grant Counties. Individuals from those counties stated they had no objection to Wilkin and Traverse forming a district, if they wanted to, but Otter Tail and Grant did not want it to include any of their lands. Big Stone County was one of the counties that signed the Petition in June of 1987. However, by letter dated January 26, 1988, the Big Stone County Board indicated a change of position. Petitions opposing the establishment of the district were signed by over 80 percent of the resident freeholders in Big Stone County whose lands would be included within the boundaries of the proposed district. Had the county board know that there was such strong opposition, it would not have joined in the signing of the Petition. The county board recognized, however, that the law specifically prohibits individuals, or a county, from withdrawing their names from a petition once it has been filed, unless all other petitioners consent to the withdrawal.

37. The rate of ditching to reclaim wasteland for agricultural purposes will not be as great in the future as it has been in the past, because there just isn't that much land left that can be legally and economically drained. In other words, it is wrong to assume that the increase in flows during the last 30 years, for example, will continue to get even bigger again. Many of the lands which are most attractive for drainage are protected by long-term easements or outright legal prohibitions against drainage. In Grant County, for example, the statewide inventory process for water bodies and wetlands identified a total of 188 basins which are protected against drainage. Tr. 114 and Ex. 104. The protection, however, is dependent upon a state law which can be changed whenever the legislature chooses to. At the present time, the lower limit for protection is ten acres. There is nothing to say the legislature could not change that number. But under current law, those water bodies and wetlands are protected from drainage. Additional protection comes from federal farm programs which have recently included provisions conditioning participation upon an agreement not to create additional cultivated acreage ("sodbuster-swampbuster"). This, too, may change in the future, but, for the present, it provides an incentive for farmers not to drain additional lands. Finally, additional drainage is limited by the practicalities of cost: at some point it becomes too expensive to drain in comparison to the expected return from the land. Digging 30 or 40 feet down for any substantial distance is simply not economical under current conditions. Tr. 141.

Outside of record - Puffer

38. There are already a large number of governmental entities which have control over one or more parts of the total water management picture: the Army Corps of Engineers, the State's Department of Natural Resources, the counties, soil and water conservation districts, joint ditch boards, individual ditch boards, the Pollution Control Agency, and others. A watershed board has the possibility of overlapping and duplicating work already being done at taxpayer expense. Tr. 130 and Petitions, Ex. 100. As the DNR Director's report noted, the creation of a district does not diminish the authority of other agencies to carry out their jobs, unless there is a formal agreement to transfer responsibilities. If the problems of duplication and inconsistent regulation are to be avoided, communication channels must remain open and the district must limit its role to that assigned to it by law. If not, the fears of duplication expressed by the opponents can, in fact, come true.

39. A watershed district has the power to tax and the power of eminent domain. Both of these are powers traditionally reserved for elected units of

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government, such as towns, counties, or the State. The board of managers is appointed, not elected and there is no easy way for citizens to cause a manager to be removed from office. Citizens may petition to increase the number of managers and they may petition for the termination of a watershed district at any time after five years from the date of its formation. As a practical matter, however, citizens do not have the direct control over watershed managers that they have over elected officials. On the other hand, this "distance" may result in the managers taking a broader view towards problems and solutions. One of the criticisms leveled at existing joint ditch boards was the parochial attitude that some had exhibited in the past. Tr. 97.

Managers

40. The original Petition proposed that the Board of Managers consist of nine members. It contained a list of 20 nominees for those nine positions. In addition to that list, two other persons have indicated a desire to serve as a manager. The first is Nick Daly, Route 1, Box 66, Donnelly, Minnesota 56235. Donnelly is in Stevens County. The second is Dennis Stock. Stock was nominated by a unanimous motion of the Otter Tail County Board on May 28, 1987. Tr. 142.

41. The Board is free to apportion the managers among the various counties in whatever form it chooses. In addition, the Board is free to set the number of managers at any number between three and nine. If the Board decided to go with nine managers as proposed in the Petition, and if the Board desired to apportion the managers as closely as possible to the percentage of land in the district (see Finding 10), but still give each county at least one manager, the apportionment would be as follows:

County	% of Land	# of Managers
Traverse	38 %	3
Grant	27	2
Wilkin	14	1
Stevens	10	1
Big Stone	7	1
Otter Tail	4	1
	100	9

An alternative available to the Board would be to determine and identify manager areas within the territory of the district. Minn. Stat. § 112.42, subd. 3(d).

Based upon the foregoing Findings, the Administrative Law Judge makes the following:

CONCLUSIONS

1. The nominating Petition is valid in all respects. It meets the tests set forth in both Minn. Stat. §§ 112.37 (1986) and 112.37 (1987 Supp.).

2. Due, timely and proper notice of the hearing was given. All other relevant requirements of law or rule have been fulfilled. The Board and the Administrative Law Judge do have jurisdiction to determine the issues herein.

MAR 11 88

3. The establishment of a watershed district as proposed would be for the public welfare and public interest and would serve the purposes of Minn. Stat. ch. 112, particularly § 112.36, subds. 2 (1), (2), (3), (5), (6), (7), (9), (10), (11), (13) and (14) (1987 Supp.).

Balancing test "in the public interest" Rutter

Based upon the foregoing Conclusions, the Administrative Law Judge makes the following:

RECOMMENDATION

IT IS HEREBY RECOMMENDED that the Board establish the Mustinka-Rabbit River-Bois de Sioux Watershed District, fix the boundaries thereof as proposed in the original Petition, and name the first Board of Managers of the District.

Dated this 11 day of March, 1988.

Peter C. Erickson

PETER C. ERICKSON
Administrative Law Judge

NOTICE

Pursuant to Minn. Stat. § 14.62, subd. 1, the agency is required to serve its final decision upon each party and the Administrative Law Judge by first class mail.

Reported: Tape Recorded, With Transcript Prepared By Jane I. Hosman.

MEMORANDUM

The boundaries of the proposed district were based upon science (hydrology) rather than on politics. It would have been easier for the Petitioners had they excluded lands in Grant and Otter Tail Counties in order to avoid the opposition that they must have known would come from those counties. That, however, would have been short-sighted and self-defeating. It is clear from the record that there have been a number of "ridge cuts" and tiles which allow water to flow from east to west across county lines. See, for example, Tr. 26, 61-62, and 83. Of course, a great deal of the water that is impacting the lowlands comes from the lowlands themselves; but there is no evidence as to what percentage comes from the upland and what percentage comes from the lowland, nor does it matter. What does matter is that there be a coordinated effort throughout the entire hydrologic basin to control the waters that are causing the flooding, erosion, siltation, ground water and water quality problems. Drawing the boundaries on a scientific basis, rather than on a political basis, at least gives the proposed district a chance at getting a handle on the problems. A different administrative law judge once recommended against the formation of a district because he believed the boundaries had been drawn improperly in order to exclude opponents of the proposed district. See, In the Matter of the Petition for the Establishment of the Rice-Koronis Watershed District (Counties of Stearns, Meeker and Kandiyohi), OAH Docket No. WRB-84-003-AK. Petitioners are commended for not taking that approach in this case.

contradiction

P.C.E.

MAR 11 88

Jan 16 88

RECEIVED
JAN 19 1988
ADMINISTRATIVE HEARINGS

To Peter Erickson

Re: to Doris Bordson / Rabbit River water shed meeting - at Wheaton Jan 11. 88

From Lyle Alvstad Grant county commissioner my District takes in part of proposed watershed District.

I am in agreement with Sidney Bordsons testimony and map on water basin classification, and map showing the many water basins that were classified and cannot be drained. These area are water holding areas.

The much larger area of proposed Watershed District in Traverse and Wilkens county, used to have large shallow Water basins that were drained by large drainage ditchs years ago and now contribute the most to flooding downstream.

As to this watershed, I feel the thousands of acres of land put in conservation reserve, the purchase of perpetual easement of land for not draining plus the land owned by D.N.R. - U.S. fish & wildlife and others. all this should help prevent flooding down stream. on normal years.

Lyle Alvstad
Ashby Minn 56309
Phone 218 747 2526

STATE OF MINNESOTA
BOARD OF WATER AND SOIL RESOURCES

90 W. Plato Blvd.
St. Paul, Minnesota 55107
Telephone: (612) 296-3767

Regional Offices

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Bemidji, MN 56601
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Northeast Region
Government Service Center
320 W. 2nd Street
Room 603
Duluth, MN 55802
218-723-4752

West Central Region
611 Iowa Avenue
Staples, MN 56479
218-894-1692

South Central Region
Box 756
New Ulm, MN 56073
507-354-2196

Southeast Region
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Rochester, MN 55904
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East Central Region
90 W. Plato Blvd.
St. Paul, MN 55107
612-296-3767

March 16, 1988

TO: Board of Water & Soil Resources Members and Advisors

FROM: Jim Birkholz, Office Manager

SUBJECT: March 23, 1988 Board Meeting

Attached is a preliminary agenda and informational material for the March 23rd meeting. The meeting will start at 9:00 a.m. in Conference Room A of the Department of Agriculture Building, 90 W. Plato Blvd., St. Paul.

Following are some details on agenda items:

- Report on Personnel Committee - The Personnel Committee will conduct interviews for the Executive Director position on Saturday, March 19. The Committee expects to make a recommendation to the Board at the meeting.

- Retreat Follow-Up - We want to take the opportunity to share reactions and things we learned at the retreat. Staff has prepared an outline of a planning process for Board action. A draft is attached. Chairman Ogaard will suggest Board members to be involved in the small group to help develop the Board strategic plan.

- Proposed Rabbit-Mustinka Bois de Sioux Watershed District - Attached is a copy of the findings of the administrative law judge from the hearing on the formation of the proposed watershed district for your review. The Board Hearing Committee will make a brief report on their findings at the Board meeting. Board direction is needed at the meeting regarding formation of this proposed watershed district.

- Statewide Groundwater Strategy - Attached is an announcement of a series of public meetings on groundwater protection. The Board will be briefed on the status of the groundwater strategy at the meeting. Enclosed is a one-page summary of the document.

AN EQUAL OPPORTUNITY EMPLOYER

- Metropolitan Water Planning - Attached is a copy of the staff plan review notes and recommendations for Board action on the Richfield-Bloomington WMO plan. Please review this report and be prepared to take action at the meeting.

  - Strategy for 509 Rule Development - As directed at the February meeting, staff has prepared a strategy for preparing rules for the metropolitan water planning process. Board direction is needed on several important policy items before the rule process is initiated. A background paper and alternate recommendation are enclosed.

Also attached is a copy of a mailing done by the Wild Rice Watershed District concerning maintenance of a one-rod grass filter strip required by law. This is an example of an aggressive approach to enforcing existing ditch law and preventing sedimentation of drainage systems.

Looking forward to seeing you on the 23rd. Please travel safely.

JB:mja
Enc.

Meeting of the Personnel Committee
90 West Plato Boulevard
St. Paul, Minnesota 55107
4:00 p.m.
March 22, 1988

Present: Don Ogaard, John Boulton, Howard Peterson, Bill Cofell, Don Warner, and Cindy Valentine.

Minutes of the previous meeting adopted. Don Warner called meeting to order. Cindy Valentine was introduced to explain the implication of hiring either candidate. She reviewed hiring and compensation level requirements to the Committee.

The Committee discussed the candidate requirements:

We need someone now
We need someone who knows the agency
We need someone capable of establishing rapport and who has acquaintance with staff and board.

It was moved that Jim Birkholz be hired for the position of Executive Director of the Board of Water and Soil Resources. Seconded. Motion carried unanimously.

#4

It is recommended that the Executive Director involve the Personnel Committee in hiring Assistant Director.

Bill Cofell was appointed to read the report to the Board on March 23.

Meeting adjourned.

William Cofell

PROPOSED PROCESS FOR DEVELOPMENT OF BOARD OF WATER AND SOIL RESOURCES STRATEGIC PLAN

	What	How	Who	Deadline Date
1.	Development of Mission Statement	- Small Group retreat with facilitator.	Committee of 10 members - 5 Board Members - 5 Staff Members (Committee A)	May Board Meeting
2.	Identification of Key Issues	- Staff to prepare list of issues with input from Board members and other agencies.	Staff, Board	April Board Meeting
		- Board selects issues for further definition and work.	Board	June Board Meeting
		- Board establishes sub-committees to develop goals which identify the BWSR's role in addressing identified issues.	Board Members, Staff	June Board Meeting
		- A Board/Staff retreat is held to exchange information on sub-committee work and establish priorities for dealing with the issues.	Board, Staff	September
3.	Draft Strategic Plan Prepared	- Committee A will compile the information discussed at the retreat into a draft plan.	Committee A	October
		- Draft plan distributed for review.		
4.	Adoption of Plan	- Board acts on the direction of the plan in regard to the mission statement, issues and goals.	Board	October Board Meeting
5.	3-Year Operational Plan Prepared	- Committee A will prepare a 3-year operational plan based on the BWSR strategic plan.	Committee A	November Board Meeting
		- Plan adopted by Board.	Board	December Board Meeting

	What	How	Who	Deadline Date
6.	Annual Work Plan Prepared	Staff will prepare an annual work plan outlining their activities in achieving the goals of the 3-year action plan.	Staff	June of every year
7.	Annual Review of Strategic Plan	Committee A will annually review progress on achieving goals of strategic plan and report to the full Board. Recommendations for revisions will also be discussed and presented to the Board.	Committee A Board	May of every year

KOOCHICHING SOIL AND WATER
CONSERVATION DISTRICT

Koochiching County Courthouse
International Falls, Minnesota 56649

MINNESOTA
SOIL AND WATER CONSERVATION DISTRICTS

MAR 07 88

DATE: March 3, 1988

TO: Board of Water & Soil Resources

FROM: Board of Supervisors, Koochiching SWCD by Becky Flynn

RE: Return of FY86 state grant money.

The Koochiching Soil and Water Conservation District supervisors and District Manager wish to schedule an appearance at the March 23 meeting of the BWSR to discuss the return of FY86 state grant money.

The district is concerned about the financial ramifications involved when all the money is taken at one time from the districts FY89 allocation.

We wish to discuss the return of these funds and submit a request for emergency funds to operate the district.

Please notify the district office if we are able to be scheduled for this meeting date.

Thank you.

KOOCHICHING SOIL AND WATER
CONSERVATION DISTRICT

Koochiching County Courthouse
International Falls, Minnesota 56649

MINNESOTA
SOIL AND WATER CONSERVATION DISTRICTS

MAR 07 88

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Thank you.

AN EQUAL OPPORTUNITY EMPLOYER

FY89 cost-share allocation. Affirmative: Ogaard, Boulton, Williamson, Warner, Kalmes, Bade, Schellack, Moen, Hoese, Brooks, Peterson, Graba, Kemp, and Cofell. Opposed: None. Carried.

Dennis Pond reported that an audit of the Itasca SWCD state grants discovered that $476.13 of their FY87 TED grant remained on June 30, 1987. Provisions of the Contract Agreement require that any funds remaining unspent after the end of the fiscal year shall be returned to the agency within one month of that date. The contract was signed by the SWCD Board Chairman. The Itasca SWCD is appealing the return of the funds. Staff recommendation is to withhold
88-40 the $476.13 from their FY89 TED allocation. Moved by Schellack, seconded by Boulton, accept the staff recommendation to withhold $476.13 from the Itasca SWCD FY89 TED allocation. Affirmative: Ogaard, Boulton, Williamson, Warner, Kalmes, Bade, Schellack, Moen, Hoese, Brooks, Peterson, Graba, Kemp, and Cofell. Opposed: None. Carried.

Dennis Pond reported that an audit of Koochiching SWCD state grants discovered that a balance of $998.93 of the General Services grant, $1,538.46 of the TED grant, and $515.50 of the Cost-Share grant for FY86 remained unspent on June 30, 1986. Provisions of the Contract Agreements require that any funds remaining unspent after the end of the fiscal year shall be returned to the agency within one month of that date. The contracts were signed by the Board Chairman. The Koochiching SWCD is appealing the return of these funds. Staff recommendation is to withhold these amounts from the Koochiching SWCD FY89
88-41 grant allocations. Discussion followed. Moved by Williamson, seconded by Boulton, to accept the staff recommendation to withhold these amounts from the Koochiching SWCD FY89 grant allocations. Moved by Kalmes, to amend the previous motion by withhold the $998.93 general services grant and the $515.50 cost-share grant, but let the Koochiching SWCD keep their TED grant of $1,538.46. There was no second to this amended motion; the motion was defeated. In going back to the original motion, the BWSR would withhold $998.93 from general services grant, $515.50 from cost-share grant, and $1,538.46 from the TED grant, from the FY89 grant allocations. Affirmative: Ogaard, Boulton, Williamson, Bade, Schellack, Moen, Hoese, Brooks, Harste, Peterson, Graba, Kemp, and Cofell. Opposed: Warner and Kalmes. Carried.

Metropolitan Erosion and Sediment Control/509 Planning Process - Mark Nelson addressed this issue as stated in a memo to the Board members. He stated that a uniform program for accomplishing development site erosion control does not exist in the Twin Cities area. The BWSR can guide the development of this program by offering leadership through policy, rules, or a legislative initiative. By guiding the process, the BWSR can help assure that erosion control sections of Water Management Organization plans will be implemented. Staff recommends the following items as options to guide development of a Metropolitan Erosion and Sediment Control Program:

1) When 509 plans are forwarded for BWSR final approval, staff completes a preliminary review. During this review, we could strongly urge adoption of the BWSR program based upon general erosion control criteria (this is closely modeled after the State of Virginia). The general criteria are as follows: 1) stabilization of denuded areas and soil stockpiles; 2) establishment of permanent vegetation; 3) protection of adjacent properties; 4) timing and stabilization of sediment trapping measures; 5) sediment basin; 6) cut and fill slopes; 7) stormwater management criteria for controlling off-site erosion; 8) stabilization of waterways and outlets;

3/22/88

HIGHLIGHTS OF THE MINNESOTA GROUND WATER PROTECTION STRATEGY

Board staff has been actively involved with colleages from a number of state and federal agencies in developing water resources protection strategies. Copies of the ground water strategy and an associated proposal dealing with pest and nutrient management are included in the board meeting information packet. Staff commented on both documents; many staff comments were added to earlier drafts.

To summarize the ground water strategy and offer assistance in the review of the document, the following points are provided:

- The Minnesota Ground Water Protection Strategy (GWPS) is one of many on-going efforts to develop strategies to protect Minnesota's water resources. Four of these efforts are:

	Lead Agency
- Ground water protection strategy	MPCA
- Pest and nutrient management strategy	EQB/Water Committee
- Non-point source ground water strategy	MPCA
- Non-point source Federal 319 assessment and management	MPCA

  BWSR staff is involved in all these efforts.

- The GWPS builds on many previous efforts, including work done by MPCA, EQB, EPA and the Water Planning Board.

- Pages 1, 7-9 and 24-26 summarize much of the strategy and should be reviewed.

- The role of local governments in ground water protection is strongly emphasized. In the GWPS and other strategies, BWSR programs are frequently mentioned. Land treatment programs, abandoned well sealing and local water planning are highlighted.

- The local delivery system of counties, and SWCDs, and WDs are mentioned as means of initiating new protection or assistance efforts.

- The GWPS identifies a needed programmatic change dealing with the BWSR coordinating role. As stated on page 25. "The Board of Water and Soil Resources, has strong local representation and responsibility for coordinating the water and soil resources planning activities of counties soil and water conservation districts, watershed districts, and water management organizations. The Board does this by approving local plans and administering state grants. Clarification is needed on the role of the Board in coordinating state agency involvement with local governments in water management. Other groups should be involved in this coordination as well, such as the Community Health Services board being involved in the development of domestic well testing programs."

This is a particularly important item that the BWSR should discuss and develop appropriate policy.

MINNESOTA
GROUND WATER PROTECTION
STRATEGY

Public Review Draft
March 10, 1988

For Public Review and Comment

Comments on this draft of the Minnesota Ground Water Protection Strategy will be accepted until April 20. Please direct questions and comments to:

Minnesota Pollution Control Agency
Division of Ground Water and Solid Waste
520 Lafayette Road North
St. Paul, MN 55155
Attention: Gretchen Sabel

Questions will be taken at 612/296-7358; however, written comments are preferred.

A revised version of the Strategy will be mailed to commenters.

This draft of the Minnesota Ground Water Protection Strategy was prepared by staff of the Minnesota Pollution Control Agency, based upon the efforts of a workgroup composed of representatives from the following governmental agencies:

Minnesota Department of Health,
Minnesota Department of Agriculture,
Minnesota Department of Natural Resources,
State Planning Agency,
Minnesota Geological Survey,
Minnesota Board of Water and Soil Resources,
Minnesota Department of Transportation,
Minnesota Waste Management Board,
Attorney General's Office,
United States Geological Survey,
Metropolitan Council, and
United States Soil Conservation Service.

This draft has been approved for public review by the Water Resources Committee of the Minnesota Environmental Quality Board.

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Minnesota Ground Water Protection Strategy
March 10, 1988

Purpose: This Ground Water Protection Strategy will serve as the blueprint for future ground water management activities at the State level, and also help define the local role in ground water management and protection. The Strategy is built on the strong regulatory framework which the State has established. State agencies already have statutory authority to establish ground water standards and regulate pollution sources, to protect and monitor drinking water supplies, to regulate water appropriation, and to regulate the sale and use of agricultural chemicals which may impact ground water quality. These water related functions are coordinated through the Water Resources Committee of the Environmental Quality Board, a board composed of the top executive officers of the major environmental agencies together with citizen members.

The greatest needs for legislation identified in this Strategy relate to funding. Clearly many of the recommendations cannot be achieved without significant new funding, probably including increased reliance on fees on products, water use, and waste disposal. Programs to define and monitor ground water, as well as those designed to protect water quality and quantity, must have consistent, adequate funding in order to meet their goals. Ground water is an invaluable state resource which is increasingly threatened by a variety of contamination sources and competing uses. The State must provide the necessary type and scope of programs to ensure the safety and adequacy of the resource now and in the future.

The Strategy has been structured around five major initiatives:

I. To protect ground water quality now and for the future; ensure safe drinking water supplies and effectively regulate sources of ground water pollution.

II. To ensure adequate water supplies, to regulate water appropriation and use for protection of highest priority users, and to improve coordination of quality and quantity aspects of regulatory programs.

III. To enhance the current body of knowledge on Minnesota's ground water resource, delineating problem areas and providing information needed to effectively manage the resource.

IV. To enhance local ground water management activities; to better coordinate State ground water responsibilities and programs; and to coordinate among federal, State and local levels of government.

V. To provide the public with the necessary information and education for making environmentally sound decisions in areas which may impact ground water.

Introduction:

Minnesota is blessed with abundant, high-quality ground water. With the growing awareness of threats to our ground water, however, Minnesotans have enacted a variety of programs to preserve and protect the ground water resource. These efforts have been successful in many respects, but it is clear that there is substantial room for improvement.

The Ground Water Protection Strategy is being developed by an interagency work group led by the Minnesota Pollution Control Agency, which has received federal funding to help support the effort. The public review draft of the Strategy presents issues relating to ground water management, then lists the recommendations for resolving those issues which were recommended by the work group which aided in development of the Strategy. For the sake of brevity, the options which had been considered under each issue are not listed. This information is available from the Minnesota Pollution Control Agency, in the form of detailed issue papers on the various topics considered. In its final form, the Strategy will identify timeframes, agencies or entities responsible for each action, and relative costs. The Strategy will be intensively reviewed and approved by the Environmental Quality Board, with the advice of a specially-appointed Citizens Advisory Committee, and the Governor.

It is intended that the Ground Water Protection Strategy will guide Minnesota's ground water protection priorities far into the future. Since it is impossible to foresee all future concerns regarding ground water, it is essential that the Strategy be regularly updated and reincorporated into the State's ground water protection programs. The Water Resources Committee of the Environmental Quality Board is the appropriate vehicle for this periodic review. It is recommended that the Strategy be reviewed and updated every two years, and that legislative and program changes be identified through this biennial update.

Minnesota's ground water:

Minnesota's extensive surface waters are well-known, but the State also has substantial reserves of extremely high quality ground water. As with surface waters, the ground water resource is unevenly distributed. Some areas of Minnesota have several abundant aquifers; other areas have no major aquifers, and only very meager quantities of ground water are available to domestic wells. The most plentiful aquifers are the surficial and buried sands located throughout the State, especially in central and north central Minnesota, and the bedrock formations of southeast Minnesota. Many of these aquifers have little natural protection from contamination.

Several statistics dramatically underscore the importance of ground water to Minnesota. Statewide, 75 percent of all Minnesotans receive their drinking water from ground water sources. Ninety-three percent of the State's municipal water supply systems use ground water. Finally, ground water supplies 60 to 80 percent of the irrigation water used in the State. In addition to these critical uses, ground water is important in

food and beverage processing and other industrial uses, air conditioning and heating, livestock production, and other purposes, and it plays a vital role in the hydrologic cycle, supplying high-quality replenishment of wetlands, streams and lakes.

Minnesota's ground water generally is of much higher quality than drinking water quality standards, and the State has fewer occurrences of naturally brackish or saline ground water than almost any other state. Natural ground water quality rarely fails to meet any of the health-based primary drinking water standards, with the possible exception of radionuclides, which are only beginning to be tested. Secondary drinking water standards, nonenforceable guidelines which reflect the aesthetic quality (e.g., taste and odor) rather than health risk, are commonly exceeded. The secondary standards for iron and manganese are exceeded in up to half the samples tested statewide by the MPCA's Ground Water Quality monitoring program. In western Minnesota, there are frequent exceedances of the secondary standards for sulfate and total dissolved solids.

Ground water is vulnerable to pollution, and it is threatened from a variety of sources in Minnesota. These include "point sources", such as uncontrolled hazardous waste disposal sites, leaking liquid storage tanks, and landfills, and "nonpoint sources" including agricultural chemicals, concentrations of septic tanks, and other widespread land use practices. Improperly constructed or abandoned wells and high capacity withdrawals also influence ground water movement and migration of contaminants. Porous soils and fractured bedrock do little to restrict contaminant movement to the ground water in many areas throughout the state. And, once polluted, ground water is difficult to clean up and may remain polluted for decades or longer, unlike surface water. Ground water may also be threatened locally by overuse, if withdrawals exceed the rate of replenishment of an aquifer. Because of these characteristics--many and widespread contaminant sources and points of use, susceptible areas, and persistence of pollution--protecting ground water is a challenge that requires efforts at many different levels.

Ground water quality impacts from land use practices and nonpoint sources of pollution have been partially known for years, but have been the subject of much greater concern very recently. Nitrate contamination, from fertilizers and human and animal wastes, is common, particularly in southern Minnesota, where concentrations of nitrate in ground water frequently exceed the primary drinking water standard. Pesticides have not been widely tested, but in recent studies by the Minnesota Departments of Health and Agriculture concentrating on farming areas in more vulnerable hydrogeologic settings, pesticides were found at generally very low levels, normally well below drinking water standards, in up to 40 percent of the ground water sampled. Nitrates and pesticides are the only contaminants that have been found to be widespread over large areas thus far, but local zones of contamination are numerous in urban and rural areas throughout the State.

In urban and rural areas throughout the state, ground water contamination has also occurred from specific localized sources. The most significant of these render the ground water unuseable as a potential

source of drinking water or other use. The highest priority sites, which are candidates for thorough investigation and possible corrective actions, are listed on the State's Permanent List of Priorities. A breakdown of this list into source categories gives some indication of the relative importance of Minnesota's various sources of localized ground water contamination. The listed sources, and the numbers of sites in each category, are as follows:

Contaminant Source	Contaminating Substances	# of listed sites
Industrial/manufacturing (On-site spills, illegal or uncontrolled disposal, industrial impoundments)	Solvents, metals, wood preservatives, pesticides	75
Solid waste landfills and Dumps	Leachate: organic chemicals, metals	55
Storage and transportation of petroleum and other products	Gasoline, fuel oil, and breakdown products, other materials	5
Agricultural chemical handling facilities	Pesticides, nitrates	4

The listed sites represent only the highest priority sites identified to date; many other sites have not yet been identified or have lesser impacts on ground water quality. Petroleum leaks and spills could overtake the others as the largest source of localized ground water contamination because of the widespread nature of petroleum storage and transportation. The State has provided for regulation and, through the State Superfund and Petrofund, for corrective action at these sites. However, certain other kinds of facilities, such as salt storage piles and land treatment and disposal of wastewater, have not been monitored as much as the above sites, and they may also result in localized impacts.

Related efforts:

The Ground Water Protection Strategy builds upon a long series of previous efforts. No attempt will be made to list all of them or to describe their contents. Some of the more important previous documents include the following:

1) The Environmental Quality Board's "Protecting Minnesota's Waters, an Agenda for Action in the 1987-1989 Biennium";
2) The Legislative Auditor's 1987 report "Water Quality Monitoring";
3) The Executive Branch Policy Development Program Issue Team Report, "Ground Water Management Strategy", Feb. 27, 1985;
4) The MPCA's June 1983 "Ground Water Protection Strategy Framework for Minnesota";

Related efforts: (Continued)

5) The Minnesota Water Planning Board's 1979 "Toward Efficient Allocation and Management: A Strategy to Preserve and Protect Water and Related Land Resources"; and
6) The U.S. Environmental Protection Agency's "Ground-Water Protection Strategy" (1984) and "Guidelines for Ground Water Classification" (1986).

At the present time, other related strategies are also being developed by the State. Staff involved in these efforts are working closely together to ensure consistency between the strategies. They include the "Pest and Nutrient Management Strategy" being developed by the Water Resources Committee of the Environmental Quality Board and the "Nonpoint Source Pollution Management Program" being developed in response to the passage of Minnesota's Clean Water Partnership and the federal reauthorization of the Clean Water Act.

Existing Framework:

There are many parties involved in ground water management and protection, and coordination between these parties is essential for effective management of our ground water resource. The federal government has limited authority to regulate ground water, but it affects ground water and State regulatory programs indirectly through the programs administered by the U.S. Environmental Protection Agency under the Safe Drinking Water Act; Resource Conservation and Recovery Act; Comprehensive Environmental Response, Compensation and Liability Act (Superfund); Federal Insecticide, Fungicide, and Rodenticide Act; and Clean Water Act. The federal government is also active in ground water research, resource evaluation, development of practices and technologies to avoid ground water pollution, and technical assistance. The U.S. Geological Survey conducts aquifer, ground water quality, and geologic resource evaluations and research. The Environmental Protection Agency conducts and supports research on ground water contamination and monitoring. The U.S. Department of Agriculture, through several service branches, provides technical assistance to landowners and supports research on land management practices.

Local governments are becoming more active in ground water protection issues. They exercise control over some activities through their zoning, permitting, and licensing authorities; they have responsibilities for protecting public health; and they directly affect ground water quality through activities such as wastewater treatment and disposal and water supply systems. Through their authorities over land use, local governments are uniquely able to regulate land use practices that may affect ground water. In addition, their knowledge of local soils and geologic conditions is often better than State government's. The local government role in ground water protection is likely to increase further as a result of the local water planning now under way in 54 counties under the Comprehensive Local Water Management Act.

State government is the level of government most actively involved in ground water protection and regulation, since ground water, as one of the "waters of the State", is under the common ownership of the citizenry of the State. Several different agencies have authorities over ground water (see the table on the following two pages), particularly the Department of Natural Resources (DNR), Pollution Control Agency (PCA), and Department of Health (MDH).

The division of authorities among these agencies places water quantity management in the DNR; ground water quality issues and pollution control requirements within the MPCA; and health-related and domestic supply matters in the MDH. Two other agencies have expanded authorities related to ground water. The Minnesota Department of Agriculture (MDA) regulates the registration, sale, use, storage, and disposal of pesticides and has recently been given responsibilities for monitoring the impacts of pesticides on water resources. The Board of Water and Soil Resources (BWSR), composed of local government representatives and private citizens, administers the local water planning effort, as well as the Soil and Water Conservation Districts, watershed districts and water management organizations.

In addition, State government is involved in research, education, and information, mainly through the University of Minnesota and the Minnesota Geological Survey. The Survey compiles hydrogeologic information, including well logs and mapping. The University is active in various lines of ground water research, and University Extension provides information and education on water quality issues.

MINNESOTA STATE GROUND WATER AND RELATED MANAGEMENT PROGRAMS

ENVIRONMENTAL QUALITY BOARD (EQB)

-Water Resources Committee (WRC)-
Interagency Coordination and Policymaking

POLLUTION CONTROL AGENCY (PCA)

-Ground Water and Solid Waste Division-
Site Response (Superfund) Program
Solid Waste Facility Permits
Ground Water and Solid Waste Program Development
Ground Water Ambient Monitoring
State Ground Water Protection Strategy

-Water Quality Division-
Water Quality Management Planning
NPDES Permits Program
State Disposal System Permits
Municipal Sludge Disposal
Agricultural Waste
Nonpoint Source Pollution Control

-Hazardous Waste Division-
Hazardous Waste Generator Program
Hazardous Waste Facility and Transportation Permits
Storage Tank Regulation and Cleanup
Emergency Response (Spills)
Hazardous Waste Program Development

NATURAL RESOURCES (DNR)

-Division of Waters-
Water Appropriation
Ground Water Resource Investigations
Water Level Observation Wells Network
Ground Water Hydrologic Data
Underground Gas and Liquid Storage Permits
Water Use Informational Systems Development

HEALTH (MDH)

-Division of Environmental Health-
Safe Drinking Water Program
Wellhead Protection
Water Well Construction/Abandonment
Health Risk Assessment

-Division of Public Health Laboratories-

STATE PLANNING AGENCY (SPA)

-Environmental Division-
Staff to the Environmental Quality Board (EQB)
Statewide Framework Water and Related Land Resources Planning
Environmental Impact Assessment
Environmental Policy Planning

-Land Management Information Center (LMIC)-
Systems for Water Information Management (SWIM)

MINNESOTA STATE GROUND WATER AND RELATED MANAGEMENT PROGRAMS (Continued)

AGRICULTURE (MDA)

-Agronomy Services Division-
Pesticide Regulation — Fertilizer Regulation
Environmental Assessment of Pesticides and Fertilizers
Agricultural Chemical Emergency Response

-Planning Division-
Sustainable Agriculture Program

-Laboratory Services Division-

UNIVERSITY OF MINNESOTA

-Minnesota Geological Survey (MGS)-
Hydrogeologic Mapping (Statewide) — Water Well Logs Data Base
Hydrogeochemistry Mapping — High Capacity Well Data Base

-Institute of Technology-
Civil and Mineral Engineering — Geology and Geophysics

-College of Agriculture-
-College of Forestry-
-School of Public Health-

-Water Resources Research Center-
Center for Agricultural Impacts on Water Quality-
-Minnesota Extension Service-

BOARD OF WATER AND SOIL RESOURCES (BWSR)

Local Water Management/Local Water Planning
Oversight of Soil and Water Conservation Districts
Watershed District Formation and Plan Review
Water Policy Conflict Resolution

WASTE MANAGEMENT BOARD (WMB)

Hazardous Waste Management Plan — Solid Waste Management
Siting of Hazardous Waste Disposal Facility

TRANSPORTATION (DOT)

-Technical Services Division-

LEGISLATIVE COMMISSION ON MINNESOTA RESCOURCES (LCMR)

Funding of Projects to Improve Natural Resource Management

BASIC TENETS OF THE STRATEGY:

* Ground water is a resource vital to Minnesota. It is necessary for the State to develop a comprehensive strategy to adequately manage the resource. The federal government, through the Environmental Protection Agency, is encouraging all states to undertake this effort, and many other states have completed strategies already.

* The State needs a strong, prevention based program when dealing with potential sources of ground water contamination. Cleanup of existing contamination must continue to be a priority as well.

* Clear goals for ground water protection should be incorporated into all programs which control potential sources of ground water contamination. These goals should include nondegradation where possible, and conformance to specific numeric standards where not possible or for existing problems.

* Even in a water-rich state like Minnesota, ground water is a finite resource. The State should evaluate the existing water appropriation allocation framework to ensure that it is adequate to protect the most critical needs when demands on the resource are great.

* Fostering of water conservation measures, and their enforcement, must be a high priority with the State.

* Basic information on much of Minnesota's ground water resource is lacking. A greater effort is needed to develop information on the State's geologic framework and the quality and flow of water within it, and to see that the information is maintained in a way useable by Minnesotans for varied purposes.

* Local governments have a crucial role to play in the management and protection of ground water and ground water users. Some problems can be addressed most effectively at the local level, but are limited by availability of resources and technological expertise. The State should support and enhance local efforts.

* Given the diffuse regulatory framework for ground water management in the State, coordination between State agencies is vital to efficient ground water protection. Cooperation between the various levels of government (federal, State, county, city, watershed district, etc.) is also important.

* Widespread misinformation exists among Minnesotans concerning ground water. People must understand the impacts that their various practices and activities have on the environment, and be educated in ways to minimize or alleviate those impacts.

* The level of understanding of local government officials and the general public on ground water related issues needs to be increased. Both the State and regional groups should continue to be involved in educational and outreach efforts.

Initiative I. To protect ground water quality now and for the future; ensure safe drinking water supplies and effectively regulate sources of ground water pollution.

Part One: Standards for ground water quality protection.

Issue: Minn. Rule 7060 sets forth a "nondegradation policy" for ground water, further stating that ground water may not be contaminated in such a way that it can no longer be used as a safe source of drinking water. Enforcement of nondegradation has been difficult at best, and some widespread practices by their very nature result in degradation of ground water quality. Minn. Rule 7050.0220 sets ground water quality standards which are based on the mandatory and recommended provisions of the 1962 drinking water standards or subsequent revisions. Because of the number of revisions which have been set forth for different purposes, a variety of different numbers has been applied, which leads to variable levels of ground water quality protection from program to program and sometimes from site to site.

Proposed Recommendations: Rules Revisions. Nondegradation (no change from natural conditions) should continue to be the policy of the State in the regulation of potential sources of contamination. However, the rules must be rewritten to provide an enforcement mechanism to add "muscle" to the nondegradation policy. In addition, the State should develop a set of numerical ground water standards. The purpose of the numerical standards would be twofold: 1) to serve as a limit for those practices where nondegradation cannot be achieved, and 2) to serve as a target for cleanups and remedial activities.

The PCA should establish a work group to begin to revise Minn. Rules 7060 and 7050.0220 to clarify their relationship and establish clear, up-to-date standards. For some substances, there is not sufficient information to establish standards yet. For these, the rules should specify the process to be used to develop interim limits which would be applied as needed when the compounds are detected in ground water. This work group will be responsible for recommending the programmatic steps to be followed, discussing and resolving the technical questions and recommending staffing levels for the various agencies which would be needed to develop these standards. Other agencies must be involved in this effort as well, with staff dedicated to the effort at both the MDH and PCA.

Rule revision, programmatic change. All State and local agencies dealing with ground water should incorporate these standards in their programs, and strive toward adequate and consistent application of the standards. Nondegradation should be a prescribed target for all progams. This should be a priority of the EQB's Water Resources Committee.

Initiative I. To protect ground water quality now and for the future; ensure safe drinking water supplies and effectively regulate sources of ground water pollution. (Continued)

Part One: Standards for ground water quality protection. (Continued)

Issue: A scheme for ground water classification based on the vulnerability of the particular resource is also given in Minn. Rule 7050.0220. This classification system may no longer be appropriate, and should be reevaluated. A viable classification system could be used to provide greater levels of protection to vulnerable ground water, by requiring more stringent controls on potentially polluting activities. It could also be used to prioritize facilities and activities for regulatory action, or could be applied by MDA in pesticide regulation.

Proposed Recommendation: Rule revision. The revisions to 7050 should include a ground water classification system based upon Minnesota's ground water conditions and use. Classification would be done only for specific sites or locales, not for whole aquifers or regions. Classification criteria would be established in the rule based in part on geologic susceptibility to contamination from potentially polluting activities. The goal would be to protect all ground water from degradation which threatens its use as a source of drinking water.

Relative cost of proposed recommendations in Part One of Initiative I.: It will require additional staff to develop, update and implement the standards, both at the PCA and MDH. This investment will be partially offset by reducing the staff time needed to identify and select among available numbers.

Initiative I. To protect ground water quality now and for the future; ensure safe drinking water supplies and effectively regulate sources of ground water pollution. (Continued)

Part Two: Drinking water protection.

Drinking water protection differs from ground water quality protection in that these programs operate at the point of water use, not at the point of contamination (unless the point of contamination is an improperly constructed well). This issue relates both to public water supplies and private water supplies.

Issue: On the public side, increased monitoring requirements in the reauthorization of the federal Safe Drinking Water Act will substantially increase the cost of the Department of Health (MDH) public water supply program, as well as overwhelm the existing laboratory analytical capacity at MDH. The new requirements expand the number of parameters which must be analyzed, and increases the number of systems which must test for the expanded list of parameters. Federal funding for this program will not increase, so the added cost must be borne by the State and the regulated community.

Proposed Recommendation: Legislative/funding; program development: Additional funds must be provided for the public water supply program. The Commissioner of Health's Task Force on Drinking Water recommended an appropriation from the State's General Fund to meet this need. A State laboratory certification program should be implemented for public and private labs.

Issue: The EPA Wellhead Protection Program is also covered in the Safe Drinking Water Act. The State has indicated its intent to initiate a wellhead protection program, but no federal funds are currently available. This program will require cooperation between the local water systems and the MDH in establishing and protecting wellfields for public supply, both from typical urban contaminants and agricultural chemicals and nutrients.

Proposed Recommendation: Program development: MDH, with review by the Water Resources Committee, should develop and implement a wellhead protection program, with or without federal funds. A federally-funded program would require development of rules, and be time and resource intensive. If federal funds are not available, the State could still work proactively with municipalities at the water supply planning stage, and demonstration projects. Education will be a critical factor in this program.

Initiative I. To protect ground water quality now and for the future; ensure safe drinking water supplies and effectively regulate sources of ground water pollution. (Continued)

Part Two: Drinking water protection. (Continued)

Issue: Private well owners have inadequate protection under the current programs. Although Minnesota currently has a water well construction regulatory program, the program has not been effective enough because of understaffing and lack of effective enforcement mechanisms. Minnesota needs adequate funding for the water well program at the State or county level to ensure ground water protection.

Proposed Recommendation: Legislative change; Programmatic change: MDH should seek additional statutory authority to better enforce the water well construction code, as well as increased staffing. Counties should be encouraged to develop their own water well programs, including permit fees for wells and rigorous inspection procedures.

Issue: Unsealed, abandoned wells may be a major source of ground water contamination; especially when the wells are multiaquifer open holes which allow the low-quality, near surface water to move down into lower aquifers. Improperly cased wells, and wells with casings which have deteriorated over time, are also a significant cause for concern.

Proposed Recommendation: Legislative/funding; Programmatic change. MDH should initiate a strong program to enforce the requirements pertaining to the sealing of unused water wells, and to ensure that wells still in use are properly maintained. This will require greater levels of staffing, and should be part of a comprehensive package which inventories and helps to provide effective enforcement mechanisms and financial incentives for well sealing and maintenance. Examples of possible programmatic elements are: 1) require all unused wells to be sealed at the time of property transfer and construction of a new well, 2) tax exemptions or low interest loans to help offset the cost of well sealing, 3) selected water quality testing of wells prior to sealing, and 4) creation of a well sealing fund, similar to Superfund, to facilitate sealing of unused wells where a responsible party cannot be found or made to cooperate in an expeditious manner.

Issue: Testing of private wells at the time of construction may be performed by the MDH laboratory or certified private laboratories (at this time, the State only certifies labs for bacterial analysis, not water chemistry). Most counties offer testing services to private well owners for coliform bacteria and nitrate to assure the sanitary quality of their water. If private well owners desire to test their water for a broader suite of parameters, such as pesticides or volatile organic compounds,

Initiative I. To protect ground water quality now and for the future; ensure safe drinking water supplies and effectively regulate sources of ground water pollution. (Continued)

Part Two: Drinking water protection. (Continued)

Issue (Continued)
they must contact private labs for these services. Since Minnesota does not certify laboratories for water chemistry analysis, there is little guidance for people in choosing reputable laboratories. The cost of these analyses is also quite high, and may be prohibitive.

Proposed Recommendation: Legislative /funding; Program development. MDH should develop a laboratory certification program, with minimum requirements for quality assurance. This would aid consumers in selecting laboratories capable of performing the work accurately and precisely. In addition, counties should consider expanding their well testing programs to include more parameters and to use this data to aid in delineating problem areas and developing the baseline water quality information needed to more adequately manage the resource.

Relative cost of recommendations in Part Two of Initiative I.: The recommendations of this section are costly, but it in the long run will prove cost-effective. By developing water supplies with more forethought and protection, problems will be averted in the future. Improving the quality of private water supplies, and ensuring the sealing of unused wells, will protect both ground water consumers and ground water quality for generations to come.

Initiative I. To protect ground water quality now and for the future; ensure safe drinking water supplies and effectively regulate sources of ground water pollution. (Continued)

Part Three: Programs to Control Pollution

Issue: Many of Minnesota's serious ground water contamination problems result from improper waste disposal and treatment. Approximately 136,000 facilities of various types are regulated by fifteen programs operated by State government; most of these waste facilities are regulated by PCA. The MDA is responsible for regulation of the pesticides and fertilizers. Ground water is frequently not the major regulatory focus of the programs, which results in differential levels of protection for the resource. In addition, large differences in staffing and funding among regulatory programs result in varying abilities to address ground water issues.

Proposed Recommendations: Programmatic review; also possible legislative /funding. The Ground Water Protection Strategy recommends the following set of criteria be used to review regulatory programs in a more objective and consistent manner. These criteria are:

1) goals for ground water protection;
2) enforceable regulations and facility standards for design, construction, operation and closure (also including minimum standards for monitoring and quality assurance);
3) sufficient staff and funds to match the scope of the problems;
4) review of individual facilities and effective enforcement mechanisms; and
5) prioritization of facilities.

The programs will self-evaluate based on these criteria, then report back to the Water Resources Committee with their findings and recommendations by October 1988.

Issue: Nonpoint source impacts are a major cause of ground water contamination in rural parts of the state, as well as in the more densely populated regions. Accepted agricultural practices are coming under closer scrutiny as possible sources of pesticides and nutrients detected in ground water, not just point sources of these contaminants.

Proposed recommendations: Program development. PCA is responsible for developing the State's strategy for controlling nonpoint source pollution of water resources. This strategy should strongly emphasize control of ground water contamination through voluntary application of best management practices and use of existing regulatory authorities, such as zoning and land use controls, and recommend ways that funds from the Clean Water Partnership or other sources could be used to protect and improve ground water quality.

Initiative I. To protect ground water quality now and for the future; ensure safe drinking water supplies and effectively regulate sources of ground water pollution. (Continued)

Part Three: Programs to Control Pollution (Continued)

Program development. MDA should develop a state Pesticide Management Plan through EQB to ensure an interagency and interprogram focus. It should stress problem prevention and nondegradation, should delineate what to do when problems or issues arise, and include: a) designating special protection areas, b) taking preventative actions, and c) initiating specific management plans for a pesticide following detection.

Issue: Given the apparent dichotomy between the policy of nondegradation of Minn. Rule 7060 and the specific numeric ground water standards of Minn. Rule 7050.0220, programs vary in their targeted goals for environmental protection.

Proposed Recommendation: Rules change. Rewrite Minn. Rule 7050.0220 and 7060, to combine the policy of nondegradation with specific numeric ground water standards and provide a clear target for ground water protection.

Issue: The PCA above-ground bulk storage rules are outdated and inadequate. There is the potential for major environmental damage resulting from failure of a tank such as happened in western Pennsylvania in December 1987.

Proposed Recommendation: Rules change. Rewrite the above-ground bulk storage rules, possibly at the same time as the rules for underground storage tanks are written. This should be coordinated with the MDA, which has statutory authority over bulk storage of agricultural chemicals and is currently in the rule development stage.

Issue: Regulatory programs are hampered by the lack of adequate computerized data storage and retrieval systems to allow efficient evaluation of the ground water impacts of facilities and practices regulated.

Proposed Recommendation: Legislative/funding. Develop an information management system to be used for storage of ground water data from programs in all State agencies in a consistent and useable format, to be coordinated among the various agencies and consistent with the SWIM (State Water Information Management) committee data standards. The Integrated Ground Water Information System (IGWIS) currently under development by PCA needs additional funding to become a viable system. IGWIS can serve as a template for programs being developed by other agencies. It also will have a PC-based version, which can be used by local units of government.

Initiative I. To protect ground water quality now and for the future; ensure safe drinking water supplies and effectively regulate sources of ground water pollution. (Continued)

Part Three: Programs to Control Pollution (Continued)

Relative Cost of Recommendations proposed in Part Three of Initiative 1. The programmatic review recommended under the first issue would not be very expensive. Development of both the Nonpoint and the Pesticide Management Strategies require dedicated staff and are fairly resource intensive, but some federal funds may be available to help defray the costs. The costs of rule revisions are high, and must be borne by the State. Development of the information management system is very costly, involving equipment purchases, programming costs and data entry. This cost may be made up, though, in staff time saved doing facility review and in transfer of data to other interested parties.

Initiative II. To ensure adequate water supplies, to regulate water appropriation and use for protection of highest priority users, and to improve coordination of quality and quantity aspects of regulatory programs.

The protection and management of the State's ground water resources is incomplete without taking into account ground water quantity concerns and the interrelationship between ground water quantity and quality. The policy which directs ground water programs administered by various state agencies in Minnesota is one of nondegradation of the resource for both quality and quantity.

Issue: Appropriation of water from the natural environment is regulated by the DNR through its water appropriation permit system. A water use priority system is laid out in statute, and is applied by DNR when making appropriation permit decisions. This system is called upon increasingly to address types of appropriations which involve both water quantity and quality concerns, such as pumpouts of contaminated water for clean ups.

Proposed Recommendation: Programmatic review. The DNR should lead the EQB's WRC in evaluating the State's current water allocation framework and priorities to determine whether they still meet the needs of the State, especially in the areas of contamination clean ups, conservation and efficient use of ground water, and the interactive relationship of ground water and surface water.

Issue: A coordinated approach which addresses both quality and quantity concerns is needed to deal with issues of water supply and ground water pollution remediation. Remedial actions and alternative water supplies at ground water contamination sites are often designed without adequately considering water conservation and efficient use of ground water. In addition, little has been done to coordinate water supply needs for growing communities with water availability considerations.

Proposed Recommendation: Programmatic change. Interagency agreements between DNR, PCA, and MDH should be used to develop a coordinated approach to deal with problems of water supply and ground water pollution remediation. Staff should be educated about the goals, programs and rules of other agencies. The MDA should also be involved in issues where agricultural concerns are involved. Contingency planning for public water supplies should be expanded to better cover emergencies of water quality and availability.

Programmatic change. The PCA needs to consider quantity issues when evaluating cleanup options. Uses of pumpout water should be planned as part of remedial measures. DNR may need additional staffing to deal with the increased number of appropriation permits requested as a result of these pumpouts.

Programmatic change. The DNR should consider water quality impacts of ground water appropriations before approving permits, bearing in mind the State's policy of nondegradation. More research will be necessary in determining these possible impacts.

Initiative II. To ensure adequate water supplies, to regulate water appropriation and use for protection of highest priority users, and improve coordination of quality and quantity aspects of regulatory programs. (Continued)

Issue: Conservation of water in a water-rich state like Minnesota typically has not been a high priority, yet it is of critical importance, especially in time of drought. Enforcement of water conservation and efficient use of ground water has not been adequately implemented. There is a need for a policy which clearly states water conservation goals and provides more "muscle" for promoting conservation and efficient use of ground water. Ground water withdrawals in the Twin Cities during the summer cause large drawdowns. Much of this water is used for climate control in downtown office buildings. Current regulatory policy and programmatic restrictions make it difficult to encourage reuse of noncontact temperature control water, as well as treated water from contamination pumpouts. This leads to wasting and inefficient use of ground water.

Proposed Recommendation: Programmatic change. State programs should stress water conservation and efficient use of ground water. As a part of this effort, the DNR should revive the program to get unpermitted water appropriators under permit.

Programmatic Change. Agencies should work together to recommend and encourage uses for contaminated ground water (pumpout water) and ground water used for noncontact temperature control.

Rules Revision. The PCA and MDH should consider changes in rules which would facilitate reinjection of ground water, under controlled circumstances, where water to be injected meets appropriate quality standards.

Issue: A coordinated approach which addresses both quality and quantity concerns is needed to deal with issues of water supply and ground water pollution remediation, both in developing public water supplies and in contingency planning.

Proposed Recommendation: Programmatic change: Contingency planning for public water supplies should be expanded to better cover emergencies of water quality and availability. Interagency agreements between DNR, PCA, and MDH should be used to develop a coordinated approach to deal with problems of water supply and ground water pollution remediation. Federal agencies also have roles in contingency water supply planning.

Relative cost of proposed recommendations in Initiative II.: The initial implementation of these recommendations is not anticipated to require major expense, but will require staff time to implement. The rules revision stage is more costly.

Initiative III. To enhance the current body of knowledge on Minnesota's ground water resource, delineating problem areas and providing information needed to effectively manage the resource.

Part One: Basic Information Needs.

Issue: It is critical for the regulation and protection of ground water resources to be able to evaluate the resource to be protected. The data needed to define aquifer extent, ground water availability, and water use are often not available. With the exception of several sand plain aquifers in central Minnesota and the aquifer system of the Twin Cities metropolitan area, the yield potential of most ground water sources in the state has not been thoroughly explored. Except in limited areas that have been the subject of special studies, the data currently available is inadequate to sufficiently define the ground water resource and provide long-term background information for analysis. The basic information needed includes:

1) further ground water resource evaluative studies, including detailed mapping of surficial and buried aquifers for the entire State, especially the recharge areas;
2) development of sufficient ground water quality information to accurately define baseline conditions statewide; and preparation of comprehensive reports to organize and interpret this information;
3) accelerated development of county geologic atlases;
4) more complete information on the patterns of water use, both permitted and unpermitted;
5) more detailed monitoring of water levels, and creation of a depth-to-water map to facilitate evaluation of the ground water contamination potential throughout various parts of the state; and
6) testing of aquifer hydrogeologic properties, and related testing of the tightness of confining beds and low permeability formations.

Proposed Recommendations: Legislative/funding. A new emphasis on the gathering of basic data is needed in Minnesota for the successful implementaion of this Ground Water Strategy. It is recommended that funding be allocated to agencies to increase their efforts as follows:

Need 1: DNR, with advice from the WRC agencies, should prioritize aquifers for evaluation and cooperative studies, and work with the USGS and local governments to develop aquifer study reports;
Need 2: PCA should improve their ambient ground water monitoring program, and use data from other programs as well to develop sufficient ground water quality information to meet identified needs;
Need 3: MGS should greatly accelerate creation of county geologic atlases; with the goal of completing all counties in the State by the turn of the century;
Need 4: State agencies should develop computer-compatible maps showing sites of water use and known or suspected pollution;
Need 5: DNR and USGS should expand the observation well network for monitoring water levels so that the effects of climate and water withdrawals on the available resource can be evaluated; and
Need 6: MGS and USGS should evaluate the hydrologic properties of aquifers and aquitards, with results going into a computerized file accessible by all interested Minnesotans. Existing aquifer test data should also be automated.

Initiative III. To enhance the current body of knowledge on Minnesota's ground water resource, delineating problem areas and providing information needed to effectively manage the resource.

Part One: Basic Information Needs. (Continued)

Issue: Although this body of information is constantly growing, the research and investigation is often not well coordinated. This lack of coordination results in information gaps, and hinders the transfer of information. State programs that monitor ground water quality and quantity also could be better coordinated. This coordination would be most effective if it occurred at the management level, as well as through less formal staff interaction.

Proposed Recommendation: Programmatic review. Develop a coordinative procedure for review of monitoring programs. Suggestions were made for making this a responsibility of the Water Resources Committee (since the Strategy workgroups are not designed to be long-lived). In addition, agencies should make efforts to build upon existing work when beginning new projects.

Programmatic change. Create more opportunities for staff interaction. Suggestions included creation of an electronic bulletin board for monitoring programs and establishment of a yearly statewide monitoring seminar to display the programs and exchange information.

Relative cost of proposed recommendations under Part One of Initiative III.: This will be a very costly initiative to implement. Funds should come from a stable, dedicated source of money to allow for long-term research efforts.

Initiative III. To enhance the current body of knowledge on Minnesota's ground water resource, delineating problem areas and providing information needed to effectively manage the resource. (Continued)

Part Two: Information Access.

Issue: Knowledge of and access to information is a major obstacle to widespread adoption of practices that protect ground water quality. Although several major ground water data bases have been automated, funding constraints have left gaps in the current system, where key data bases are still in manual form or only partially automated.

Proposed Recommendation: Legislative/funding. The recommendations of the Systems for Water Information Managment (SWIM) Ground Water Subcommittee's coordinated, comprehensive position paper identifying needs for additional ground water data collection, automation/enhancements of automated systems, and integration should be reviewed by the Water Resources Committee of the EQB. (This paper is still in the development stages.) The WRC should make recommendations for funding based on that paper and the discussions which it engenders.

The SWIM Committee should discuss statewide funding recommendations for database development. These recommendations should be eventually adopted by the WRC and include specific data automation and integration needs. SWIM should continue to interact with PCA (in the development of the Integrated Ground Water Information System, IGWIS) and DNR and MGS (responsible for WELLS and WELLOG) in the development and maintenance of these systems, and promote their use by other agencies.

Issue: Coordination of data management activities can aid the efficiency of many programs. Although State agencies are coordinated through the Systems for Water Information Management (SWIM) committee, local governments are not.

Proposed Recommendation: Programmatic change: The Water Resources Committee should affirm and promote the SWIM data consistency standards for State agency data collections, and continue working with local governments to have them conform to these standards as well. In this way, the State agencies will be able to access information collected at the local level, as well as facilitating information transfer from State agencies to local units of government.

The SWIM Ground Water subcommittee should suggest uniform file structures and data coding procedures, to be used by all agencies collecting ground water data. Since a central computer will not be used to house all the data, documentation should be developed to facilitate communication between the various systems' users to aid in data transfer.

Relative Cost of Recommendations proposed in Part Two of Initiative III. Cost of information system development is high, usually requiring purchase of costly equipment and software, programming costs, and data entry. These costs may be made up, though, in increased ease of data access and transfer. Staff time is saved and environmental protection enhanced.

Initiative IV. To enhance local ground water management activities, to better coordinate state ground water responsibilities and programs; and to coordinate among federal, State and local levels of government.

Part One: Local Role in Ground Water Protection:

Issue: Since local governments are in a unique position of knowing local conditions and having the available tools to regulate land use and protect public health, the local role is critical to adequate and comprehensive ground water management. Options available to local governments include land use regulation through zoning and permitting, operation of water supply utilities, and planning and operation of waste treatment and disposal system.

Proposed Recommendation: Legislative/funding; programmatic change. The local role in ground water protection is crucial but needs additional support. Incentives and means should be provided to local governments to encourage ground water protection efforts. Soil and Water Conservation Districts should be encouraged to provide cost-share funds for ground water protection practices. The State should take measures to ensure that ground water protection measures do not vary widely between counties, especially those which share borders or overlie common aquifers.

Issue: Local water planning has been initiated by 54 of the 80 greater Minnesota counties. A major component of this plan is to identify actions the counties can take to better manage and protect their ground water resources. While most counties have entered this process by obtaining funds from LCMR some counties will progress further than others. These water planning efforts will need to extend beyond existing LCMR funding.

Proposed Recommendations: Legislative/funding; programmatic change: Funding may be needed for remaining counties in greater Minnesota and the metropolitan area to enter the local water planning process. Depending on the progress made, additional funds may also be necessary for counties currently in the planning process to complete plan development and to implement the plans. To complement local water planning in greater Minnesota the Board of Water and Soil Resources should promulgate rules for the Metropolitan Water Management Act which would add gound water to metro-area planning. State review of these plans should insure ground water resoures are adequately considered.

Issue: Statewide, about 75 percent of all Minnesotans receive their drinking water from ground water sources. Much of this drinking water is supplied by an estimated 300,000-400,000 private wells throughout the State. These large numbers make it difficult to effectively regulate well construction and abandonment, and the testing of drinking water from these wells at the State level. Where local governments are already directly involved and experienced in public health protection programs, they maybe in a position to more effectively regulate and test drinking water wells.

Initiative IV. To enhance local ground water management activities, to better coordinate State ground water responsibilities and programs; and to coordinate among federal, State and local levels of government.

Part One: Local Role in Ground Water Protection: (Continued)

Proposed Recommendation: Legislative/funding, Programmatic change: Counties should be encouraged to adopt county water well programs including enforcement and well sealing under their Community Health Services program. The MDH would continue to administer the program in those counties which choose not to pick it up and to oversee the program in counties that do. The State should provide financial and technical assistance to counties in developing and implementing well sealing programs and water testing services. Local testing services should be certified by the State.

Issue: Local units of government have responsibilities for protecting public health and in the construction and operation of public water supply systems. It is essential that the ground water which supplies public wells be protected from sources of contamination. Local governments can designate protection areas around public water supply wells where controls can be imposed on potential hazards.

Proposed Recommendation: Legislative/funding; program development: The State should work with local governments to develop and implement wellhead protection programs by providing funds and technical assistance.

Issue: Because contaminant sources impacting ground water quality can be both diverse and pervasive, some sources of ground water contamination may be controlled more effectively at the local level. Controlling sources of contamination will require resources which most local governments do not presently have available.

Proposed Recommendation: Legislative/funding, Programmatic change: Counties should be provided incentives to become more active in protecting ground water resources through the enforcement of local controls and authorities. Funds should be made available to local governments for developing and implementing local programs that control potential sources of ground water contamination. Programs could include the permitting of feedlots; improving local regulations of onsite sewage treatment system installation, operation, and maintenance; and the permitting and inspection of storage tanks.

Relative Cost of Recommendations proposed in Part One of Initiative IV. The above proposals would require significant start-up funding. Once programs are implemented, fees could be used to finance operating costs.

Initiative IV. To enhance local ground water management activities, to better coordinate State ground water responsibilities and programs; and to coordinate among federal, State and local levels of government.

Part Two: Coordination of State programs, and coordination between different levels of government.

Issue: Ground water responsibilities reside in several agencies, each with special interest areas and priorities. There is a need for a well coordinated effort to increase ground water management effectiveness and to ensure unified cooperative efforts by the agencies having major responsibilities involving ground water. This coordination must occur between State agencies, and reach out to include federal and local governmental units as well.

Proposed Recommendations: Programmatic change. Interagency agreements and less formal working arrangements, such as interagency work groups, are vital to the coordinative structure. Additional coordination is recommended in the areas of ground water standards development and public water supply development and protection, among others.

Programmatic change. The Board of Water and Soil Resources, has strong local representation and responsibility for coordinating the water and soil resources planning activities of counties soil and water conservation districts, watershed districts, and water management organizations. The Board does this by approving local plans and administering state grants. Clarification is needed on the role of the Board in coordinating state agency involvement with local governments in water management. Other groups should be involved in this coordination as well, such as the Community Health Services board being involved in the development of domestic well testing programs.

Programmatic change. The Water Resources Committee should expand their coordinative role in the review of ground water policy decisions. Suggested areas of expansion of this role are review of monitoring programs and biennial review of the Ground Water Protection Strategy, reviewing efforts such as the reevaluation of the State water appropriation priority system, and the review of the programs to control sources of ground water contamination. In addition, this group should serve as a vehicle for State review and comment of federal water programs.

Initiative IV. To enhance local ground water management activities, to better coordinate State ground water responsibilities and programs; and to coordinate among federal, State and local levels of government.

Part Two: Coordination of State programs, and coordination between different levels of government. (Continued)

Issue: Staff views are often narrowed by limited experience outside their own programs; opportunities for interagency interaction are limited. This often results in poor handling of problems which cross agency lines.

Proposed Recommendation: Programmatic change. Staff should be educated about the goals, programs and rules of other agencies. Cross-training is needed for the staff of agencies with related duties or whose actions may have impacts in other areas.

Relative cost of Recommendations proposed in Part Two of Initiative IV. Coordination is a relatively inexpensive, and usually cost-effective, tool to enhance the effectiveness of regulatory programs.

Initiative V. To provide the public with the necessary information and education for making environmentally sound decisions in areas which may impact ground water.

Informing and educating the public about ground water is a crucial but complex task. Major components of this effort include:

1) Research to address needs for new technologies and practices.

2) Public information on existing knowledge and new findings related to ground water as well as the publicizing of new programs, availability of services and technical assistance, upcoming events and developments throughout the State and elsewhere.

3) Ground water education being taught to various audiences such as children, the general public, and the regulated community.

4) Training for regulators, planners, and other officials at all levels of government.

5) Technical assistance to provide continued support in regulatory and planning effects at all levels of government.

6) Dissemination of research results and any published information relating to the ground water resource.

Issue: State agencies have not effectively conveyed their research needs to colleges and universities, nor have they consistently looked to these research institutions to conduct ground water research. Research results are often poorly disseminated, and not highly publicized.

Proposed Recommendation: Legislative change/programmatic change: A continuing source of funding should be provided for ground water research. The submittal of proposed research projects should be coordinated through a Ground Water Research and Information Committee made up of State agency heads and research institutions. This same committee should be responsible for statewide dissemination of research results generated in Minnesota and from elsewhere when results may be applicable to Minnesota. The committee should be tied to or formed from existing committees within the State.

Issue: Ground water information is developed and disseminated by different State agencies with little or no coordination. The purpose of these information efforts has been primarily to raise awareness of ground water resources and issues. This information has reached some specific audiences and not others. The development of published information has also been hampered by a lack of funds. Historically, information is published when agencies can scrape enough funds together but may be among the first programs to be cut when budgets are tight. It is also difficult to quantify the results and to demonstrate the effectiveness of these efforts.

Initiative V. To provide the public with the necessary information and education for making environmentally sound decisions in areas which may impact ground water. (Continued)

Proposed Recommendation: Legislative/funding: The development and dissemination of ground water information should be coordinated through the proposed Ground Water Research and Information Committee. Funding should be provided to develop sufficient published materials for distribution throughout the State to a wide range of audiences including the general public, local decision-makers and officials, industries, and farmers. The Ground Water and Information Committee should determine the types of information to be developed for specifically targeted audiences, how it will be disseminated, and how funds will be spent.

Issue: The State does not presently have a program of ground water education in the schools or for the general public. The objective of education is to provide information on ground water and attempt to develop new attitudes toward ground water protection and fostering good personal stewardship. Attitudes and awareness should be developed to a point where they lead to actions that prevent ground water degradation. This development will be most successful through personal interaction between teacher and pupil at the primary and secondary education levels.

Proposed Recommendation: Legislative/funding: Funding should be provided for the development of curriculum at both the primary and secondary education levels. This curriculum should be incorporated into existing school programs. At the primary level general concepts of ground water and sources of contamination could be introduced. At the secondary level a more detailed ground water study could be included in the earth sciences and/or general science curriculum at the junior high level while ground water policy issues could be covered in social studies at the high school level. The Ground Water Research and Information Committee would coordinate curriculum development and dissemination.

Legislative/funding. If local governments are to become more involved in ground water protection, it will be necessary to educate local officials as well as the regulated community and the general public. Again, funds will be needed to develop education programs for these audiences. The Ground Water Research and Information Committee should coordinate with the Minnesota Extension Service and the Association of Townships to develop education materials and the delivery of educational services to the various audiences.

Relative costs of Recommendations proposed in Initiative V. The cost of generating information and participating in educational activities is relatively low, especially compared to the cost of remedial efforts after pollution has occurred. It is clear that prevention is the key to protection and education is the major part of prevention.

Use this page for notes.

Water Resources Strategy for the Control of Pests and Management of Nutrients

Public Review Draft: the Options

March 1988

prepared by

EQB Water Resources Committee

Preface

As part of its continuing efforts to evaluate state water resources problems and develop policies for dealing with those problems, the Environmental Quality Board Water Resources Committee has begun preparation of a strategy outlining the actions which should be taken to protect water resources from pesticide and nutrient contamination. The ultimate goal is to safeguard the health of Minnesotans while ensuring that economic development and environmental protection objectives are met.

With the assistance of an interagency technical committee, the Water Resources Committee identified issues associated with pesticide and nutrient contamination and options for dealing with those issues. This document delineates these issues and options.

The Water Resources Committee is now seeking comments on the options identified. Comments will be used to help determine which options should be incorporated into an overall for the protection of water resources.

Comments on the options presented in this document should be submitted by May 6, 1988 to:

EQB Water Resources Committee
300 Centennial Building
658 Cedar Street
St. Paul, Minnesota 55155
attention: Deborah Pile
(612) 297-2375

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Introduction

Water resources are an essential element of Minnesota's high quality of life, vibrant tourist industry, agricultural production, and new opportunities for growth. To ensure that future Minnesotans continue to benefit from our water resources, we must identify possible threats to the resource and actions necessary to address those threats. Contamination of water resources by pesticides and nutrients has been observed in numerous locations around the nation, including Minnesota, and is increasingly becoming a concern nationwide. In order to protect Minnesota's valuable resources, we must ensure that the state is prepared to deal with this contamination.

The EQB Water Resources Committee

In November 1985, the Environmental Quality Board established the EQB Water Resources Committee (WRC) to examine state water resources issues and develop a comprehensive state water resources strategy. As part of that process, WRC developed a twelve-point water program, "Protecting Minnesota's Waters", which contains recommendations for actions needed in the period from 1987 to 1989 to safeguard public health and preserve the quality of the state's waters. These recommendations acknowledge the need for continued interagency efforts to address issues associated with the protection of water resources from toxic substances, including pesticides and nitrates.

Following from these recommendations and emerging reports on the occurrence of pesticides and nitrates in ground and surface waters in Minnesota, the WRC resolved to lead an interagency effort to evaluate Minnesota's current activities related to pesticide and nutrient contamination, and to develop a state strategy to ensure that pests are controlled and nutrients managed in a manner that safeguards Minnesota's water resources.

Developing the Water Resources Strategy for the Control of Pests and Management of Nutrients

WRC's approach in developing a state strategy for the control of pests and management of nutrients has thus far involved five main steps:

1. Identification and evaluation of current state and federal responsibilities and authorities related to pesticides and nutrients;
2. Evaluation of other states' efforts to deal with pesticide and nutrient contamination issues;
3. Delineation of the major pesticide and nutrient contamination and management issues facing Minnesota;
4. Development of the basic policies to direct the strategy; and,
5. Development of possible options available for addressing the major issues.

The WRC Technical Committee, an interagency technical advisory committee comprised of representatives of key state agencies,assisted WRC in carrying out these steps. Work products of these efforts include two reports ("Pest and Nutrient Management and Water Resources: Federal and State Authorities" and "Pest and Nutrient Management and Water Resources: Programs of Other States"), a paper identifying twelve issue areas requiring further exploration, and individual papers delineating the options available to address the problems associated with the twelve identified issue areas.

The Next Step

The next step in development of the strategy involves selection of the combination of options which will best safeguard and serve Minnesotans today and in the future. The purpose of this document is to solicit public input in making those selections.

The document presents:

1. information on pesticide and nutrient problems and programs in Minnesota;
2. the policy directions proposed by WRC to guide the preparation of the strategy;
3. a summary of the options identified to address the identified issues; and,
4. a detailed presentation of the options, which have been grouped under five broad areas or initiatives.

WRC anticipates that the proposed Water Resources Strategy for the Control of Pests and Management of Nutrients will be completed in June 1988 after consideration of comments and recommendations received from the public and from the Environmental Quality Board (EQB) Advisory Committee on Ground Water Protection. The strategy will then be presented to the Environmental Quality Board for approval and will be used as a guide for the development of state programs and legislation. The portions of this strategy dealing with ground water issues will be incorporated into the state's Ground Water Protection Strategy.

Background

Manufactured fertilizers and pesticides have been increasingly used for the past twenty years in many different areas, including farmlands, forests, lawns, and recreational areas.

Nationally, pesticides are estimated to be used today at a rate triple the amount used in 1964, with agricultural uses accounting for 79 percent of all uses. Minnesota data show that in 1960, about 72 percent of the corn acreage harvested was treated for weed control, while in 1984, about 97 percent was treated. In total, approximately 16.5 million acres of Minnesota farmland were treated with an estimated 40-45 million pounds of active ingredients during the 1984 crop year.

Minnesota fertilizer use has likewise increased. For every ton of nitrogen fertilizer used in 1960 in Minnesota, 17 tons were used in 1985.

The benefits of increased pesticide and fertilizer usage have included increased crop yields, weed-free swimming beaches, and lush lawns, golf courses and parks. Some of these same chemicals, however, are now being detected in surface and ground waters, posing a potential threat to drinking water.

Impacts on Water Resources

Water resources can become contaminated at any point in the life cycle of a pesticide, including manufacturing, distribution, storage, use and disposal. Contamination can result from spills and leaks at manufacturing or bulk storage and handling facilities, from mishandling during application, and from improper disposal of unrinsed containers. Contamination may also result from normal pesticide use. Nitrogen contamination can result from many sources, including fertilizer usage, animal wastes and malfunctioning septic systems.

The extent of pesticide and fertilizer contamination of surface and ground waters in the nation and state is not well defined. Prior to the late 1970's, it was generally believed that ground waters were protected from pesticide contamination. Consequently, pesticide monitoring was minimal, and was focused on surface water and urban drinking water supplies.

Monitoring efforts have increased in recent years, but have focused on a limited number of pesticides in specific geographic areas. By 1986, 19 different pesticides had been detected in ground water in 23 states, with the source of contamination most probably resulting from normal usage.

In Iowa, eleven pesticides were detected in recent monitoring studies. It is estimated that at least 27 percent of Iowa's population using public water supply systems receive water that contains pesticides at sometime during the year. Pesticides have also been detected in ground water in Wisconsin.

Between July 1985 and June 1987 a cooperative Minnesota Department of Health (MDH) and Department of Agriculture (MDA) survey was conducted in an effort to develop baseline information on the extent of agricultural pesticide contamination in the state's ground water. Over 700 wells were tested, including observation wells located near farm fields and public and private drinking water wells. Wells were generally chosen in places where local hydrogeology made the ground water especially susceptible to contamination.

Pesticides were detected in 39 percent of the wells tested, generally at levels below current guidelines for drinking water. Sixteen drinking water wells did have pesticide levels higher than the limits currently recommended by the Department of Health. Long-term health implication of ingesting low levels of pesticides are not known.

Pesticides were most commonly found in wells completed in the karst formation in southeastern Minnesota, the shallow, outwash sand and gravel aquifers in central Minnesota, and the shallow, alluvial sand and gravel aquifers in southwestern Minnesota.

Nitrate contamination has also been observed. In a 1986 survey, MDH and MDA found that 42 percent of 190 private drinking water wells and 12 percent of 225 public water supply wells

have nitrate concentrations in excess of drinking water standards. Data from Winona and Olmsted counties indicate that nitrate contamination is increasing in deeper aquifers.

Nitate levels exceeding standards have also been observed in Iowa, where researchers have concluded that nitrate levels in ground water have increased in proportion to the increased use of manufactured nitrogen fertilizers.

Federal and State Authorities

Federal

The primary agency for pesticide management and regulation of water quality impacts of pesticides and nutrients at the federal level is the US Environmental Protection Agency (EPA). Pesticides are regulated by EPA through the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). The act covers classification, registration, sale, use and disposal of pesticides, and provides that pesticides must be registered and must have labels detailing how the product may be used. It also establishes certification requirements for persons desiring to use pesticides.

Through FIFRA, EPA must evaluate pesticides to determine if benefits of use outweigh risks. Many pesticides in use today, however, were in use prior to the current FIFRA requirements. These must be reevaluated to determine necessary restrictions. The process is slow, however, and products may continue to be used during this reevaluation.

Pesticides and nutrients are also regulated by EPA through the Safe Drinking Water Act, which provides for regulation of public drinking water supplies and requires monitoring of those supplies to ensure compliance. EPA sets drinking water standards and requires specific treatment technologies. Currently, there are standards for only six pesticides, however, more are being developed.

Regulation is also afforded through the Clean Water Act, which covers such areas as water quality standards, feedlot regulation and the control of nonpoint sources of pollution, such as agricultural runoff.

The US Department of Agriculture is also involved in pesticide and nutrient management, and offers educational programs and financial and technical assistance for nonpoint source pollution control.

State

State authorities and programs derive from delegation of authority from the federal government and state statutes. There are four principle agencies involved in pesticide and nutrient regulation in the state: the Departments of Agriculture (MDA), Health (MDH), and Natural Resources (DNR), and the Pollution Control Agency (PCA).

MDA is the lead agency for regulation of pesticides in Minnesota. It has authority through delegation from EPA under FIFRA and through the state Pesticide Control Law. MDA is responsible for the regulation of the distribution, use, storage, handling and disposal of pesticides, rinsates and containers. It administers the state's certification, licensing and training programs and has the authority to deny, cancel or restrict the use of products.

DNR becomes involved when pesticides are applied to public waters. It approves the registration of aquatic herbicides and algicides and issue permits for the use of pesticides in public waters.

MDA also has authority to regulate the registration, storage and handling of fertilizers. No agency has authority over the application of fertilizers.

MDH has authority under the federal and state safe drinking water acts to regulate public drinking water supplies for protection of public health. This includes protection relative to pesticide and nutrient contamination. MDH also develops health advisories for contamination in situations where no standards exist.

PCA's authorities derive through the federal Clean Water Act and state statutes, and cover broad overall regulation of surface and ground water quality. Its authorities include classifying waters and setting standards for all parameters, and extend to regulation of feedlots, disposal of wastes, storage facilities and nonpoint source pollution control.

Policy Directions

In considering how to address problems associated with the contamination of Minnesota's water resources by pesticides and nutrients, the Environmental Quality Board Water Resources Committee proposes nine basic policies. These policies are intended to provide the overall framework for Minnesota's approach to protection of water resources by the proper management of pests and nutrients.

1. Each individual must accept responsibility. Pesticides and nutrients are widely used in today's society by agricultural producers to increase yields and profits, by homeowners to achieve lush weed-free lawns and gardens, and by highway departments to keep rights-of-way free of visual obstructions, to name only a few users. All persons have the responsibility to conduct their activities in a manner that will prevent or minimize pesticide and nutrient contamination of water resources, and to take whatever actions may be necessary to reduce impacts.

2. Each individual must be informed. Changing the ways in which pests and nutrients are managed requires changing individual behavior and actions. These changes in turn require that individuals have the necessary information to make wise management decisions. Individuals must be better educated in the consequences of use and misuse of pesticides and nutrients, and alternatives to existing approaches.

3. Land stewardship must be stressed. Pest control and nutrient management decisions can have an influence on water resources that extends beyond the geographical and temporal framework in which the decisions are made. The citizens of Minnesota have a responsibility to be good custodians of the state's water resources and to ensure that actions taken today do not jeopardize the health and welfare of future Minnesotans. Education and information efforts should, therefore, stress an overall land stewardship ethic, and emphasize resource sustainability and long-term profits instead of short-term yields or gains.

4. Prevention must be stressed. The clean-up of water contaminated by pesticides and nutrients can be costly and technically complex, and with respect to widespread contamination of ground water, may be economically and technologically infeasible. In addition, provision of alternative water supplies or treatment, where clean-up is not feasible, is also costly and may be impractical where contamination is widespread. Consequently, contamination of water resources by pesticides and nutrients must be prevented to the maximum extent possible.

5. Detection indicates degradation. Pesticides are not a naturally occurring constituent in waters. In addition, while nitrates are found naturally in waters, elevated levels can be induced by human activities. Consequently, detectable presence in surface or ground waters of pesticides or of nitrates beyond natural background levels is considered to have lowered or degraded the natural character or quality of those waters.

6. Degradation must be met with action. Due to the difficulties associated with clean-up, instances of contamination can not be disregarded. All instances of degradation must be met with appropriate actions to prevent further degradation. These actions may include investigations, evaluations, education, enforcement actions, land use and land management changes, and/or active cleanup.

7. Actions must be geared toward health protection. The particular actions appropriate in instances of degradation must be determined, and priorities for taking action must be established. State priorities for action and the levels of cleanup required must be based on acute and long-term or chronic health risks.

8. The state must be able to assess risks. The U.S. Environmental Protection Agency evaluates the health risks associated with various contaminantes and issues standards and advisories designed to protect health. However, standards and advisories have not been issued for many of the contaminantes found in waters, and the actions to deal with contamination can not always await such issuances. Therefore, the state must have the capability and the resources to be able to evaluate health risks, and issue advisories and standards in an expedient manner.

9. State programs should incorporate these policies. These pest and nutrient management policy directions should be factored into all programs, projects and policies in the state.

In developing the state strategy for the protection of water resources from contamination by pesticides and nutrients, options to address the above policy directions were identified. These options have been structured around five initiatives and are presented in the remainder of the document. The five initiatives are:

I. To protect ground and surface water from contamination with pesticides and nutrients through enhancement of regulatory efforts, prevention planning and corrective actions.

II. To provide the public with necessary information, education, and incentivies in order to foster wise, responsible and reduced usage of pesticides and supplemental nutrients.

III. To better coordinate state, federal and local responsibilities and programs in order to better meet protection/prevention goals.

IV. To enhance the current body of knowledge of pesticide and nutrient contamination problems, prevention practices and alternative management approaches.

V. To identify possible funding mechanisms to ensure that the above recommendations are implemented.

Summary of Options

Initiative I

To Protect Water From Contamination Through Enhancement Of Regulatory Efforts, Preventive Planning And Corrective Actions.

Options

1. Develop a state Pesticide Management Plan. The plan should be developed by Minnesota Department of Agriculture, through the Environmental Quality Board to ensure an interagency and interprogram focus. It should stress preventing problems and preserving the natural quality of water resources, should delineate what to do when problems or issues arise, and should include: a) designating special protection areas, b) taking preventive actions, and c) initiating specific management plans for a pesticide following detection.
2. Expand state registration requirements. The Minnesota Department of Agriculture should actively develop and impose Minnesota use restrictions on pesticides as part of product registration, to restrict use or deny registration based on the potential for water contamination.
3. Expand enforcement of the state well code. Enforcement should be expanded by broadening Minnesota Department of Health statutory enforcement authority, providing funding and developing funding mechanisms to encourage county participation in code enforcement activities, and actively seeking information on the location of noncomplying wells.
4. Expand irrigation programs. Legislation requiring development of state chemigation requirements to control fertilizer applications through irrigation systems should be promulgated.
5. Develop a state-local fertilizer use program. The program should be designed to reduce contamination from fertilizer use, and should address laboratory standards and dissemination of information on fertilizer rates and harmful results of overuse.
6. Institute a state Wellhead Protection Program. The program should provide for the identification of areas around wellheads requiring special protection efforts and of appropriate control practices, and should involve local units of government.
7. Promote local control efforts. The state should support local control efforts, including local water planning, wellhead protection, feedlot regulation, and water well code enforcement, through technical assistance, grants and identification of financing options.
8. Improve standards setting capability. Capabilities should be improved by expanding risk assessment efforts within MDH and promulgating rules for developing advisories where no federal standard exists.
9. Improve container/product disposal practices and compliance. Improvements should be made by creating a permanent pesticide collection program, increasing enforcement, developing and distributing educational materials, and promoting the use of returnable, reuseable and degradable containers.
10. Improve control of aquatic nuisances in public waters. Options here include banning application in public waters and increasing enforcement efforts.

Initiative II

To Provide Public With Necessary Information, Education And Incentives In Order To Foster Wise, Responsible And Reduced Usage Of Pesticides And Supplemental Nutrients

Options

1. Develop financial incentives. Sound pest and nutrient management should be encouraged through direct cost-sharing with landowners/users for ground water protection practices, through limiting liability of landowners/users who follow approved pest and nutrient management plans, and through property tax incentives. Incentives and financial assistance for proper well abandonment should also be developed.

2. Improve and expand public educational and informational efforts. Informational and educational efforts should be improved by 1) establishing an inter-agency and academic committee to coordinate efforts; 2) expanding the Minnesota Department of Agriculture's information and education programs on fertilizer and pesticide use; and 3) requiring that information on ground water impacts be provided with all soil tests.

3. Increase the use of demonstration projects. The state should establish and publicize farm-based and research-based demonstration projects on reduced chemical use, and alternatives to chemical use or added nutrients. Additional, ties should be established between private and public demonstration projects and between Minnesota projects and those of neighboring states.

4. Expand and enhance training programs and requirements. Minnesota should expand training course and workshop content to better emphasize environmental and health impacts, and require attendance and retesting at more frequent intervals. Areas to address include pesticide disposal, chemical application through irrigation systems, and integrated pest management.

5. Enhance promotion of Integrated Pest Management. Integrated pest management should be enhanced through development of an overall coordinated state approach or plan for its promotion, and through expansion of pest survey and detection programs.

Initiative III

To Better Coordinate State, Federal And Local Responsibilities And Programs In Order To Better Meet Protection/prevention Goals

Options

1. Provide better overall direction to programs that impact pest and nutrient management. Direction should be provided by ensuring that the state's water quality management plan identifies priority areas, nutrient and pest management needs within those areas, and the role of the federal, state and local governments in carrying out the plan. The plan should be used for program development, priority setting, and local level plan development. In addition, county local comprehensive water management plans should be reflective of the state plan, and should be sufficient to guide local efforts.

2. Integrate pest and nutrient management and sustainable agriculture principals into existing programs.

Initiative IV

To Enhance The Current Body Of Knowledge Of Pesticide And Nutrient Contamination Problems, Prevention Practices And Alternative Management Approaches

Options

1. Increase pesticide monitoring activities. Minnesota should develop coordinated inter-agency monitoring programs which test for pesticides and pesticide breakdown products on a regular basis. The programs should include ambient ground and surface water monitoring, monitoring of public and selected private drinking water wells, and intensive monitoring of vulnerable areas. Efforts should also be increased to obtain accurate information on pesticide use through pesticde use surveys and requirements that commercial and noncommercial applicators and dealers report amounts and types of pesticides sold and applied annually.

2. Increase efforts in basic research and identification of alternative practices. Efforts should be increased by continuing establishment of effective biological control agents, by redirecting research toward alternatives to pesticides, and by mandating a water quality impact assessment as part of each research project that receive state funding. Examples of areas requiring research include: site vulnerability; transport and fate of pesticides and nitrate-nitrogen in the environment; cummulative and synergistic effects; and effectiveness of best management practices for ground and surface water quality protection.

3. Enhance research coordination and dissemination of results. This should be accomplished through establishment of an inter-agency and academic committee to identify and set priorities for applied agricultural/environmental research needs, to examine practices needs for state regulatory programs, and to disseminate research results through exist channels such as Minnesota Extension Service and the Minnesota Department of Agriculture certification and training programs.

Initiative V

To Identify Possible Funding Mechanisms To Ensure That The Above Recommendations Are Implemented

Options

1. Establish an overall state pest and nutrient management account. The fund should be used for all necessary program activities, including monitoring, demonstration projects, integrated pest management, and general education. The fund should be maintained through taxes on manufacturers and/or users of pesticides and fertilizers.
2. Utilize a combination of existing and new funding sources. These should include: federal grants; general fund appropriations; the environmental fund; Legislative Commission on Minnesota Resources' funding; pesticide, water and/or laboratory user fees; product registration and/or use fees.
3. Create a pesticide and container disposal fund. The fund would provide a subsidy to the agricultural community to assist in hazardous waste disposal costs.
4. Establish a water well permit fee system. Fees would be used to fund enforcement of the well code at the county or state level.
5. Develop mechanisms for dealing with cleanup. Approaches for dealing with cleanup costs include:
   a. Developing a pesticide superfund which would deal with contamination of groundwater, cleanup and monitoring, and would require that expenses be collected from polluters;
   b. Holding landowners liable for groundwater contamination due to their own practices, and rely on individual landowners' insurance to cover cleanup costs; and
   c. Enacting a pesticide cleanup program similar to the Underground Storage Tank Program to reduce liability and costs for landowners.

Initiative I

To protect ground and surface water from contamination with pesticides and nutrients through enhancement of regulatory efforts, preventive planning and corrective actions.

Issue

Enhance state regulatory and enforcement efforts. Pesticides are regulated through the provisions of the state Pesticide Control Law and other state laws dealing with waste disposal, storage, pollution control, and water use. These laws provide the state with the ability to: 1. to impose restrictions on the use of pesticide products, and require training and certification of individuals using pesticide products; 2. require specific well construction and abandonment practices to ensure that surface contaminants do not reach ground water; and, 3. regulate water appropriations. Our ability to manage pesticide and nutrient use and prevent or mitigate impacts on water resources could be greatly enhanced through application and modification of these existing laws, and more aggressive enforcement and implementation efforts.

Options

1. **Expand state registration requirements.** In order to be used within Minnesota, a pesticide must be registered with the Environmental Protection Agency (EPA) and the state Department of Agriculture (MDA). Through the state Pesticide Control Law, MDA has the authority to approve, deny, cancel or impose state use restrictions on a pesticide. In addition, MDA may specifically take actions necessary to prevent pesticide contamination of ground water. MDA should actively implement these authorities and develop and impose Minnesota use restrictions on pesticides as part of the state's registration process. This could include developing criteria for restricting use and denying registration of pesticides based on the potential for water contamination. It could also include phasing out the registration of any chemicals detected in ground water that have not been reevaluated by EPA and requiring the submittal of environmental fate data prior to registration.

   (Implementation requires administrative action and rule making; could be phased in over a period of several years; cost could be high and would be based on the extensiveness of state registration efforts)

2. **Enhance and expand training and certification requirements.** The state Pesticide Control Law requires training and certification of commercial applicators of pesticides, dealers of bulk and restricted use pesticides and other applicators of restricted use pesticides. MDA should improve the content requirements of applicator and dealer training courses by emphasizing environmental and health aspects of pesticide use and alternatives. MDA should further require attendance and retesting at more frequent intervals.

   (Implementation requires administrative action and rule making; could be phased in over a three year period; costs could be mostly covered by course fees)

3. **Expand and enhance irrigation programs.** State law establishes requirements for application of pesticides through irrigation systems, including the requirement of obtaining a permit from MDA. Such a permitting program does not exist for controlling the application of fertilizers through irrigation systems, even though this practice is more widespread and requires similar precautionary measures. The Department of Natural Resources (DNR) issues permits for the appropriation of water for irrigation and must consider in that process the impacts of the use of the water. To address these areas:

   a) MDA should be authorized to develop requirements to control fertilizer applications through irrigation systems.

      (Implementation requires legislation and rule making; could be introduced in 1989; cost could be primarily covered by fees)

b) DNR should develop agreements/procedures with MDA, the Pollution Control Agency (PCA) and the Minnesota Department of Health (MDH) for reviewing, revoking and denying appropriations permits and requiring monitoring for irrigation where ground water contamination is present or is a concern.

(Implementation requires administrative action and rule making; could be pursued immediately; involves little cost)

c) MDA should review application rate recommendations for pesticides and fertilizers to ensure that the management afforded through irrigation is addressed.

(Implementation requires administrative action, could be pursued immediately; costs should be low)

4. **Expand enforcement of water well construction and abandonment requirements.** Minnesota statutes and rules contain specific requirements for the construction and abandonment of water wells to ensure that ground water quality is protected. An improperly abandoned or constructed well can serve as a direct conduit for surface contaminants to enter ground water, and can also allow contamination from upper aquifers to enter lower uncontaminated aquifers. Better efforts to enforce compliance and identify noncomplying wells would help eliminate this pathway of contamination. Options are to:

   a) Broaden MDH statutory authority. MDH authority to enforce the water well construction code should be broadened by 1) establishing a state permit program for well construction, 2) increasing the ability to impose sanctions against well drillers that violate the code, and 3) requiring the disclosure and proper abandonment of all wells as part of property transfer transactions.

   (Implementation requires legislation; could be introduced in 1989; would require MDH staff increase that could be offset by fees, costs to individual for abandonment could be high)

   b) Encourage county participation. Enforcement could be greatly enhanced by local level participation in inspection and location of wells. The state should provide funding and develop funding mechanisms to encourage county participation in and assumption of the program.

   (Implementation requires administrative action, legislation desirable; could be introduced in 1989; initial state costs could be high, ongoing county costs could be offset by fees)

5. **Enhance spills prevention efforts.** The impact of pesticide and nutrient spills can be significant due to the volumes and concentrations of chemicals involved. Cleanup can be difficult, particularly in situations where leaks have gone undetected for long periods and in hydrogeologically sensitive areas, making prevention and early detection the most viable course of action. This objective can be met in the following ways:

   a) MDA and PCA should improve and coordinate the system of logging spills so that causes of spills can be more easily ascertained and prevention programs better developed.

   b) MDA should increase surveillance/enforcement efforts at bulk storage facilities, including increasing inspection and developing procedures and criteria for determining when further requirements such as monitoring should be imposed.

   c) MDA should require that rinsate recycling systems be installed at commercial facilities.

   (Implementation requires administrative action; could be pursued immediately; costs to the state would be low, but may be high to individual commercial facility owners)

Issue

Expand state and local pesticide and nutrient control efforts. Additional state and local control efforts are needed in order to protect water resources from pesticide and nutrient contamination, and respond appropriately to contamination. The use of land use and zoning powers must be more fully utilized to protect sensitive and vulnerable areas, and procedures must be delineated specifying the actions that will be taken when contamination is discovered.

Options

1. **Develop a state pesticide management plan.** The Environmental Protection Agency (EPA) has suggested, in its draft proposed "Agricultural Chemicals in Ground Water Strategic Plan", that states take a more active role in determining necessary actions to protect ground water from pesticide contamination through development of state management plans. Such a plan would guide Minnesota's efforts in preventing and responding to pesticide contamination. MDA should develop a management plan which is both prevention oriented and action oriented delineating what to do when problems or issues arise. The plan must be coordinated with other state plans, particularly the state Ground Water Strategy and state Water Quality Management Plan, and must be developed through the EQB to ensure an interagency and interprogram focus. The plan should be framed around the concept of nondegradation and the policies and direction of this pest and nutrient strategy, and should include:

   a) Designating special protection areas where more stringent protection measures are required (including pesticide use restrictions; establishing pesticide use by prescription to control timing, spatial distribution and dosages; and, restricting pesticides that pose high risks to water to use within approved IPM programs). Areas should be designated based on PCA's delineation of hydrogeologic sensitivity and nonpoint source problem areas, MDH's delineation of wellhead protection areas, and detection of pesticides in water.

   b) Taking preventive actions and/or further investigation before standards or guidance levels are exceeded, because of to the difficulties of clean-up.

   c) Using the educational and incentive approach prior to the point at which the regulatory approach.

   d) Initiating specific management plans for a pesticide following detection; e.g., increase education and enforcement efforts, change use requirements.

   e) Delineating the structure and function of a coordinated state risk assessment program for pesticides.

   f) Increasing compliance inspections in the special protection areas, including of private applicators.

   (Implementation requires administrative action, but legislation desirable; could be introduced in 1989 and developed in the following year; costs of development would depend on degree of input from other efforts and would be moderate)

2. **Develop a state-local fertilizer program.** Nitrate contamination of ground water has been noted in several parts of the state. Possible sources of such contamination include feedlots, septic systems and fertilizer application. Current regulations cover pollution from septic systems and feedlots; however, there are no programs which cover the application of fertilizers. MDA, in cooperation with Minnesota Extension, should develop a program to ensure that fertilizer users have accurate information on amounts to apply in order to reduce contamination from fertilizer use. This program should include 1. requiring that laboratories use standard state developed laboratory techniques and procedures in the sampling and analysis of soils and manure; 2. providing that individuals can obtain fertilizer rate recommendations at local soil and water conservation district (SWCD), Soil Conservation Service (SCS) and Minnesota Extension offices based on Extension's computerized model; and, 3. requiring that Minnesota Extension recommendations on fertilizer rates and literature on the harmful results of overuse be included with all test results.

   (Implementation requires legislation; could be introduced in 1989; costs of development and implementation could be offset by fees for services or taxes on fertilizers)

3. **Institute a state Wellhead Protection Program.** The 1986 amendments to the federal Safe Drinking Water Act include provisions for designation of special protection areas around public drinking water supply wells. Activities within these areas are then to be controlled in order to prevent ground water contamination. MDH should develop a state Wellhead Protection Program to identify areas around wellheads requiring special protection efforts and the practices or controls that must be enacted. The program should be implemented in consultation with local units of government, and should be initiated regardless of whether the federal government provides implementation monies.

   (Implementation requires legislation; could be introduced in 1989 and developed in the following year; costs for a state program would vary based on whether areas are delineated by the state or by local government based on state developed criteria and on the sophistication of the approach, could be started in priority areas)

4. **Promote local control efforts.** Protection and prevention efforts often involve land use controls and individual actions that can most effectively be addressed at the local level. The state should promote local control efforts, including local water planning, wellhead protection, feedlot regulation, and water well code enforcement and/or the institution of a water well construction permit system. Local water well programs could include permit fees, inspection procedures, inventorying of abandoned wells, and compliance and abandonment procedures and schedules.

   (Implementation requires administrative action, legislation desirable; could be pursued immediately with legislation introduced in 1989; cost could be high for program establishment, ongoing efforts could be supported by fees, promotion could be initiated in priority areas)

Issue

Improve standards setting capability. Minnesota has established through rule the policy that waste must be controlled to ensure that to the maximum practicable extent ground water is maintained at its natural quality. Agricultural uses of pesticides and fertilizers are not considered to be in conflict with this policy, providing that such uses do not pose a significant pollution hazard. The state Pesticide Control Law provides that pesticide use must not cause unreasonable adverse impacts on the environment and that actions to prevent ground water contamination may be taken. Once waters have been contaminated the state must be able to advise its citizens concerning the risks associated with the contamination, the need to secure alternative water supplies, and the levels to which the water must be cleaned. However, standards do not exist for many of the pesticides in use in Minnesota and guidance has not been developed for defining when use poses a significant pollution hazard. In addition, information on the risks associated with particular compounds is increasing rapidly. The state must be able to act quickly when contamination is detected, and must be able to use the most up to date information available. Standards and advisories must be based on risks to individual water users, without consideration of treatment technologies, and must consider cumulative risks.

Options

1. **Develop a laboratory certification program.** Water quality analyses are being performed by numerous public and private laboratories. The techniques used and results obtained can vary based on the procedures of the particular laboratory. MDH should develop a laboratory certification program to ensure accurate and reproducible results from public and private laboratories which perform water analyses, particularly for clients who use the results for state compliance monitoring purposes.

   (Implementation requires legislation; could be introduced in 1988; cost could be recovered through certification fees)

2. **Expand and enhance risk assessment efforts.** The state must have the capabilities and resources to be able to act when federal or state standards do not exist. These capabilities should be expanded within MDH so that the state has the resources to evaluate new health effects information and exposures, and issue health advisories.

   (Implementation requires administrative action; could be phased in over several years; cost would be moderate)

3. **Promulgate in rules the mechanism for developing advisories.** Development of specific numerical standards through rule making is a time comsuming process. In addition, information on the risks associated with contaminants is constantly increasing, leading to the need to reassess the level at which a contaminants may pose hazards. Rather than promulgating specific numerical standards in situations where no federal standard exists, MDH and PCA should promulgate in rules the mechanism for developing advisories.

   (Implementation requires rule making; could be pursued immediately; costs would be minimal)

4. **Develop health based ground water standards.** The state should develop ground water standards and advisories for pesticide and nutrient contamination based on acute and long-term or chronic health risks. In addition, "significant pollution hazard" and "unreasonable adverse impacts on the environment" should be defined and applied by the PCA and MDA relative to these standards and advisories so that actions are taken to ensure that standards and advisories are not exceeded.

   (Implementation requires administrative action and rule making; could be pursued immediately; costs would be minimal)

Issue

Improve container/product disposal practices and compliance. Options for managing the disposal of unused or unwanted pesticides and empty containers are limited, difficult, and in some cases expensive. Disposal is governed by both waste and pesticide management rules, and liability is increasingly of concern. Initiative I - continued

Currently, the state is addressing some of these issues through MDA's Pesticide Container Deposit Study and PCA's Waste Pesticide Collection Pilot Project. Results of these efforts should be evaluated for program implications. In addition, a Rinsate Recycling Equipment System has been developed through a grant from the Minnesota Technical Assistance Program. Finally, private efforts at salvaging, reconditioning and innovative packaging are taking place on a limited basis.

Options

1. **Accelerate state government activities.**

   a) Create a permanent pesticide collection and management program. A permanent state program could be established to collect and manage unused or unwanted rural and urban pesticides, utilizing some system whereby costs can be charged back to the individuals disposing of the pesticides.

      (Implementation requires legislation; could be introduced in 1989; cost could be offset by user fees)

   b) Launch a major enforcement initiative. MDA and PCA should increase enforcement efforts with respect to container and product disposal requirements to ensure full compliance of existing and new regulations. This would provide an incentive for pesticide users to practice proper disposal.

      (Implementation requires administrative action; could be pursued in 1989; costs would not be covered by current fees)

   c) Enhance landfill owner awareness. Pesticide container that have been rinsed three times may be disposed of in sanitary landfills. Landfill operators, however, are often reluctant to accept such containers. MDA and PCA should jointly develop an educational program aimed at pesticide users and landfill operators concerning triple rinsing to alleviate landfill owners' concerns over accepting these containers.

      (Implementation requires administrative action; could be pursued immediately; costs should be low)

2. **Accelerate private sector activities.** The private sector has a major role to play in the proper disposition of containers and unused or unwanted products. This role can be through private initiative as well as through state requirements. Options are:

a) **Containers.** The private sector should promote salvaging and reconditioning of containers, and use and development of returnable, reuseable and degradable containers and mini-bulk closed systems.

b) **Rinsate recycling.** Promote commercial facility installation of rinsate recycling equipment for handling of container rinse water to minimize waste production and ensure proper handling.

c) **Product return.** Encourage manufacturers and distributors to accept return of unused quantities of pesticides, basically reversing the existing retail distribution system for the new product. Special seals could be used to prevent product contamination, or only unopened containers could be accepted.

(Implementation requires private sector action, could be implemented through legislation and rule making; could be pursued immediately; costs could be partially recovered through deposits on containers)

Issue

Better ensure that aquatic nuisance control activities do not result in undesireable consequences. Pesticides are used in the management of the aquatic environment, most notably to control mosquitoes, blackflies and nuisance growths of aquatic plants. Use in public waters is regulated through a DNR permit program, in addition to the requirements imposed by MDA. In recent years, the number of permit applications has increased to the point where timely review is difficult. Information on pesticide sales indicates widespread use without permits. This is particularly of concern in situations where the waters are also used for drinking or for providing fish for consumption. In addition, permits for black fly and mosquito control activities are not routinely requested because of conflicts in the statutory language covering these activities. Finally, increasing use and development of public waters has led to conflicts between aquatic nuisance control objectives (e.g., weed free beaches) and other uses (e.g., habitat preservation).

Options

1. **Improve enforcement of permit requirements.** DNR enforcement efforts must be improved in order to ensure that individuals are not applying pesticides to public waters without permits and that the necessary state review of permits takes place. Options are:

   a) Sales and application restrictions. Enforcement should be improved by imposing various sales and use restrictions that would decrease the likelihood that applications would occur without permits. These could include: 1) requiring signatures at time of purchase, including the recording of mail order purchases, 2) posting of regulations at places of sale, 3) requiring application only by commercial applicators or local units of government, and 4) requiring permits prior to purchase.

   (Implementation requires rule making or administrative actions; could be pursued immediately; costs to the state would be low, but some options may increase costs to users)

   b) Pursue delegation. DNR should pursue delegation of some enforcement aspects of the program to local units of governments. This could be handled similarly to the shoreland management program.

   (Implementation requires rule making or administrative action; could be pursued immediately; costs could be offset by fees)

   c) Increase DNR efforts. DNR should increase the level of effort and staffing assigned to the aquatic nuisance control program to ensure that all permits receive adequate review, on-site inspections and enforcement.

   (Implementation requires administrative and legislative action; could be pursued in 1989; costs would likely not be able to be recovered through fees)

2. **Improve state control over mosquito control district operations.** Mosquito control activities should be subjected to adequate state agency review in order to ensure that overall state environmental and health protection goals are achieved. Options are:

a) **Clarify statutory language.** The Attorney General should review existing statutory language covering mosquito control activities and make recommendations for changes to clarify state review requirements.

b) **Pursue a memorandum of understanding.** The DNR should pursue execution of a memorandum of understanding with the district that provides for joint agency review of annual plans

c) **Pursue monitoring.** The DNR should pursue further monitoring of impacts of mosquito control activities through plan review and approval.

(Implementation requires administrative action, could result in legislation for 1989; could be pursued immediately; low cost)

3. **Better integrate aquatic nuisance controls into overall lake management.** Addressing aquatic nuisance control in the absence of overall lake management can result in solutions to one set of problems that actually cause additional problems. In addition, aquatic nuisance problems may be due to influxes of nutrients from the lake's watershed, and thus would return if the influxes themselves are not addressed. Evaluating a lake's needs based on overall management objectives and problem assessments would alleviate these concerns.

   a) Require comprehensive lake plans prior to control efforts. The DNR should require that control efforts be part of an overall comprehensive lake management plan. Such plans must take into account overall management objectives for the lake as well as problems within the watershed that preclude achievement of those objectives. Plans should be consistent with comprehensive local water plans and must be prepared by or approved by the DNR after providing for input of affected local units of government and interested parties. Content requirements for comprehensive lake plans should be established by DNR consistent with the recommendations of EQB's Lake Management Task Force.

   b) Offer opportunity for local review. In order to ensure that aquatic nuisance control activities are coordinated with other activities of local units of government relative to lake management, DNR should offer lake associations, soil and water conservation districts or other local entities the opportunity for review and comment on control activities.

   (Implementation requires administrative action or rule making; could be pursued in 1989; no costs for local review, costs for development of lake management plans could be high depending on the speed at which plans are to be developed)

Issue

Ensure that appropriate levels of environmental review and public information emerge on pesticide projects. The state environmental review process is a formal mechanism through which information about the potential environmental impacts of various projects and how they can be minimized is disclosed to the public, project proposers, and units of government involved with the project. Preparation of environmental assessments and impact statements is required through EQB rules for specific types of projects which are judged to have the potential for significant environmental impacts. Environmental review can also be initiated for other projects on a case-by-case basis. While review is not mandatory for any pesticide uses, review can be initiated by petition, and informational materials and public notices are issued for certain uses, such as special local need. The potential for impacts from pesticide usage is highly dependent on site specific and pesticide specific issues, making the identification of mandatory categories difficult.

Options

1. **Continue current approach** The state should continue the current approach of requiring no mandatory reviews for pesticide projects. Under this approach, environmental review would be initiated at the discretion of a unit of government if it determined that certain pesticide applications may have the potential for significant environmental effects. This approach also allows for the preparation of generic environmental impact statements by the Environmental Quality Board for specific types of control efforts, at its discretion.

   (no action required, no cost)

2. **Increase information dissemination requirements.** The state should increase public awareness of pesticide use activities by requiring that environmental review type information be assembled and be made available for public review for all government pesticide use projects.

   (Implementation requires administrative action, legislation may be desirable; could be pursued in 1989; low cost)

Initiative II

To provide public with necessary information, education and incentives in order to foster wise, responsible and reduce usages of pesticides and supplemental nutrients.

Issue

Develop financial incentives. Pest and nutrient management activites primarily involve actions of individuals on private land. One way to influence these actions is through providing cost-sharing, loans or other financial incentives. These incentives are provided to ease the transition to new management practices, and to encourage or reinforce appropriate activities.

Options

1. **Provide cost-share funds.** The state should encourage sound pest and nutrient management and protect water sources through direct cost-sharing with landowners/users. Options are:

   a) Add ground water protection as an eligibility consideration under the Re-Invest in Minnesota Program.

   b) Develop pest and nutrient management and ground water protection practices for use in state erosion and water quality cost-sharing programs, including the Clean Water Partnership.

   c) Establish startup cost-sharing for adoption of integrated pest management (IPM) practices for use in the state's programs (similar to startup cost-sharing for establishment of conservation tillage). Cost-sharing would cover such activities as scouting for pests. Interest-share loan programs should also be considered for necessary equipment purchases.

   d) Examine the possibility for establishing cost-sharing similar to those mentioned above within existing federal agricultural cost-share programs.

   (Implementation requires administrative action and rule making; could be pursued immediately; cost could be covered within existing program budgets)

2. **Limit liability.** Liability for contamination is increasingly becoming a concern. Contamination can lead to the need for costly clean-up efforts and the provision of alternative water supplies for impacted parties. The state should encourage the use of sound management through limiting liability. Options to accomplish this are:

   a) Through statutes, limit the liability of landowers who follow approved pest/nutrient management plans (this would allow landowners to use adherence to such plans as an affirmative defense). These plans should be developed as a component of existing farm conservation plans.

   b) Tie release of landowner liability to quick reporting of accidents.

   (Implementation requires legislation; could be introduced in 1989; method of paying for clean-up would have to be addressed)

3. **Enact property tax incentives.** Landowers can also be encouraged to reduce chemical usage through tax incentives. Options are:

   a) Cut property taxes for certified organic farms which are located in a vulnerable area. (A similar program could be developed for certified IPM programs that include specific ground water protection measures.)

   b) Ensure that areas retired for water quality purposes receive a property tax credit.

   (Implementation requires legislation; could be introduced in 1989; lost revenues to local units would have to be reimbursed)

4. **Promote soil and manure testing.** MDA and Minnesota Extension should conduct promotional campaigns offering free soil and manure tests to show the importance of testing and encourage it as a routine practice. Campaigns could be conducted in conjunction with agricultural field days and county fairs and should be targeted to priority and demonstration project areas.

   (Implementation requires administrative action; could be pursued in 1989; cost would be dependent on the number of areas, funding over current budgets likely required)

5. **Subsidize water tests.** The state should subsidize tests of farmers' water for pesticides that they use in order to make them aware of any contamination that may be resulting from their activities and to encourage wise management. This should be pursued in priority areas and in conjunction with demonstration projects as part of educational efforts.

   (Implementation requires legislation; could be introduced in 1989; costs would depend on the area served)

6. **Develop incentives and financial assistance for proper well abandonment.** Proper well abandonment is required by state statute and rules. The costs of sealing abandon well, however, may discourage landowners from compliance. As an adjunct to increased enforcement efforts, the state should offer incentives and assistance to landowners. The state should:

   a) Offer tax credits or deductions for all abandonment efforts.

   b) Offer cost-sharing for abandonment of wells taken out of service prior to 1980, that is, prior to enactment of the well abandonment requirements. Cost-sharing could be tied to enforcement and could be targeted to priority areas.

   (Implementation requires legislation; could be introduced in 1989; costs could be extensive and would depend upon the percent of cost-sharing provided and the geographic extent of the effort)

Issue

Improve and expand public educational and informational efforts. Wise, responsible and reduced usage of pesticides and supplemental nutrients can best be achieved by ensuring that individuals are provided with the necessary information to make informed management decisions and to understand the consequences of mismanagement. State agencies (including MDA, PCA, and MDH), federal agencies, local agencies (including counties and soil and water conservation districts), and the Minnesota Extension Service are actively involved in training efforts within the state. By building upon and coordinating of these efforts we can improve and focus our efforts.

Options

1. **Establish an inter-agency and academic committee.** EQB and Minnesota Extension Service should establish an inter-agency and academic committee to: a) identify informational needs, b) seek ways to obtain information, c) ensure that environmental/health aspects of pest and nutrient management are integrated into educational programs, d) ensure that research is factored into educational materials quickly, and e) recommend deletion of obsolete materials.

   (Implementation requires administrative action; could be pursued immediately; costs should be minimal)

2. **Expand education programs.** MDA, in cooperation with other state agencies and the Minnesota Extension Service, should expand its information and education programs on fertilizer and pesticide use. They should:

   a) Expand efforts that are oriented to dealers and sales personnel of those substances.

   b) Develop general public information/education materials (i.e., what you shouldn't do, safety precautions, etc.) for advertising in farm journals and other media.

   c) Develop educational and informational materials, to be available for free at dealerships and stores, to help farmers and others understand label restrictions and be aware of safety and environmental concerns and precautions.

d) **Develop informational brochures on disposal and handling** for various container types for distribution at time of sale.

e) **Provide informational materials** to conservation agencies for distribution to landowners.

(Implementation requires administrative action; could be pursued immediately; cost should not be high but would likely be beyond present allocations)

3. **Support "organically grown".** As one method to encourage reduced usage of pesticides, Minnesota should support continuation of efforts to promote Minnesota "organically grown" as an overall public educational tool and as an encouragement to organic producers.

   (Implementation requires administrative action; could be pursued immediately; costs should be low)

4. **Encourage manufacturer educational efforts.** Encourage manufacturers to prepare video cassettes on proper use of their products, in conjunction with extension, for distribution to dealers and loan to users.

   (Implementation requires private sector action; could be pursued immediately; no cost to state)

5. **Increase risk communication efforts.** Communication and education about the risk of exposure to pesticides and nutrients is as important as calculation of the risk itself. People must understand the risk in order to make informed decisions. MDH, in cooperation with other state agencies and Minnesota Extension, should increase its efforts to develop materials and inform the public on the risk of exposure.

   (Implementation requires administrative action; could be pursued immediately; costs should be low)

Issue

Institute and expand on the use of demonstration projects as a direct method to promote change. Demonstration projects provide an important addition to general educational efforts. They provide the means for the individual to personally gain from the experiences of others, thus eliminating some of the reluctance toward adoption of new practices.

Options

1. **Establish demonstration farms.** The Board of Water and Soil Resources, in cooperation with MDA, the University of Minnesota Center for Agricultural Impacts on Water Quality and Chair for Sustainable Agriculture, should establish and publicize farm-based demonstration projects on reduced chemical use, alternatives to chemical use or added nutrients and sustainable agriculture. Demonstration farms should:

   a) Be established in each county or soil and water conservation district in the priority areas identified through the state water quality management plan and pesticide management plan.

   b) Stress the economic benefits of reduced chemical usage through the preparation of balance sheet information on cost savings and investment costs for the average farm in the project area.

   c) Include comprehensive soil and water conservation plans.

   (Implementation requires legislation; could be introduced in 1989; costs would depend on the number of projects established)

2. **Expand research-based demonstration projects.** The Center for Agricultural Impacts on Water Quality, in cooperation with MDA and other appropriate agencies, should expand research-based demonstration projects to document risks and benefits of different approaches to pest and nutrient management at established experiment stations, and convey the information to farmers.

   (Implementation requires administrative action, legislation desirable; could be pursued in 1989; cost would depend on the number of projects)

3. **Establish ties between demonstration projects.** Demonstration projects are currently being conducted by several private organizations as well as state and federal agencies. In addition, projects are ongoing in other states that could provide benefical information for Minnesota. BWSR, in cooperation with MDA and the Minnesota Extension Service should work to establish ties between private and public demonstration projects and between Minnesota projects and those of neighboring states in order to derive the maximum benefit.

   (Implementation requires administrative action; could be pursued immediately; costs should be minimal)

Issue

Expand and enhance training programs and requirements. Training programs are established by MDA, in cooperation with Minnesota Extension, to ensure that users of pesticides in the state maintain a sufficient level of competency and ability to use pesticides properly and safely. Commercial applicators of pesticides, dealers of bulk and restricted use pesticides and other applicators of restricted use pesticides are required to attend these training courses, or to demonstrate competency through examination. These training programs offer an important opportunity to educate users of pesticides on the latest information on risks and environmental impacts.

Options

1. **Enhance cooperative workshops.** MDA and Minnesota Extension should enhance their cooperative workshops and training programs for pesticide users and dealers by involving other state, local and federal agencies and the chemical industry in course design.

   (Implementation requires administrative action; could be pursued immediately; low cost)

2. **Expand training course content.** MDA, in cooperation with Minnesota Extension, PCA, MDH and other appropriate agencies, should expand training course and workshop content to better emphasize environmental and health impacts. Options are:

   a) Develop training materials to clarify which regulations apply for pesticide disposal and the options users have in complying with those regulations. Emphasis should be placed on the environmental and economic problem associated with current pesticide and container disposal practices, and on proper storage to prevent waste generation.

   b) Develop ground water training modules for use in state training efforts and educate users on vulnerable sites, safe usage, and relative risks of different chemicals.

   c) Develop and enhance training opportunities, requirements and materials for pesticide and fertilizer application through irrigation systems.

   d) Increase the emphasis on IPM in pesticide applicator training.

   (Implementation requires administrative action; could be pursued immediately; costs should be low)

Issue

Establish and expand assistance programs for pesticide users for determining appropriate management practices. Significant responsibility rests with the user of a pesticide in determining when, where and how to use a particular product, and how and where to dispose of any waste products and containers. The U.S.EPA, in its proposed "Agricultural Chemicals in Ground Water Strategic Plan", has suggested that as more restrictions on use are developed relative to hydrogeologic sensitivity, users will be relied upon to determine when these restrictions apply. Any assistance that can be provided to users in making such decisions should benefit both the individual and the public at large.

Options

1. **Provide information on disposal.** MDA and PCA should provide explicit, detailed information concerning disposal of unused/unwanted products and containers to users by a) expanding information on the label, b) establishing a toll-free hotline where such information would be available, or c) developing informational sheets for distribution by dealers.

   (Implementation requires administrative action; could be pursued immediately; cost should be low, funding beyond currently levels likely necessary for toll-free number)

2. **Develop user information service.** The Board of Water and Soil Resources (BWSR), in cooperation with State Planning Agency, should develop a support system to assist users in determining if label restrictions apply to them through county SCS, Minnesota Extension and SWCD offices. Assistance would be specifically related to hydrogeological sensitivity, including soils, depth to water, depth to bedrock, and distance from sinkholes or wells. The system should be based on integrated, automated data bases, so that an individual can obtain consistent and reliable information at any office. Methods of involving dealers in such a system should also be explored.

   (Implementation requires administrative action, legislation desirable; could be pursued in 1989; costs could be high, but could be initiated in priority or demonstration areas only)

3. **Develop a ground water pollution assessment system.** BWSR, in cooperation with EQB, should develop a ground water pollution assessment system similar to energy audits, with rating for practices and assistance for change, as part of number 2. above.

   (Implementation requires administrative action, legislation desirable; could be pursued in 1989; costs as an add-on to number 2 above should not be high, can pursue in priority areas)

Issue

Enhance efforts to promote the use of Integrated Pest and Integrated Farm Management. Wise, responsible and reduced usage of pesticides and supplemental nutrients can be promoted by fostering the use of integrated pest management and integrated farm management or sustainable agriculture. With integrated pest management, ecological principles are combined with management techniques and biological and chemical control methods to maintain pest populations at tolerable levels. With integrated farm management or sustainable agriculture, long range, comprehensive planning is used in order to promote the viability of the entire farm system and its supporting community.

Options

1. **Develop state IPM approach.** Efforts to promote integrated pest management (IPM) are underway within MDA, Minnesota Extension, other agencies and the private sector. These efforts, however, are not guided by an overall state approach and therefore do not have the sense of direction, visibility and priority warranted. MDA, in cooperation with EQB and the university, should develop an overall state approach for the promotion of IPM which would delineate the roles of the state, the university and the extension service; establish information and data exchange and integration systems; and define a procedure for identifying research needs and reviewing and preparing informational materials.

   (Implementation requires administrative action, legislation desirable; could be pursued immediately; costs to develop should be low, further costs incurred in implementation)

2. **Adopt overall land stewardship approach.** Programs and priorities at all levels have often been geared toward specific short-term problems or issues. The land stewardship approach, on the other hand, stresses long-term and overall impacts, cherishing our land and resources, and striving to leave them in a better condition for future generations. This approach is necessary for sound pest and nutrient management, and should be fostered by government. State agencies and local units of government should adopt an overall land stewardship approach in applicable plans and programs, including the Pesticide Management Plan, the state Water Quality Management Plan, and comprehensive local water plans.

   (Implementation requires administrative action, legislation desirable; could be pursued immediately; low cost)

3. **Support Sustainable Agriculture Chair.** Sustainable agriculture is a blend of agricultural practices and systems which is designed to be self-reliant, resources-conserving and productive in both the short and long term. To be sustainable, agriculture must be ecologically sound, economically viable, and socially just. In recognition of the value of this approach to agriculture, the Minnesota legislature created the Sustainable Agriculture Chair at the University of Minnesota. The state should provide funding for and encourage the establishment of the Sustainable Agriculture Chair or a Sustainable Agriculture Center at the University of Minnesota, and urge integration of sustainable agriculture principles throughout the university system, including the Extension Service and Experiment Stations.

   (Implementation requires legislation; could be introduced in 1989; costs would be moderate and could be phased in)

4. **Expand pest survey.** Surveys to determine the levels of pest populations and dissemination of information so that actions to control pests are taken at appropriate times are integral to an effective IPM program. MDA and Minnesota Extension should expand their pest survey and detection programs and their information dissemination to reduce unnecessary pesticide use. Options are:

   a) Increase the use of field and centralized computers by all pest surveyors, and promote data exchanges.

   b) Increase the scope, frequency, and reporting speed of the plant pest monitoring by the state's Cooperative Plant Pest Survey and Detection program, by providing additional field personnel and increased computer applications.

   c) Issue press releases to radio stations.

   d) Encourage private enterprise to supply field/farm specific IPM services.

   (Implementation requires Administrative action; could be pursued in 1989; funding above current levels required, could concentrate on priority areas)

5. **Enhance general IPM knowledge.** MDA, in cooperation with Minnesota Extension should enhance general knowledge of IPM through TV spots, billboards and pamphlets in stores; and through enclosures in water bills for urban areas.

   (Implementation requires administrative action; could be pursued in 1989; costs should be low but are dependent on intensity, could concentrate on priority areas, funding above current levels required)

6. **Support biological pest control.** Biological control can offer an alternative means of pest control. MDA is currently developing a biological pest control program, with the assistance of the University of Minnesota and a grant from the Legislative Commission on Minnesota Resources; however, continued funding is necessary. The state should continue support for establishment of the biological pest control organism lab and program.

   (Implementation requires legislation; could be pursued in 1989; cost would depend on intensity of effort)

Initiative III

To better coordinate state, federal and local responsibilities and programs in order to better meet protection/preventive goals.

Issue

Provide better overall direction to programs that impact pest and nutrient management and water resources. Many state, federal and local program directly or indirectly impact the way pests and nutrients are managed. There is currently no one document that elucidates overall state policies and goals with respect to pest and nutrient management and can therefore serve as the guide for the development and implementation of state, federal and local programs. This pest and nutrient strategy will be the first attempt at preparing such a document. USDA has indicated in its Nonpoint Source Water Quality Policy (#9500-7) that it: 1. will ensure that its actions and programs conform with the nonpoint source water quality plans adopted by state and local governments; 2. will coordinate its activities with federal, state and local governments; and, 3. will integrate water quality concepts into its programs. An overall statement of state policies and goals would also be of value in responding to other federal initiatives, including U.S. EPA's development of ground water protection rules.

Options

1. **Develop a Nonpoint Source Water Quality Plan.** EQB should ensure that the state nonpoint source water quality plan prepared by PCA addresses the above cited need and reflects the policy direction, goals and recommendations of the state's Pest and Nutrient Management Strategy. The plan must address surface and ground water and must identify priority areas, needs within those areas, nutrient and pest management needs, and the role of the federal, state and local governments in carrying out the plan. The plan should: a) be developed by the PCA as part of the agency's existing water quality management planning efforts; b) be developed through the EQB in order to ensure overall state policy compatibility and consistency with the State Pesticide Management Plan recommended to be prepared by MDA; and c) be used for program development, priority setting and local level plan development.

   (Implementation requires administrative action, legislation desirable; could be pursued immediately; low additional costs)

2. **Develop comprehensive local water plans.** Counties should develop comprehensive local water plan elements and updates, necessary to:

   a) Reflect and incorporate appropriate elements of the state's nonpoint source water quality plan and pesticide management plan.

   b) Guide SWCD's in setting priorities for cost-sharing and other resource protection programs.

   c) Provide background information to help guide ASCS County Committee cost-share priorities.

   d) Guide the development of Minnesota Extension Service county program plans.

   (Implementation requires administrative action, legislation desirable; could be pursued immediately; low costs for counties in the planning process, funding for involvement of other counties must be addressed)

Issue

Integrate pest and nutrient management and sustainable agriculture principles into existing programs. Numerous federal, state and local programs that impact or could influence pest and nutrient management and agricultural decision making were not developed for those purposes. In order to ensure that the impacts of these programs on pest and nutrient management decisions are positive, the programs should be evaluated and modified as necessary. Programs should foster agricultural systems which are viable in both the short and long term; that is, systems which are sustainable.

Options

1. **Encourage** USDA to adopt an overall sustainability focus. The state should encourage USDA to evaluate all of its programs with respect to a) impacts on water quality, pest and nutrient management, sustainable agriculture, and IPM, and b) need for modifications, including adoption of pest and nutrient management practices.

   (Implementation requires administrative action, legislation desirable; could pursue immediately; low cost)

2. **Build principles into state programs.** The state should build pest and nutrient management into new and ongoing programs, such as the Clean Water Partnership, the Community Health Services program, the Soil Loss Limits Program, the BWSR Cost-Sharing Program, the feedlot control program, and the Wellhead Protection program.

   (Implementation requires administrative action and rule making, legislation desirable; could pursue immediately and in 1989; low cost)

3. **Better integrate principles into SWCD plans.** SWCD's should develop their annual and long-range plans based on surface watersheds and ground water systems. Plans should contain a strategy to protect water quality from pest and nutrient impacts and should be based on sustainability principles.

   (Implementation requires administrative action; could be pursued immediately; low cost)

4. **Require pest and nutrient management plans.** The state should require landowners to have approved pest and nutrient management plans in order to receive funds through state programs, such as RIM and the BWSR Cost-Sharing Program. In addition, currently funded cost-share practices should be evaluated by MDA and PCA for impacts on pest and nutrient management and water resources.

   (Implementation requires administrative action and rule making; could be pursued immediately; low cost, except for practice evaluation which would likely require additional funding)

Issue

Develop interagency agreements and arrangements. Numerous federal, state and local units of government are involved in pest and nutrient management activities. While, in general, each entity has its own distinct responsibilities and objectives, there is a need to coordinate activities in order to eliminate any possible areas of conflict, promote efficiency and benefit from each other's expertise.

Options

1. **Develop an MDA/PCA agreement on pesticides.** MDA and PCA should develop a detailed memorandum of understanding which precisely lays out areas of responsibility with respect to pesticides. The agreement should address all areas where overlap in PCA and MDA authority occurs, including notification and response, inspection and enforcement strategies for disposal situations, and ground water protection policies.

   (Implementation requires administrative action; could be pursued immediately; low cost)

2. **Develop model state-local agreements.** EQB should facilitate more effective working relationships between state resource agencies and local units through development of model state-local delegation agreements covering pesticide management.

   (Implementation requires administrative action; could be pursued immediately; low cost)

Issue

Foster increased inter- and intra-agency training. The numerous rules and programs that impact or influence pest and nutrient management are contained within different agencies and different divisions within agencies. An individual within one agency may have little contact with or knowledge of the programs of another agency. In additiion, new information on pest and nutrient management impacts must be communicated to the individuals working within the various programs. In order to serve the public and promote sound management, agencies' staffs must be informed on overall rules, programs and findings.

Options

1. **Conduct inter-agency workshops.** The MDA and Minnesota Extension, in cooperation with other appropriate agencies, should sponsor joint training workshops throughout the state on pest and nutrient management to ensure that field staff from all relevant agencies are providing the most up-to-date information to clients.

   (Implementation requires administrative action; could be pursued in 1989; cost should be low but can likely not be handled within existing budgets)

2. **Conduct inter-agency training.** Education/training sessions should be conducted for all agencies' staffs on overall state and federal pollution control regulations and pesticide control regulations. These should be conducted on a regular basis and should be part of the orientation program for new employees.

   (Implementation requires administrative action; could be pursued immediately; low cost)

Issue

Promote better data coordination, dissemination and information management. Data of value in pest and nutrient management are gathered by various state, federal and local agencies as well as through research efforts. Management efforts within Minnesota could benefit by improving access to these data and by coordinating efforts prior to monitoring to promote efficiency and ensure compatibility of techniques.

Options

1. **Establish an interagency work group.** EQB should establish an interagency work group to ensure well coordinated planning and implementation of pesticide monitoring programs. (See option number 1, under monitoring, Initiative IV.)

   (Implementation requires administrative action; could be pursued immediately; low cost)

2. **Develop a data management system.** SPA, through the SWIM Committee, should continue to facilitate development of interagency data management systems for handling water quality data, including pesticides. The system should include federal, state, local and university efforts and address accessibility to all parties.

   (Implementation requires administrative action; could be pursued in 1989; cost of development would be above current budgets)

3. **Evaluate data systems.** Different computerized data systems are used by the various agencies that gather and maintain information that could be used for pest and nutrient management. This includes information on soils, hydrogeology, and land use and management. In order for this information to be readily available, the data systems must be compatible. SPA should evaluate the computerized data systems in use by federal, state and local governments and make recommendations regarding uniformity.

   (Implementation requires administrative action; could be pursued immediately; low cost)

4. **Promote information repository.** Efforts are being conducted at the federal level and in other states that could provide data of use to Minnesota in its pest and nutrient management efforts. Keeping abreast of these efforts, however, is difficult and time consuming. SPA should explore the possibility of EPA serving as a repository for and distributor of this information.

   (Implementation requires administrative action; could be pursued immediately; low cost to state)

Initiative IV

To enhance the current body of knowledge of pesticide and nutrient contamination problems, prevention practices and alternative management approaches.

Issue

Monitoring. Information from monitoring efforts forms the basis for our understanding of the scope of water resources problems and trends in those problems. The soundness of decisions and actions and the degree to which public health and water resources are protected are directly related to the soundness of the data used. Although various state and local agencies monitor for pesticides and nutrients, the monitoring is limited. Minnesota has no interagency, coordinated monitoring program which tests for pesticides or pesticide breakdown products on a regular basis. Efforts must be increased and coordinated if sound information for decision making is to be obtained.

Options

1. **Develop and implement a coordinated monitoring program.** The EQB should work with PCA, MDA, MDH, DNR and BWSR to facilitate development of a coordinated inter-agency monitoring program which tests for pesticides or pesticide breakdown products on a regular basis. At a minimum, the following major monitoring programs should be considered:

   a) Ambient ground and surface water monitoring for pesticides should be conducted to establish water quality baselines and trends.

   b) Public drinking water systems should be monitored for pesticides and pesticide breakdown products on a regular basis.

   c) Selected private drinking water wells should be monitored for pesticides and pesticide breakdown products. While fiscal resources are not available to sample all of the estimated 300,000-400,000 private wells in the state, private wells located near known or suspected pesticide contamination sites should be sampled. In addition, certain private wells should be selected for sampling based on representative conditions, such as source aquifer, well depth/construction, soils or hydrogeological conditions, area pesticide use, land use, geographic location, intended water use, etc. Some private wells should also be randomly selected and sampled.

   d) Soil and ground-water monitoring efforts should be increased near bulk pesticide storage and handling facilities, especially those facilities with historically poor handling practices which are located in hydrogeologically sensitive areas.

   e) Intensive, area-specific pesticide monitoring should be conducted with special emphasis on hydrogeologically vulnerable areas with potential contaminant sources.

   f) Fish tissue, aquatic impacts, soil and unsaturated zone monitoring should be conducted for commonly used pesticides in Minnesota.

   (Implementation requires administrative action, legislation desirable; could be pursued in 1989; cost to develop low, cost to implement could be high depending upon scope, could be targeted to priority areas)

2. **Laboratory procedures.** Analyzing for pesticides can be difficult, due to the procedures involved and the dilute nature of the sample, and can yield erroneous results. Public and private laboratory capabilities must be improved for detecting trace amounts of commonly used pesticides and their breakdown products. MDH and MDA should work jointly to develop standard laboratory procedures for use in Minnesota.

   (Implementation requires administrative action, legislation desirable; could be pursued immediately; funding above current levels may be required)

3. **Enhance pesticide use information.** Pesticide use surveys were conducted in Minnesota from 1962 through 1984 by the Minnesota Agricultural Statistics Service. These surveys yielded crop-specific acreage treated with major pesticides on a statewide basis. No county or sub-county data is or was available, and no quantification of urban use has been made. Accurate pesticide use information is needed to effectively and efficiently target water quality monitoring efforts. Options are:

   a) Institute a pesticide use survey. The Minnesota Agricultural Statistics Service should reinstitute an annual, statistically designed pesticide use survey aimed at obtaining subcounty-level use information. This should include urban uses.

   b) Require data submittal and compilation. MDA should require that commercial and noncommercial applicators and dealers report amounts and types of pesticides sold and applied annually. (This requirement would not extend to private applicators) This information should be compiled by MDA on a sub-county level.

   (Implication requires administrative action, legislation desirable; could be pursued in 1989; funds above current levels would be required).

Issue

Increase efforts to identify alternative practices. Efforts to identify alternatives to current pest and nutrient management practice must be increased in order to promote preventative actions or minimize disruption if practice modifications are necessitated by contamination. Research on alternatives should be encouraged within the university system and USDA, and should be an integral part of MDA and PCA efforts to identify management practices to prevent contamination.

Options

1. **Establish biological control agents.** The state, through MDA, should continue the long-term process of establishing of effective biological control agents.

2. **Enhance IPM research.** Additional research on IPM techniques is needed, specifically farming, with regard to Minnesota applications. These include research on alternative management strategies relative to weed threshold levels, cultural weed controls, effective green manure crops for Minnesota, and efficient crop rotations.

3. **Increase research on alternatives.** Research should be redirected toward chemical free, reduced chemical farming, and alternatives to current uses and use patterns for pesticides and nutrients. Research goals should be oriented toward maximizing profits versus yields and protecting resources.

(Implementation requires administrative action, legislation desirable; could be pursued immediately; additional funding required, various funding sources should be explored)

Issue

Enhance research coordination and dissemination of results. Research is currently being conducted by numerous educational and governmental entities. While the focus and intent of these efforts may often be different, all parties could gain by having better access to each other's research results and exchanging information on areas within their respective disciplines requiring further research.

Options

1. **Establish research coordination committee.** EQB should establish an ongoing inter-agency and academic committee to identify research priorities; to examine practices and needs for state regulatory programs; and to disseminate research results through existing channels such as Minnesota Extension Service and MDA certification and training programs. This effort should be coordinated with and provide input to the efforts of the university Center for Agricultural Impacts on Water Quality and research funding entities, such as LCMR. (This should be the same committee suggested in Initiative II to improve and expand public educational and informational efforts.)

   (Implementation requires administrative action; could be pursued immediately; low cost)

2. **Form multi-state task force.** EQB should foster coordination of research efforts between neighboring states by formation of a multi-state research planning task force, and by convening an annual multi-state conference for the discussion and exchange of research ideas and findings. The task force and concept could be addressed through the committee established under option number 1.

   (Implementation requires administrative action, legislation desirable; could be pursued in 1989; low cost)

3. **Develop pesticide trend reports.** Information from all the various pesticide monitoring efforts should be pulled together in one place to facilitate evaluation of trends. SPA should publish pesticide trend reports on a yearly basis to meet this need.

   (Implementation requires administrative action; could be pursued immediately; assistance from other agencies would be required)

Issue

Continue and enhance basic research efforts Many questions remain to be answered concerning the actions of pesticides and nutrients in the environment. Further research in the area of basic environmental processes is needed in order to develop wise, informed management recommendations.

Options

1. **Conduct needed basic research.** Basic research is needed to resolve questions related to:

   a) the transport and fate of pesticides and nitrate-nitrogen in the environment, including transport processes in soil and nonaquifers;

   b) formation, transport, and health/environmental effects of breakdown products;

   c) cumulative and synergistic health/environmental effects;

   d) pesticide and breakdown product leaching characteristics and mechanisms;

   e) aquatic impacts;

   f) site vulnerability; and

   g) effectiveness of management practices for ground and surface water quality protection.

2. **Increase funding and water quality assessments.** State agricultural research funding should be increased to ensure that the research priorities and needs of the state are met. The state should encourage the incorporation of water quality components in appropriate research and require that a water quality impact assessment be incorporated into each research project which receives state funding, as appropriate.

(Implementation requires administrative action and legislation; could be introduced in 1989, other funding sources could be pursued immediately; new funding commitment required).

Initiative V

To identify possible funding mechanisms to ensure that the above recommendations are implemented.

Issue

Stable program funding must be provided for monitoring, enforcement, education, information, and research. Past funding for environmental programs, including those associated with pesticides and nutrients, has been subject to instability. This has hampered efforts to evaluate and track problems, to provide adequate enforcement and education, and to maintain research efforts. If the state's pest and nutrient management efforts are to be improved, stable funding must be obtained.

Options

1. **Establish an overall state pest and nutrient management account.** An overall pest and nutrient management account should be established to fund all necessary program activities including monitoring, demonstration projects, IMP, and general education. The fund could be maintained through taxes on manufacturers and/or users of pesticides and fertilizers. These monies must be in addition to those already collected for enforcement of the state Pesticide Control Law.

   (Implementation would require legislation; could be introduced in 1989; any increased costs to farmers would likely not be able to be passed on into price of products.)

2. **Utilize a combination of existing and new funding sources.** A combination of funding sources should be considered for expanded monitoring and analysis programs/activities, including: federal program and research grants; general fund appropriations; environmental fund; LCMR funding; pesticide, water and/or laboratory user fees; product registration and/or use fees.

   (Implementation requires legislation; could be introduced in 1989; cost impacts to existing efforts must be addressed.)

3. **Establish a water well permit fee system.** A fee system for well construction should be established to support well code enforcement programs at the state and local level.

   (Implementation requires legislation; could be introduced in 1989; costs would be offset by fees.)

Issue

Ensure that funds are available for pesticide and container disposal. Proper disposal of pesticides and containers can be costly, particularly for the individual user or for a manufacturer when the use of a product is cancelled. Methods must be identified to ensure that the funds needed for disposal are available.

Options

1. **Encourage indemnification.** The state should urge EPAand Congress to provide funds for indemnification for all suspended/cancelled pesticides, past, present and future. The state should further urge that funds for indemnification not be diverted from other pesticide program efforts, and be generated through additional fees on manufacturers.

   (Implementation requires administrative action, legislation desirable; could be pursued immediately; low cost.)

2. **Create a pesticide and container disposal fund.** The state should create a fund, either through public monies, a tax on pesticide manufacturers, deposits on containers, or other sources which would provide a subsidy to the agricultural community to assist in their hazardous waste disposal costs.

   (Implementation requires legislation; could be introduced in 1989; costs dependent on extent of program and source of funds.)

Issue

Develop mechanisms for dealing with cleanup and well abandonment. The costs of cleanup of contamination and the proper abandonment of wells can be substantial. In many cases these costs may be higher than the person who was responsible for causing the contamination or who owns the well is able to pay. In other cases, persons responsible for the contamination are not readily identifiable. Consequently, methods for dealing with the funding of cleanup and abandonment must be identified in order to protect the state's water resources.

Options

1. **Develop a pesticide superfund.** The state should develop a pesticide superfund which would deal with contamination of groundwater, cleanup, and site monitoring, and would require that damages be collected from polluters for cleanup of groundwater.
2. **Hold landowner liable.** Hold landowners liable for groundwater contamination due to their own practices, and rely on individual landowners' insurance to cover cleanup costs. Since current insurance does not cover these types of expenses, new insurance would have to be obtained.
3. **Hold registrant liable.** Have liability for pesticide contamination lie with the manufacturer of the product rather than shifting it from one innocent party (landowner) to another (water user).
4. **Enact a reduced liability cleanup program.** The state should enact a pesticide clean-up program similar to the Underground Storage Tank program to reduce liability and costs for landowners. The fund would be supported by fees and would provide funds for a portion of cleanup costs. A similarly structured fund could also be devised to assist landowners in well abandonment efforts.

(Implementation requires legislation; could be pursued in 1989; costs would be highly variable.)

BOARD INFORMATION ITEM

The attached items pertain to the multi-agency groundwater protection effort. The introductory page to the groundwater protection strategy provides the background and major initiatives. Issue papers, such as pest and nutrient strategy, were used to develop the strategy. To solicit citizen comments, a series of information meetings are to be held at the locations listed on page 2. Board staff will attend a number of these meetings. Of particular importance to BWSR is the emphasis being given to the role of local governments in groundwater protection.

Minnesota State Agencies are Sponsoring
A series of Public Meetings on

GROUND WATER PROTECTION

The State has been developing strategies for protecting ground water from pollution and overuse. Major issues currently identified involve the prevention of contamination rather than remediation. Local governments have a major role to play in this arena, and a viable state-local partnership must be developed.

Topics to be discussed include:

- Standards for Ground Water Protection
- Drinking Water Protection
- Ground Water Appropriation
- Basic Information Needs
- Local Role in Ground Water Protection
- Ground Water Education
- Control of Pesticides and Nutrients in Ground Water
- Control of Nonpoint Source Pollution of Ground Water
- How to Fund Ground Water Clean up

Additional information will be available on the following programs:

- Clean Water Partnership Grant Progam
- Nonpoint Source Impact Assessment
- Septic System Regulatory Progam

WHO SHOULD ATTEND?

You!! Concerned citizens, local government officials, farmers, and members of the regulated community.

WHAT WILL HAPPEN AT THE MEETINGS?

Presentations will stimulate discussion and an informal comment period and written survey will provide an avenue for the State to solicit your ideas and major concerns.

WHAT'S IN IT FOR YOU?

Ground water is an essential resource for the health and economic welfare of all Minnesotans. It's protection from pollution and overuse is critical. This is your opportunity to voice your opinions and to become more familiar with state programs.

Presented by the Minnesota Pollution Control Agency, and staffed by representatives of the following agencies:

Minnesota Department of Health,
Minnesota Department of Agriculture,
Minnesota Department of Natural Resources,
State Planning Agency,
Attorney General's Office,
Minnesota Board of Water and Soil Resources, as well as the
Minnesota Pollution Control Agency.

PUBLIC MEETING SCHEDULE

Rochester	April 4: 1:30-3:30 and 7:30-9:30 Plaza Lecture Hall, Rochester Community College 851 30th Ave. SE, Rochester (off US 14)
Mankato	April 5: 1:30-3:30 and 7:30-9:30 Frost Benco Co-op Electric Trunk Highway 68 West, Mankato
Marshall	April 6: 1:30-3:30 and 7:30-9:30 Chalet Club East College Drive, Marshall (2 blocks west of Hwy 19 & 68 and 23 junction)
Morris	April 7: 1:30-3:30 and 7:30-9:30 OtterTail Power Offices 23 East 6th Street, Morris
Grand Rapids	April 11: 2:00-4:00 (note late start) and 7:30-9:30 Blandin Foundation Building 100 Pokegama Ave. N, Grand Rapids
Detroit Lakes	April 12: 1:30-3:30 and 7:30-9:30 City Council Chambers 1025 Roosevelt, Detroit Lakes
St. Cloud	April 13: 1:30-4:00 (no evening meeting) St. Cloud Public Library, Room B 405 W. St. Germain, St. Cloud
St. Paul	April 19: 1:30-4:00 (no evening meeting) Minnesota Pollution Control Agency Offices Lafayette Park; 520 Lafayette Road North, St. Paul

For more information on the subject matter to be covered, contact Gretchen Sabel of the Minnesota Pollution Control Agency, 520 Lafayette Road North, St.Paul, MN 55155; phone 612/296-7358.

Minnesota Ground Water Protection Strategy
February 26, 1988

(This is the second draft prepared of the Minnesota Ground Water Protection Strategy.)

Purpose: This Ground Water Protection Strategy will serve as the blueprint for future ground water management activities at the State level, and also help define the local role in ground water management and protection. The Strategy is built on the strong regulatory framework which the state has established. State agencies already have statutory authority to establish ground water standards and regulate pollution sources, to protect and monitor drinking water supplies, to regulate water appropriation and to regulate sale and use of agricultural chemicals which may impact ground water quality. These water related functions are coordinated through the Water Resources Committee of the Environmental Quality Board, a board composed of the top executive officers of the major environmental agencies together with citizen members.

The greatest needs for legislation identified in this Strategy relate to funding. Programs to define and monitor ground water, as well as those designed to protect water quality and quantity, must have consistent, adequate funding in order to meet their goals. Ground water is an invaluable state resource which is increasingly threatened by a variety of contamination sources and competing uses. The State must provide the necessary type and scope of programs to ensure the safety and adequacy of the resource now and in the future.

The Strategy has been structured around five major initiatives:

I. To protect ground water quality now and for the future; ensure safe drinking water supplies and effectively regulate sources of ground water pollution.

II. To ensure adequate water supplies, to regulate water appropriation and use for protection of highest priority users, and to improve coordination of quality and quantity aspects of regulatory programs.

III. To enhance the current body of knowledge on Minnesota's ground water resource, delineating problem areas and providing information needed to effectively manage the resource.

IV. To enhance local ground water management activities; to better coordinate State ground water responsibilities and programs; and to coordinate among federal, State and local levels of government.

V. To provide the public with the necessary information and education for making environmentally sound decisions in areas which may impact ground water.

Minnesota Board of Water and Soil Resources
90 West Plato Boulevard
First Floor
St. Paul, Minnesota 55107

DRAFT

In the Matter of Reviewing the Watershed Management Plan for the Richfield-Bloomington Watershed Management Organization (Minnesota Statutes Section 473.878, Subdivision 7)	ORDER APPROVING WATERSHED MANAGEMENT PLAN

The Board of Commissioners of the Richfield-Bloomington Watershed Management Organization (RBWMO) submitted a Watershed Management Plan (Plan) on February 8, 1988 pursuant to Minn. Stat. Section 473.878, Subd. 7 (1986). On February 17 and February 24, 1988 the Minnesota Board of Water and Soil Resources (Board) published Notice of Filing of the Watershed Plan in the Richfield Sun-Current and the Bloomington Sun-Current. The notice stated that any interested party could request that a public hearing be held on the Plan. No requests for hearing were received.

Having considered the Plan, the Board makes the following Findings of Fact, Conclusions of Law, and Order:

FINDINGS OF FACT

1. The RBWMO was established by joint powers agreement on December 19, 1983. The signatures to the agreement are the Cities of Richfield and Bloomington.
2. The Metropolitan Water Management Act requires the preparation of a watershed management plan for the area, meeting the requirements of both Minn. Stat. Chapter 112 and Minn. Stat. Sections 473.875 to 473.883.

3. The RBWMO completed a draft plan on October 28, 1986, and submitted it to affected local units of government for review and comment.
4. On April 15, 1987 the Metropolitan Council's Environmental Resources Committee reviewed the plan and recommended that the RBWMO coordinate a program of data collection to define the extent of impacts from storm water runoff on Long Meadow Lake's water quality. The Council also recommended that the RBWMO should implement measures to prevent or mitigate the identified impacts on the lake. On April 23, 1987 the Metropolitan Council accepted the Plan recommendations made by its Environmental Resources Committee and transmitted them to the Board on May 8, 1987.
5. On June 24, 1987 the Minnesota River Valley National Wildlife Refuge's (MRVNWR) manager Ed Crozier sent a letter to the RBWMO expressing concern regarding the quality of storm water runoff discharging into the floodplain lakes and marshes within the refuge.
6. On February 8, 1988 the RBWMO submitted the Plan to the Board for review.
7. On February 3, 1988 the Board received written comments on the Plan from the Director of the Division of Water Quality of the Minnesota Pollution Control Agency.
8. The Board published its Notice of Filing of Watershed Plan in the Richfield Sun-Current and the Bloomington Sun-Current on February 17 and 24, 1988. The notice described the general content of the Plan and stated that the Plan was available for inspection at the Board's office and at the office of the City Engineer for the City of Bloomington at 9750 James Avenue South, Bloomington, Minnesota

55431 (881-5811) or the office of the City Engineer for the City of Richfield at 6700 Portland Avenue, Richfield, Minesota 55423 (869-7521). The notice further stated that any person objecting to the proposed Plan could submit a written request for hearing, and that if no requests for hearing were received, the Board would make a decision on the Plan without conducting a public hearing. No requests for hearing were received.

9. On March 3, 1988, Kim Benson and Dan Steward of the Board's staff toured the RBWMO with Brian Borg of the RBWMO staff.

10. On March 10, 1988 Brian Borg, of the RBWMO staff, Edward Crozier, manager of the MRVNWR, and Kim Benson and Dan Steward of the Board's staff, met to discuss the Plan and Board staff suggestions for clarifications and additions.

11. On March 21, 1988 Brian Borg furnished Board staff with the Plan clarifications and additions agreed upon at their March 10, 1988 meeting, including the following: a statement supporting development of uniform erosion control standards; a map of the Long Meadow Lake area, a statement recognizing that the MRVNWR will be the lead agency in developing a water quality study of Long Meadow Lake, a list of options for increasing the treatment of stormwater runoff to the lake, a summary of water quality monitoring data relating to the lake, a process and a timetable for pursuing water quality studies of the lake, a summary of the effect of the 1987 summer storm on the WMO; and a cross reference of the water quality policy and objective as the Plan's Recreation and Fish and Wildlife policy and objective.

12. The Board reviewed the Plan for conformance with the requirements of the Metropolitan Water Management Act and the Minnesota Watershed Act at its March 23, 1988 regular meeting.

CONCLUSIONS OF LAW

1. All relevant substantive and procedural requirements of law and rule have been fulfilled. The Board has proper jurisdiction in the matter of approving a Watershed Management Plan for the PSWMO pursuant to Minn. Stat. Sections 473.878, Subd. 7 and 112.46.
2. The Richfield-Bloomington Watershed Management Organization Plan attached to this Order states water and water-related problems within the RBWMO, possible solutions thereto, general objectives and policies of the RBWMO, and an implementation program. The attached Plan is in conformance with the requirements of Minn. Stat. Chapter 112 and Sections 473.875 to 473.883.

IT IS THEREFORE ORDERED

1. That the Board hereby approves the attached Plan as the Watershed Management Plan for the Richfield-Bloomington Watershed Management Organization.

Dated at Saint Paul, Minnesota, this 25th day of March 1988.

MINNESOTA BOARD OF WATER AND SOIL RESOURCES

_____

Donald H. Ogaard
Chairman

RECOMMENDED RESOLUTION

To adopt the draft Order approving the Richfield-Bloomington Watershed Management Organization Plan, on the condition that no written request for hearing is received through March 24, 1988.

March 21, 1988

Recommended Resolution

The following motion was passed at the February Board meeting:

> Moved by Cofell, seconded by Warner, that staff is empowered to begin development of 509 rules. Affirmative: Ogaard, Boulton, Peterson, Graba, Kemp, and Cofell. Opposed: None. Carried.

The Board further directed staff to bring to the Board at its March meeting a strategy for preparing rules for 509 water planning.

A staff committee was established to develop the strategy. That group consisting of: Greg Larson, Chr., Dan Steward, Kim Benson, Mark Nelson, and Mel Sinn, prepared this material.

I Board direction is needed on alternative A, B, or C.

II Board approval of the overall 509 rule strategy is needed.

STRATEGY FOR DEVELOPING RULES FOR THE METROPOLITAN WATER MANAGEMENT ACT (CHAPTER 509)

The following points identify key features of the strategy:

1) Rule making will take over one year

- non-controversial adoption will be sought
- 509 rules will model the 110B format

2) Involvement of affected parties will be actively sought

- volunteers will be sought for a broadly represented work group
- the work group will review and comment on draft rules generated by MBWSR staff

3) Rules will be comprehensive in scope

- surface and groundwater will be addressed

4) Rules will complement programs and efforts of local governmental units, MBWSR and state and federal agencies

- U.S. Army Corps of Engineers 404 permit program
- DNR protected waters permit program
- U.S. Fish and Wildlife Service wetlands
- DNR shoreland regulations
- Soil loss limits
- County water planning (110B)
- Various cost-sharing programs
- Local initiatives such as the Hennepin groundwater bill

For certain issues, Board policy must be established before the work group can be convened. One question of immediate importance is -

Should rules apply to:

(A) unapproved plans and require amendments to approved plans;
(B) amendments of approved plans; OR
(C) plans not having entered local review and require amendments to approved plans?

- PROs and CONs of Each Alternative -

A. RULES APPLY TO UNAPPROVED PLANS AND REQUIRE AMENDMENTS TO APPROVED PLANS

PROs

- Would more quickly establish plan uniformity and MBWSR authority.
- Would accelerate the planning timetable of WMOs that have not yet completed a draft plan.

CONs

- Due to resistance from WMOs, non-controversial adoption of rules would probably be abandoned. If this happens, the public hearing process would add several months to rule promulgation.

- If the supplemental budget request is approved, staff should have reviewed, and the MBWSR approved, all 509 plans by June 30, 1989. This is about the time the rule would become effective. Consequently, "rules applying to unapproved plans" becomes a moot point.

- Due to accelerated planning by WMOs, MBWSR staff assistance needs would increase.

B. RULES APPLY TO AMENDMENTS OF APPROVED PLANS

PROs

- More cooperation is likely from WMOs thereby enhancing their participation in a work group and minimizing the need for a more rigorous rulemaking process.

- This policy is consistent with the assumption that all 509 plans will be approved before the rules effective date.

CONs

- Would delay plan uniformity and MBWSR authority.

C. RULES APPLY TO PLANS NOT HAVING ENTERED LOCAL REVIEW AND REQUIRE AMENDMENTS TO APPROVED PLANS

PROs

- Represents a compromise between alternatives A and B and balances fairness with the need for plan uniformity.

CONs

- Rule would not apply for some time to plans in status between local review and Board approval.

Legislative changes to Chapter 473 are necessary if MBWSR chooses to:

(i) Require a groundwater plan in 509 plans and/or amendments. Currently, groundwater plans are optional.

(ii) Require 509 plans and/or amendments to cover the entire seven county metro area. Currently, there are areas on the metro fringe not covered by 509.

As with policy issues, other legislative changes will be identified during rule development. Staff will brief the Board as needed changes become apparent.

STATUS OF METROPOLITAN WATER MANAGEMENT ACT PLANNING (509)

January 27, 1988

Stage of Plan Review Process

	Planning Underway	Local Review in Process	Met. Council Review in Process	Agency Review in Process	MBWSR Review in Process	Plan Approved
	Bevens Creek	Black Dog Lake	Browns Creek	Bassett Creek	Pioneer-Sarah Creek	Valley Branch
	Carver Creek	Carnelian-Marine	Central Ramsey	Coon Creek		Ramsey-Wash. Metro
	Chaska Creek	Lower Miss. River	Forest Lake	East Miss.		Vadnais Lake Area
	Cottage Gr. Ravine	Minnehaha Creek	Gun Club Lake	Elm Creek		Grass Lake
	Credit River	Nine Mile Creek	Prior Lk-Spring Lk	Richfield-Blmtn.		
	Crow River	Riley-Purg.-Bluff Cr.	Rice Creek	Six Cities		
	Hazeltine-Bavaria	Sunrise River	SW Ramsey			
		Lower Minn. River				
Watershed Management Organization (WMO)	Lower St. Croix River					
	Lower Rum River					
	Marine-On-St. Croix					
	Middle Miss. River					
	Middle St. Croix					
	North Cannon River					
	Sand Creek					
	Shingle Creek					
	Shakopee Basin					
	SW Scott					
	Upper Rum River					
	Vermillion River					
	West Miss. River					

If 509 rules were effective today, under Alternative C, these WMO plans must comply with the rules.

Recommended Resolution

I Board direction is needed on alternative A, B, or C.

II Board direction to staff is needed on a procedure for dealing with policy and legislative issues.

Staff recommendation for Item II.

As the 509 work group discusses rule content and policy or legislative issues arise, staff will introduce the issue at a Board meeting, followed by MBWSR action at that or a later meeting.

III Board approval of the overall 509 rule strategy is needed.

STRATEGY FOR DEVELOPING RULES FOR THE
METROPOLITAN WATER MANAGEMENT ACT (CHAPTER 509)

The following points identify key features of the strategy:

Rule making will take over one year

- non-controversial adoption will be sought
- 509 rules will model the 110B format

Involvement from affected parties will be actively sought

- volunteers will be sought for a broadly represented work group
- the work group will review and comment on draft rules generated by MBWSR staff

Rules will be comprehensive in scope

- surface and groundwater will be addressed

Rules will complement programs and efforts of local governmental units, MBWSR and state and federal agencies

- U.S. Army Corps of Engineers 404 permit program
- DNR protected waters
- U.S. Fish and Wildlife Service wetlands
- DNR shoreland regulations
- Soil loss limits
- County water planning (110B)
- Various cost-sharing programs
- Local initiatives such as the Hennepin groundwater bill

For certain issues, Board policy must be established before the work group can be convened. One question of immediate importance is -

Should rules apply to both plans not approved and amendments of approved plans OR only to the amendments of approved plans?

- Pros and Cons of Each Alternative -

A. Rules apply both to plans not approved and amendments of approved plans.

PROs

- Would more quickly establish required plan uniformity and MBWSR authority.
- Would accelerate the planning timetable of WMOs that have yet completed a draft plan.

CONs

- Due to resistance from WMOs, non-controversial adoption of rules would probably be abandoned. If this happens, the public hearing process would add several months to rule promulgation.

- If the supplemental budget request is approved, staff should have reviewed, and the MBWSR approved, all 509 plans by June 30, 1989. This is about the time the rule would become effective. Consequently, "rules applying retroactively" becomes a moot point.

- Due to accelerated planning by WMOs, MBWSR staff assistance needs would increase.

B. Rules apply only to amendments of approved plans

PROs

- More cooperation is likely from WMOs thereby enhancing their participation in a work group and minimizing the need for a more vigorous rulemaking process.

- This policy is consistent with the assumption that all 509 plans will be approved before the rules effective date.

CONs

- Would delay plan uniformity and MBWSR authority.

C. Rules apply to plans not having entered the local review process and amendments of approved plans.

PROs

- Represents a compromise between alternatives A and B and balances fairness with the need for plan uniformity.

CONs

- Rule would not apply for some time to plans between local review and Board approval.

Legislative changes to Chapter 473 are necessary if MBWSR chooses to:

(a) Require a groundwater plan in 509 plans and/or amendments. Currently, groundwater plans are optional.

(b) Require 509 plans and/or amendments to cover the entire seven county metro area. Currently, there are areas on the metro fringe not covered by 509.

(c) Require a maximum "life" of a plan and/or amendment. Currently, both 509 and 110B provide open ended lifespans.

As with policy issues, other legislative changes will be identified during rule development. Staff will brief the Board as needed changes become apparent.

RECOMMENDED BWSR ACTION

Approve the partial payment request of $26,449 for land rights and associated costs for the Minett-Krantz Reservoir.

Permanized
PLOVER BOND
25% COTTON FIBER
USA

FEB 29 1988

February 26,1988

TO: Greg Larson- Program Specialist

FROM: Darrell Apelgrain - Staff Engineer Darrell

SUBJECT: Partial Payment-Contract No.104-13, Minett-Krantz Reservoir, Land Rights Reimbursement.

Enclosed find a request for payment from Pipestone County for the Land rights and associated costs for the Minett-Krantz Reservoir. I have checked them over and recommend the payment of the Board's share of these costs. The Board's share is **$26,449.00.** Please send the payment directly to Pipestone County.

Enclosures

The Minett-Krantz Reservoir in Pipestone County is the sixth major flood control structure to be built in study area II. This payment request is the first of many before the project is completed in the fall of 1988. The last three pages of this handout provide background information about study area II and the Minett-Krantz structure.

GORDON BADEN
County Auditor

TELEPHONE AC 507 825-4494
Box ~~510~~ 455
Pipestone, Minnesota
56164

COUNTY AUDITOR'S OFFICE

PIPESTONE COUNTY

February 1, 1988

Mr. John Boulton, Treasurer
Area II Minnesota River Basin Projects, Inc.
1401 Peterson Street
Marshall, Minnesota 56258

Dear Sir:

Following is a list of expenses incurred by Pipestone County as relates to the Minett-Krantz Dam Project to date:

Steve Weets, County Treasurer	Deed Tax	$ 42.08
Mary Alderson, County Recorder	Abstract	135.00
	Recording	20.00
Jerry Minett	Purchase of Land	30,200.00
Cecil Krantz	Purchase of Land	600.00
McConnell Farm Drainage	Tile Work	1,496.25
Lyle E. Moseng	Survey	2,122.00
Wilson-O'Brien	Appraisal	650.00
	Total	$35,265.33

If you should have any questions, feel free to contact myself or LeRoy Stensgaard, Pipestone County Area II Representative.

Sincerely,

Gordon Baden

Gordon Baden
Pipestone County Auditor

GB/mas

35,265.33 × 75% = $26449

Approved For Payment Darrell? Oyelgaard

AREA II FLOOD CONTROL

Five main rivers flow to the northeast into the Minnesota River in southwestern Minnesota (Area II) between Ortonville and Mankato.

The watersheds for these rivers--Cottonwood, Lac Qui Parle, Redwood, Yellow Bank, and Yellow Medicine Subbasins--begin in the highlands above the Coteau des Prairie slope, the rim of an extinct glacial lake.

Below this 1,000 foot rim lies the characteristic low, flat topography of the prairie. The force and volume of the water flow of the Coteau renders the waterways in this lowland area inadequate to carry the heavy spring snowmelt and summer rains. Frequent "crossover" flooding between subbasins subsequently damages cropland, roads, bridges, and other structures.

BACKGROUND

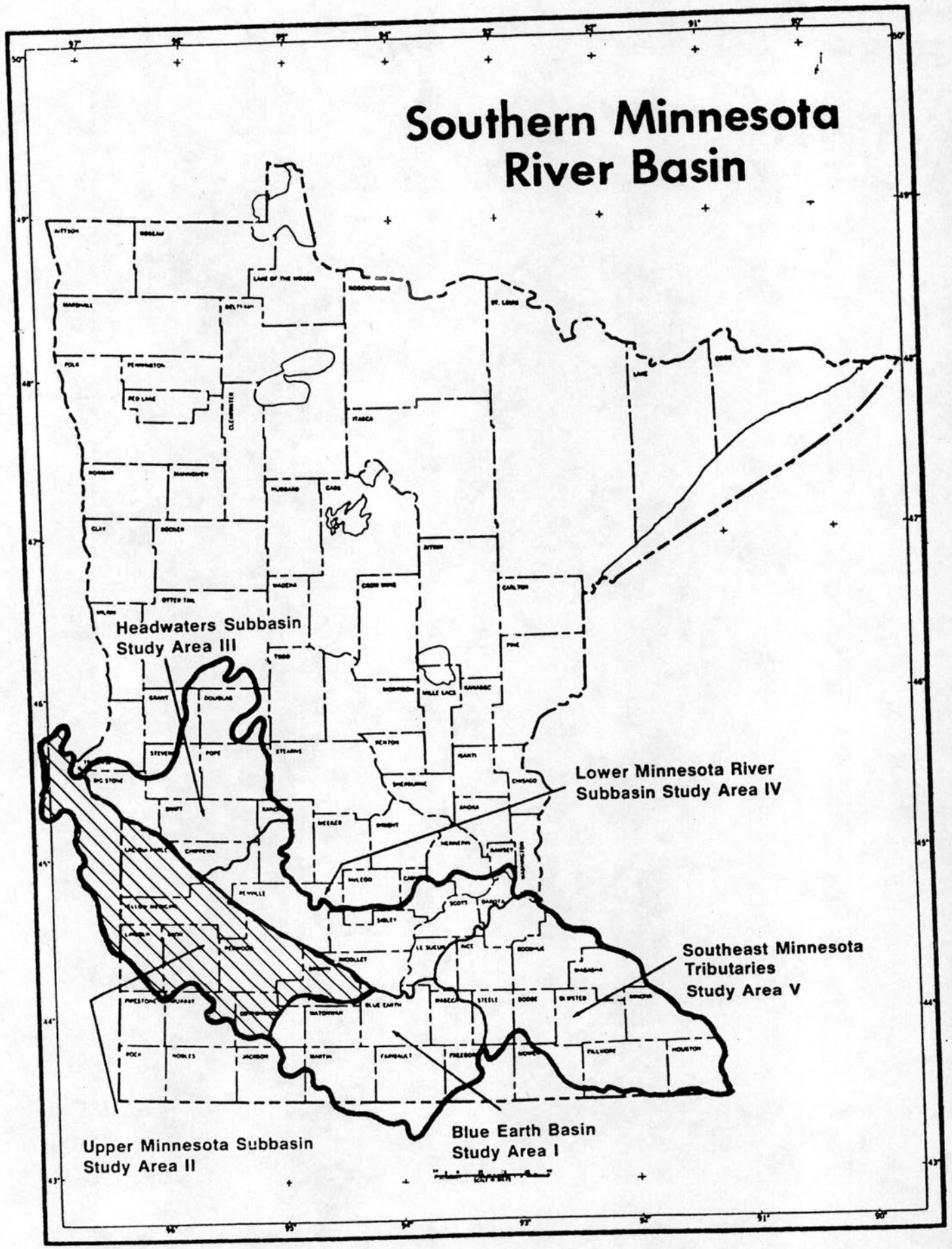
Flooding in this area has been problematic since the last period of glaciation. Numerous government studies and hundreds of local meetings have been held on methods to alleviate this condition. These meetings originally centered on individual flooding problems, but the inability to deal with the larger problem led to the formation of two watershed districts in the early 1970s.

Using the expertise of the Soil Conservation Service and funding through the Agricultural Stabilization and Conservation Service, a few small flood control dams were constructed. But larger and costlier structures were necessary for large-scale flood control.

The projects that were recommended spanned the watershed, which includes parts of ten counties in Minnesota and parts of four counties in South Dakota.

WHO GOVERNS THESE PROJECTS?

All construction and planning is done cooperatively by county and state entities. The ten Minnesota counties united in a non-profit corporation, Area II Minnesota River Basin Projects, Inc., which oversees the siting, land acquisition, and completion of each project. The corporation, consisting of representatives appointed from each of the ten counties, operates a technical office and provides funding for the local share of the project. Area II pays for 25 percent of the structure costs with the remainder paid by the Minnesota Soil and Water Conservation Board.


Southern Minnesota
River Basin
Headwaters Subbasin
Study Area III
Lower Minnesota River
Subbasin Study Area IV
Southeast Minnesota
Tributaries
Study Area V
Upper Minnesota Subbasin
Study Area II
Blue Earth Basin
Study Area I

STUDY AREA II RIVER BASIN PROJECTS

MINETT-KRANTZ RESERVOIR

BEING PLANNED

Location:--2 Mi.South & 1/2 Mi.East.of Ruthton,Mn. in Section 23,Range 43W, Township 108N, in Pipestone County

Year Completed:-- 1987(estimated)

Sponsor:--Pipestone County Commisioners & Pipestone S.W.C.D.

Project Cost:

Construction Cost	$140,000.00 (estimated)
Land Cost	$25,500.00 (estimated)
Total Cost	$165,500.00 (estimated)

State Share	$124,125.00 (estimated)
Local Share	$41,375.00 (estimated)

Watershed:-- Redwood River

County:-- Pipestone

Height of Dam:-- 26.0 Feet

Size of Pool:-- 10.0 Acres

Maximum Depth Of Pool:- 10.8 Feet

Uses of Structure:-- Flood Control Fishing,and Recreation (County Park)