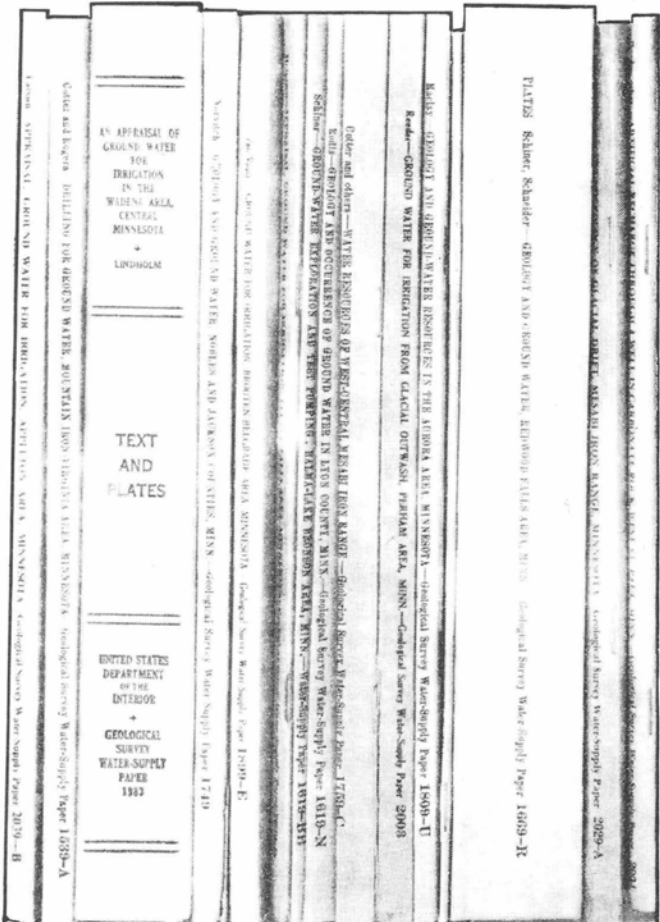


# MINNESOTA GROUND WATER

# BIBLIOGRAPHY




An Appraisal of Minnesota's Ground Water Quality 1987 M P C A

MN 86 2 U.S.G.S. Water Resources Data - Minnesota, Volume 2

MN 86 1 U.S.G.S. Water Resources Data - Minnesota, Volume 1

Dwin and Woodward REGIONAL EQUILIBRIUM IN THE HOLLANDALE TERRAIN, MINNESOTA

Hugh and Schaefer GROUNDWATER CONTAMINATION BY A CUMULATIVE EFFECTS MODEL



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# MINNESOTA GROUND WATER

## BIBLIOGRAPHY

By Dave Armstrong

Revised by Toby McAdams

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MINNESOTA  
DEPARTMENT OF NATURAL RESOURCES

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## **PREFACE**

The primary objectives for this Bibliography were to provide both a localized reference to Ground Water Resource Publications, and a reference to the organizations, agencies and individuals in Minnesota who are currently publishing information on and related to ground water.

The Bibliography is divided into two sections. Chapter I lists the publications of the United States Geological Survey (USGS) and the Minnesota Geological Survey (MGS). Publications which deal with a specific area are listed by area within the six DNR regions of Minnesota. These are followed by the listing of USGS and MGS publications of a general nature which deal with all of Minnesota. Chapter II contains publications from many organizations, individuals and journals. It is divided loosely into subject categories, and an index is provided at the end of the document to help locate additional subjects. Within each subject area, the documents are listed alphabetically by author. These publications may be useful to anyone pursuing a specific topic related to ground water. Addresses and phone numbers of most organizations listed in the bibliography are provided in the back of the Bibliography.



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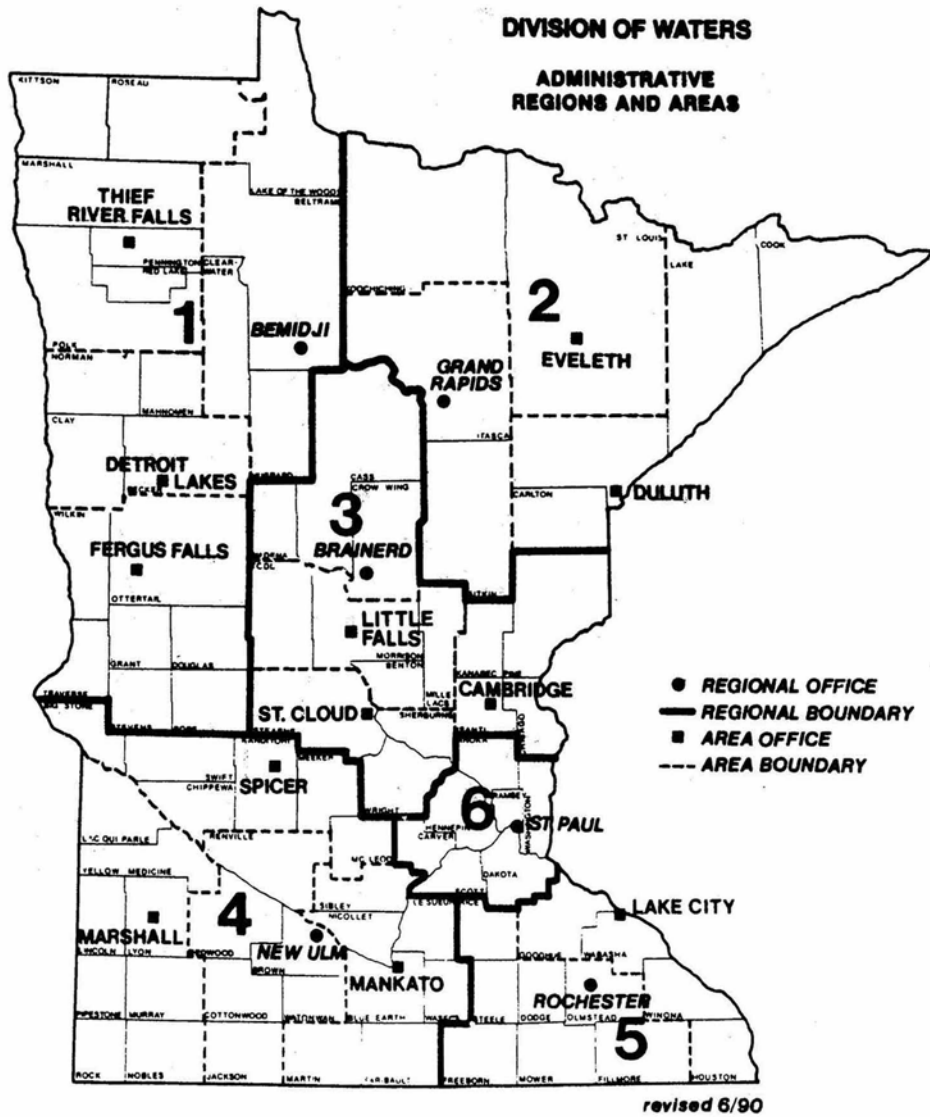
**CHAPTER I**

**GROUND WATER PUBLICATIONS BY DNR REGION**

**Introduction**

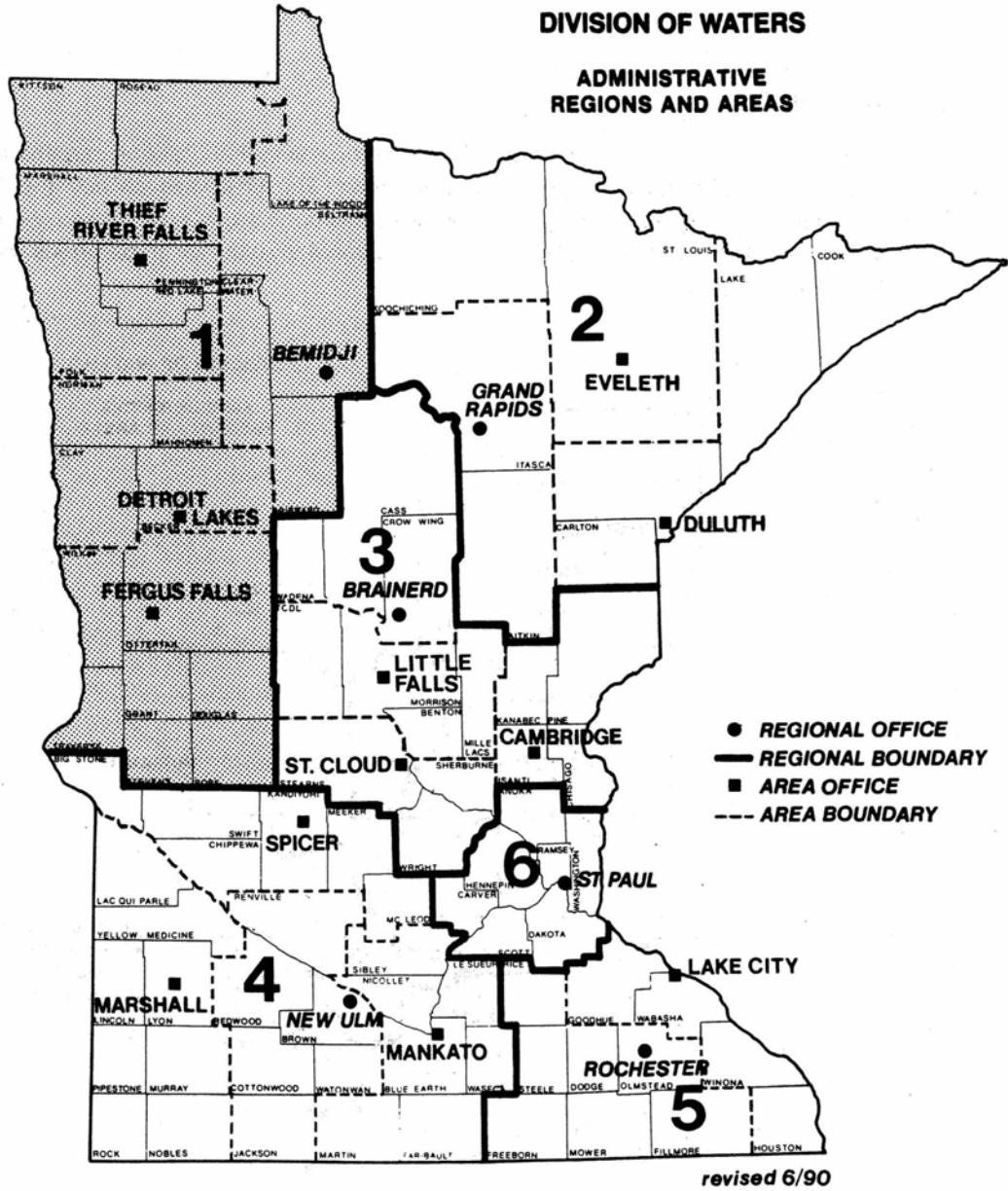
All USGS, MGS and selected Ground Water and Geology Publications pertaining to a specific locality in Minnesota are listed in this section. The DNR has divided the State into six Administrative Regions (See Figure 1). The publications are organized into separate chapters for each of the six DNR Regions plus an additional chapter for publications which relate to Minnesota in general.

**Figure 1**



Counties

- Becker
- Beltrami
- Clay
- Clearwater
- Douglas
- Grant
- Hubbard
- Kittson
- Lake of the Woods
- Mahnomen
- Marshall
- Norman
- Otter Tail
- Pennington
- Polk
- Pope
- Roseau
- Stevens
- Traverse
- Wilkin



DNR REGION 1: NORTHWEST MINNESOTA

**Region 1**

**PUBLICATIONS BY THE U.S. GEOLOGICAL SURVEY**

**USGS HYDROLOGIC ATLASES (HA)**

Bidwell, L.E., Winter, T.C., and Maclay, R.W. 1970. Water Resources of the Red Lake River Watershed, Northwestern Minnesota. USGS Hydrologic investigations Atlas, HA-346.

Cotter, R.D., and Bidwell, L.E. 1966. Water Resources of the Pomme De Terre River Watershed, West Central Minnesota. USGS Hydrologic investigations Atlas, HA-220.

Cotter, R.D., Bidwell, L.E., Van Voast, W.A., and Novitzki, R.P. 1968. Water Resources of the Chippewa River Watershed, West-Central Minnesota. USGS Hydrologic investigations Atlas, HA-286.

Helgesen, J.O., Lindholm, G.F., and Ericson, D.W. 1975. Water Resources of the Lake of the Woods Watershed, North-Central Minnesota. USGS Hydrologic investigations Atlas, HA-544.

Lindholm, G.F., Oakes, E.L, Ericson, D.W., Helgesen, J.O. 1972. Water Resources of the Crow Wing River Watershed, Central Minnesota. USGS Hydrologic investigations Atlas, HA-380.

Maclay, R. W., Bidwell, L,E., and Winter, T.C. 1969. Water Resources of the Buffalo River Watershed, West-Central Minnesota. USGS Hydrologic investigations Atlas, HA-307.

Maclay, R.W., Winter, T.C., and Bidwell, L,E. 1968. Water Resources of the Mustinka and Bois De Sioux Rivers Watershed, West-Central Minnesota. USGS Hydrologic investigations Atlas, HA-272.

Maclay, R. W., Winter, T.C., and Pike, G.M. 1965. Water Resources of the Middle River Watershed, Northwestern Minnesota. USGS Hydrologic investigations Atlas, HA-201.

Maclay, R.W., Winter, T.C., and Pike, G.M. 1967. Water Resources of the Two Rivers Watershed, Northwestern Minnesota. USGS Hydrologic investigations Atlas, HA-237.

Oakes, E.L., and Bidwell, L,E. 1968. Water Resources of the Mississippi Headwaters Watershed, North-Central Minnesota. USGS Hydrologic investigations Atlas, HA-278.

Oakes, E.L, 1970. Geology and Ground-Water Resources of the Grand Rapids area, North-Central Minnesota. USGS Hydrologic investigations Atlas, HA-322.

Winter, T.C., Bidwell, L.E., And Maclay, R.W. 1969. Water Resources of the Otter Tail River Watershed, West-Central Minnesota. USGS Hydrologic investigations Atlas, HA-296.

Winter, T.C., Bidwell, L.E., and Maclay, R. W. 1970. Water Resources of the Wild Rice River Watershed, Northwestern Minnesota. USGS Hydrologic investigations Atlas, HA-339.

Winter, T.C., Maclay, R. W., and Pike, G.M. 1967. Water Resources of the Roseau River Watershed, Northwestern Minnesota. USGS Hydrologic investigations Atlas, HA-241.

### **USGS WATER RESOURCE INVESTIGATIONS (WRI)**

Adolphson, D.G., Ruhl, J.F., and Wolf, R.J. 1982. Designation of Principal Water-Supply Aquifers in Minnesota. USGS Water Resource Investigations, WRI 81-51.

Delin, G.N. 1987. Evaluation of Availability of Water from Drift Aquifers near the Pomme De Terre and Chippewa Rivers, Western Minnesota. USGS Water Resource Investigations, WRI 86-4321.

Delin, G.N. 1986. Hydrogeology of Confined Drift Aquifers near the Pomme De Terre and Chippewa Rivers, Western Minnesota. USGS Water Resource Investigations, WRI 86-4098.

Helgesen, J.O. 1977. Ground-Water Appraisal of the Pineland Sands Area, Central Minnesota. USGS Water Resource Investigations, WRI 77-102.

LaBaugh, J.W., Groschen, G.E., and Winter, T.C. 1981. Limnological and Geochemical Survey of Williams Lake, Hubbard County, Minnesota. USGS Water Resource Investigations, WRI 81-41.

Larson, S.P., McBride, M.A., and Wolf, R.J. 1975. Digital Models of a Glacial Outwash Aquifer in the Pearl-Sallie Lakes Area, West-Central Minnesota. USGS Water Resource Investigations, WRI 40-75.

Maclay, R. W., Winter, T.C., and Bidwell, L.E. 1972. Water Resources of the Red River Drainage Basin in Minnesota. USGS Water Resource Investigations, WR 1-72.

McBride, M.S. 1975. Ground Water for Irrigation in the Viking Basin, West-Central Minnesota. USGS Water Resource Investigations, WRI 23-75.

Myette, C.F. 1984. Ground-Water-Quality and Appraisal of Sand-Plain Aquifers in Hubbard, Morrison, Otter Tail, and Wadena Counties, Minnesota. USGS Water Resource Investigations, WRI 84-4080.

- Payne, G.A. 1989. Flow Characteristics of the Clearwater River and Tributaries from Clearbrook to Plummer, Northwestern Minnesota. USGS Water Resource Investigations, WRI 89-4045.
- Ruhl, J.F. 1989. Water Resources of the White Earth Indian Reservation, Northwestern Minnesota. USGS Water Resource Investigations, WRI 89-4074.
- Ruhl, J.F. 1984. Hydrogeologic and Water Quality Characteristics of the Red River-Winnipeg Aquifer, Northwestern Minnesota. USGS Water Resource Investigations, WRI 84-4111.
- Siegal, D.I. 1981. Hydrogeologic Setting of the Glacial Lake Agassiz Peatlands, Northern Minnesota. USGS Water Resource Investigations, WRI 81-24.
- Soukup, W.G., Gillies, D.G., and Myette, C.F. 1984. Appraisal of the Surficial Aquifers of the Pomme De Terre and the Chippewa River Valleys, Western Minnesota. USGS Water Resource Investigations, WRI 84-4086.
- Wolf, R.J. 1976. Buried Aquifers in the Brooten-Belgrade and Lake Emily Area, West-Central Minnesota. USGS Water Resource Investigations, WRI 76-100.
- Wolf, R.J. 1981. Hydrogeology of the Buffalo Aquifer, Clay and Wilkin Counties, West-Central Minnesota. USGS Water Resource Investigations, WRI 81-4.

**USGS WATER SUPPLY PAPERS (WS)**

- Larson, S.P. 1975. An Appraisal of Ground Water for Irrigation in the Appleton Area, West-Central Minnesota. USGS Water Supply Papers, WS-2039-B.
- Reeder, H.O. 1972. Availability of Ground Water for Irrigation from Glacial Outwash in the Perham Area, Otter Tail County, Minnesota. USGS Water Supply Papers, WS-2003.
- Schiner, G.R. 1963. Ground-Water Exploration and Test Pumping in the Halma-Lake Bronson Area, Kittson County, Minnesota. USGS Water Supply Papers, WS-1619-BB.
- Van Voast, W.A. 1971. Ground Water for Irrigation in the Brooten-Belgrade Area, West Central Minnesota. USGS Water Supply Papers, WS-1899-E.
- Van Voast, W.A. 1971. Ground Water for Irrigation near Lake Emily, Pope County, West Central Minnesota. USGS Water Supply Papers, WS-1899-J.

**USGS OPEN FILE REPORTS (OFR)**

- Lindholm, G.F., and Norvitch, R.F. 1976. Groundwater in Minnesota. USGS Open File Reports, OFR-76-354.
- Miller, R. T. 1982. Appraisal of the Pelican River Sand-Plain Aquifer, Western Minnesota. USGS Open File Reports, OFR 82-347.
- Miller, R. T. 1981. Hydrologic Data for the Pelican River Sand-Plain Aquifer, Western Minnesota. USGS Open File Reports, OFR-80-695.
- Myette, C.F. 1982. Baseline Water-Quality Data for Sand-Plain Aquifers in Hubbard, Morrison, Otter Tail and Wadena Counties, Minnesota. USGS Open File Reports, OFR-82-909.
- Siegal, D.I. 1979. Potential Hydrologic Effects of Peat Mining in the Red Lake Peatlands, North-Central Minnesota - a project plan. USGS Open File Reports, OFR-79-1591.
- Siegal, D.I., and Winter, T.C. 1980. Hydrologic Setting of Williams Lake, Hubbard County, Minnesota. USGS Open File Reports, OFR-80-403.
- Sturrock, A.M., Rosenberry, D.O., Scarborough, J.L., and Winter, T.C. 1986. Climatic Data for Williams Lake, Hubbard County, Minnesota, 1984. USGS Open File Report OFR 86-64.
- Sturrock, A.M., Rosenberry, D.O., and Winter, T.C. 1987. Climatic Data for Williams Lake, Hubbard County, Minnesota, 1985. USGS Open File Report OFR 86-607.

**USGS UNNUMBERED OPEN FILE REPORTS AND OUTSIDE PUBLICATIONS**

- Delin, G.M. 1985. Confined Drift Aquifer Studied near the Pomme de Terre and Chippewa Rivers, West Central Minnesota. USGS Water Fact Sheet.
- Franzi, D.A. 1987. Sedimentary and Post-Depositional Processes Related to Aquifer Properties at the Bemidji Research Site, North-Central Minnesota. In: USGS Program on Toxic Waste - Ground-Water Contamination, Proceedings of 3rd Technical Meeting by B.J. Franks, ed. Pensacola, Florida.
- Maclay, R. W., and Schiner, G.R. 1962. Aquifers in Buried Shore and Glaciofluvial Deposits Along the Gladstone Beach of Glacial Lake Agassiz near Stephen, Minnesota. USGS Prof. Paper 450-D.
- Maclay, R.W. and Winter, T.C. 1967. Geochemistry and Ground-water Movement in Northwestern Minnesota. Ground Water Vol. 5, No.1.

Miller, R. T. 1985. Hydrogeology and Preliminary Regional Flow Model at the Bemidji, Minnesota Research Site. USGS Paper given on 10/21/85 at the Toxic Waste Technical Meeting, Hyannis, Mass. USGS Open File Report, OFR 86-481.

Reeder, H.O. 1978. Summary Appraisals of the Nation's Groundwater Resources. Souris-Red-Rainy Region. USGS Professional Paper 813-K.

Stoner, J.D. and Streitz, A.R. 1987. Locating Confined Aquifers in Glacial Drift with Seismic Reflection Methods, Western Minnesota. Abstract with Programs The Geological Society of America, North-Central Section, 21st Annual Meeting. Volume 18, No.4, March 1987.

### **GEOLOGY AND GROUND WATER REFERENCES OTHER THAN THE USGS**

Allison, I.S. 1932. The Geology and Water Resources of Northwestern Minnesota. Minnesota Geological Survey Bulletin 22.

Almendinger, J.E. 1988. Lake and Groundwater Paleohydrology: A Groundwater Model to Explain Past Lake Levels in West-Central Minnesota. Ph.D. Thesis, Ecology Department, University of Minnesota, St. Paul, MN.

Almquist, A.W. 1955. Farm Drainage in the Red River Valley of Minnesota. M.S. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.

Baldwin, M. 1926. Reconnaissance Soil Survey of Lake of the Wood's County, Minnesota. U.S. Department of Agriculture, Bur. Chem. Soils, Series 1926, No.8.

Bauer, R.L. 1981. The Petrology and Structural Geology of the Western Lake Vermilion Area, Northeastern Minnesota. Ph.D. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.

Bergsrud, F.G. 1982. "Irrigation System Design Capacities for West-Central Minnesota as Related to the Available Water Holding Capacity and Irrigation Management." American Society of Agricultural Engineers. Paper No. NCR 82-101.

Chernicoff, S.E. 1980. The Superior-Lobe and Grantsburg-Sublobe Tills: Their Compositional Variability in East-Central Minnesota. Ph.D. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.

Dennis, P.E., Akin, P.D., and Worts, G.F., Jr. 1949. Geology and Ground-Water Resources of Parts of Cass and Clay Counties, North Dakota and Minnesota. North Dakota Ground-Water Studies, No. 11.



- Economic Impact of Irrigated Agriculture in West Minnesota: DISC, Development of Irrigation and Special Crops. 1978. Agricultural Experiment Station, University of Minnesota, St. Paul, MN.
- Freidman, A.L. 1981. Surficial Geology of the Isabella Quadrangle, Northeastern Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Groschen, G. 1987. Geochemistry of Williams Lake, Hubbard County, Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Hewett, M.J. 1982. Hydrology of Stockpiles of Sulfide Bearing Gabbro in Northeastern Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Langford, R.H. 1964. Quality of Water of Kittson and Parts of Marshall and Roseau Counties, Northwestern Minnesota.
- Lawson, A.C. 1885. Report on the Geology of the Lake of the Woods Region, with Special Reference to the Keewatin (Huronian?) Belt of the Archean Rocks. Canada Geol. Survey Annual Report No.1.
- McBride, M.S. 1972. Hydrology of Lake Sallie, Northwestern Minnesota, with Special Attention to Ground Water-Surface Water Interactions. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- McMiller, P.R., et. al. 1942. Soil Survey, Roseau County, Minnesota. U.S. Department of Agriculture, Washington D.C.
- Nikiforoff, C.C., et. al. 1939. Soil Survey (Reconnaissance of the Red River Valley Area), Minnesota. U.S. Dept. Agriculture Series 1933, No. 25.
- Pfannkuch, H.O. 1979. Groundwater, Monitor System Design and Operation for a Pipeline Break in Glacial Drift Deposits, Clearwater County, MN. Conference Paper, AGU Fall Meeting 1979.
- Reid, D.F. 1973. Quaternary Geology of the Lake Johanna Region, West-Central Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Siegel, D.I. 1983. Ground Water and the Evolution of Patterned Mires, Glacial Lake Agassiz Peatlands, Northern Minnesota. *Journal of Ecology*, 71(3):913-921.
- Skarie, R.L. 1978. Soil Salinity in Clay County, Minnesota and the Application of Color Infrared Imagery to the Delineation of Affected Areas. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.

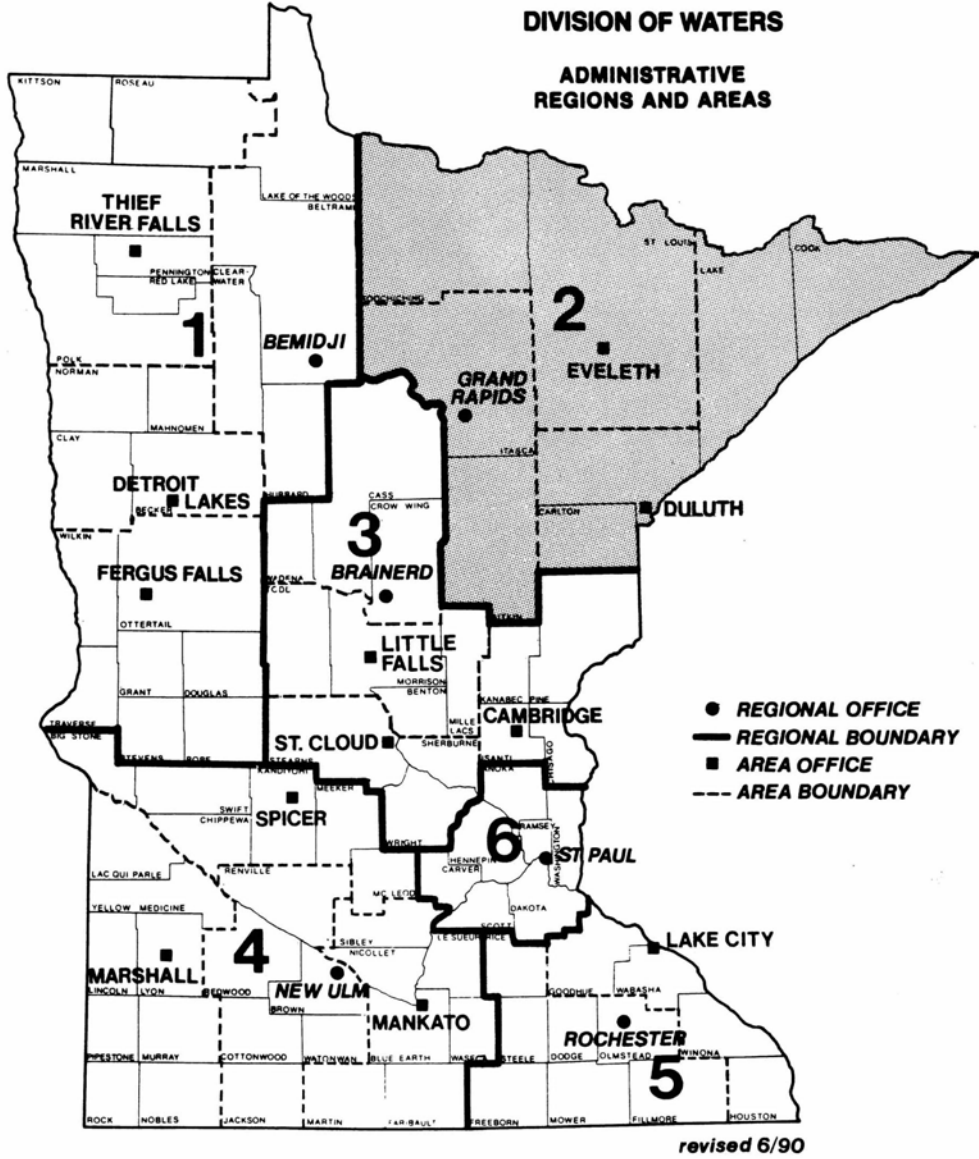
Southwick, D.L. 1980. Subsurface Research and Scientific Drilling in Western Minnesota. Information Circular #18, Minnesota Geological Survey, St. Paul, MN.

Zamzow, C.E. 1979. Early Precambrian Bedrock Geology of the Northwest Angle, Lake of the Woods County, Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.

**DNR REGION 2: NORTHEAST MINNESOTA**

**Counties**

- Aitkin
- Carlton
- Cook
- Itasca
- Koochiching
- Lake
- St. Louis



**Region 2**

**PUBLICATIONS BY THE U.S. GEOLOGIC SURVEY (USGS)**

**USGS HYDROLOGIC ATLASES (HA)**

Ericson, D.W., Lindholm, G.F., and Helgesen, J.O. 1976. Water Resources of the Rainy Lake Watershed, Northeastern Minnesota. USGS Hydrologic investigations Atlases, HA-556.

Helgesen, J.O., Lindholm, G.F., Ericson, D.W. 1975. Water Resources of the Lake of the Woods Watershed, Northeastern Minnesota. USGS Hydrologic investigations Atlases, HA-544.

Helgesen, J.O., Lindholm, G.F., and Ericson, D.W. 1976. Water Resources of the Little Fork River Watershed, Northeastern Minnesota. USGS Hydrologic investigations Atlases, HA-551.

Lindholm, G.F. 1968. Geology and Water Resources of the Hibbing Area, Northeastern Minnesota. USGS Hydrologic investigations Atlases, HA-280.

Lindholm, G.F., Ericson, D.W., Broussard, W.L., and Hult M.F. 1979. Water Resources of the St. Louis River Watershed, Northeastern Minnesota. USGS Hydrologic investigations Atlases, HA-586.

Lindholm, G.F., Helgesen, J.O., and Ericson, D.W. 1976. Water Resources of the Big Fork River Watershed, North-Central Minnesota. USGS Hydrologic investigations Atlases, HA-549.

Oakes, E.L., and Bidwell, L.E. 1968. Water Resources of the Mississippi Headwaters Watershed, North-Central Minnesota. USGS Hydrologic investigations Atlases, HA-278.

Oakes, E.L. 1970. Geology and Ground-Water Resources on the Grand Rapids Area, North-Central Minnesota. USGS Hydrologic investigations Atlases, HA-322.

Olcott, P.G., Ericson, D.W., Felsheim, P.E., and Broussard, W.L. 1978. Water Resources of the Lake Superior Watershed, Northeastern Minnesota. USGS Hydrologic investigations Atlases, HA-582.

**USGS WATER RESOURCE INVESTIGATION (WRI)**

- Anderson, H.W. 1986. Hydrogeologic and Water Quality Characteristics of Crystalline-Rock Aquifers of Archean and Proterozoic Age, Minnesota. USGS Water Resource Investigations, WRI 86-4033.
- Cotter, R.D. and Young, H.L. 1960. Municipal Water Supplies on the Mesabi and Vermillion Iron Ranges, Northeastern Minnesota. Ground Water Series Basic Data Release 1. MN Iron Range Resource & Rehabilitation Commission.
- Myette, C.F. 1986. Hydrogeology of the Sand-Plain Aquifers in Carlton, Kanabec and Pine Counties, East-Central Minnesota. USGS Water Resource Investigations, WRI 85-4334.
- Olcott, P.G., and Siegel, D.I. 1978. Physiography and Surficial Geology of the Copper-Nickel Study Region, Northeastern Minnesota. USGS Water Resource Investigations, WRI 78-51.
- Siegel, D.I. 1981. Hydrogeologic Setting of the Glacial Lake Agassiz Peatlands, Northern Minnesota. USGS Water Resource Investigations, WRI 81-24.
- Siegel, D.I., and Ericson, D.W. 1980. Hydrology and Water Quality of the Copper-Nickel Study Region, Northeastern Minnesota. USGS Water Resource Investigations, WRI 80-739.
- Stark, J.R., Strudell, J.D., Bloomgren, P.A. and Eger, P. 1987. Ground Water and Soil Contamination near Two Pesticide Burial Sites in Minnesota. USGS Water Resource Investigations, WRI 87-4115.

**USGS WATER SUPPLY PAPERS (WS)**

- Cotter, R.D. et al. 1965. Ground and Surface Water in the Mesabi and Vermillion Iron Range Area, Northeastern Minnesota. USGS Water Supply Paper, WS 1759-A.
- Cotter, R.D. et al. 1965. Water Resources in the Vicinity of Municipalities on the Western Mesabi Iron Range, Northeastern Minnesota. USGS Water Supply Paper, WS 1759-B.
- Cotter, R.D. et al. 1965. Water Resources in the Vicinity of Municipalities on the West-Central Mesabi Iron Range, Northeastern Minnesota. USGS Water Supply Paper, WS 1759-C.
- Cotter, R.D. et al. 1965. Water Resources in the Vicinity of Municipalities on the Central Mesabi Iron Range, Northeastern Minnesota. USGS Water Supply Paper, WS 1759-D.
- Cotter, R.D. et al. 1965. Water Resources in the Vicinity of Municipalities on the East-Central Mesabi Iron Range, Northeastern Minnesota. USGS Water Supply Paper, WS 1759-E.

Cotter, R.D. et al. 1965. Water Resources in the Vicinity of Municipalities on the Eastern Mesabi Iron Range and the Vermillion Iron Range, Northeastern Minnesota. USGS Water Supply Paper, WS 1759-F.

Cotter, R.D., and Rogers, J.E. 1961. Exploratory Drilling for Ground Water in the Mountain Iron - Virginia Areas St. Louis County, Minnesota. USGS Water Supply Paper, WS 1539-A.

Maclay, R.W. 1966. Reconnaissance of the Geology and Ground Water Resources in the Aurora Area, St. Louis County, Minnesota. USGS Water Supply Paper, WS 1809-U.

Winter, T.C. 1973. Hydrogeology of Glacial Drift, Mesabi Iron Range, Northeastern Minnesota. USGS Water Supply Paper, WS 2029-A.

Winter, T.C., Cotter, R.D., and Young, H.C. 1973. Petrography and Stratigraphy of Glacial Drift Mesabi-Vermillion Iron Range Area, Northeastern Minnesota. USGS Water Supply Paper, Bulletin 1331-C.

#### **USGS UNNUMBERED OPEN-FILE REPORTS (OFR)**

Liesch, B.A., and Norvitch, R.F. 1963. Geology and Ground-Water Conditions of the Chisholm-Dewey Lake Area St. Louis County, Minnesota. USGS Unnumbered Open File Report.

Norvitch, R.F. 1963. Reconnaissance Geology and Hydrology on the Nett Lake Indian Reservation, Minnesota. USGS Unnumbered Open-File Report.

Rogers, J.E. 1962. Reconnaissance of Ground-Water Conditions in the Duluth Municipal Airport Area, Minnesota. USGS Unnumbered Open-File Report.

#### **GEOLOGY AND GROUND WATER REFERENCES OTHER THAN THE USGS**

Aiken, P.D., et al. 1951. Geology and Ground Water Resources of the Cloquet Area, Carlton County, Minnesota. Minnesota Department of Conservation Bulletin No.6.

Berner, H. 1977. A Land Suitability Study for Lakewood Township in St. Louis County, Minnesota. Plan B M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN. 64 p.

Clark, R.C. 1985. The Structural Geology of the Thomson Formation: Cloquet and Esko Quadrangles, East-Central Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.

- Connolly, M.R. 1981. The Geology of the Middle Precambrian Thomson Formation in Southern Carlton County, East-Central Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- DNR, Division of Waters. 1966. The Lake Superior Watershed Unit. Bulletin 24. Minnesota DNR, St. Paul, MN.
- Feirn, W.C. 1977. The Geology of the Early Precambrian Rocks of the Jasper Lake Area, Cook County, Northeastern Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Frantes, J.R. 1987. Petrology and Sedimentation of the Archean Seine Group Conglomerate and Sandstone, Western Wabigoon Belt, Northern Minnesota and Western Ontario. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Great Lakes Basin Commission. 1974. Appendices to Great Lakes Basin Framework Study: Geology and Ground Water - Appendix 3. Water Supply: Municipal, Industrial, Rural - Appendix 6. Irrigation - Appendix 15.
- Gross, L.B. 1982. The Stratigraphy and Lithology of the Glaciogenic Sediments of the Two Harbors Area, Northeastern Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Miller, J.D. 1986. The Geology and Petrology of Anorthositic Rocks in the Duluth Complex, Snowbank Lake Quadrangle, Northeastern Minnesota. Ph.D. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Morey, G.B., Sims, P.K., Cannon, W.F., Mudrey, M.G., Jr., and Southwick, D.L. 1982. Geologic Map of the Lake Superior Region: Minnesota, Wisconsin and Northern Michigan, Bedrock Geology. Scale 1:1,000,000. MGS State Map Series, S-13.
- Morey, G.B., et al. 1970. Stratigraphy of Lower Precambrian Rocks in the Vermillion District, Northeastern Minnesota. MGS Report of Investigations 14.
- Severson, M.J. 1978. Petrology and Sedimentation of Early Precambrian Graywackes in the Eastern Vermillion District, Northeastern Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Stark, J.R. 1977. Surficial Geology and Ground Water Geology of the Babbitt-Kawishiwi Area Northeastern Minnesota. M.S. Thesis, University of Wisconsin.
- Steinmaus, K. 1983. Geology and Exploration Geochemistry of the Glacial Deposits of Northeastern Itasca County, Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Thiel, G.A. 1947. The Geology and the Underground Waters of Northeastern Minnesota. MGS Bulletin 32.

Vervoort, J.D. 1987. Petrology and Geochemistry of the Archean Rocks of the Jap Lake Area, Northeastern Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.

Vinje, S.P. 1979. Archean Geology of an Area Between Knife Lake and Kekekabic Lake, Eastern Vermilion District, Northeastern Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.

Wolford, R.A., Higgins, D.A., and Brooks, K.N. 1978. Non-Point Pollution Related to Forest Management Practices - Focus on N.E. Minnesota. Department of Forest Resources, University of Minnesota, St. Paul, MN.

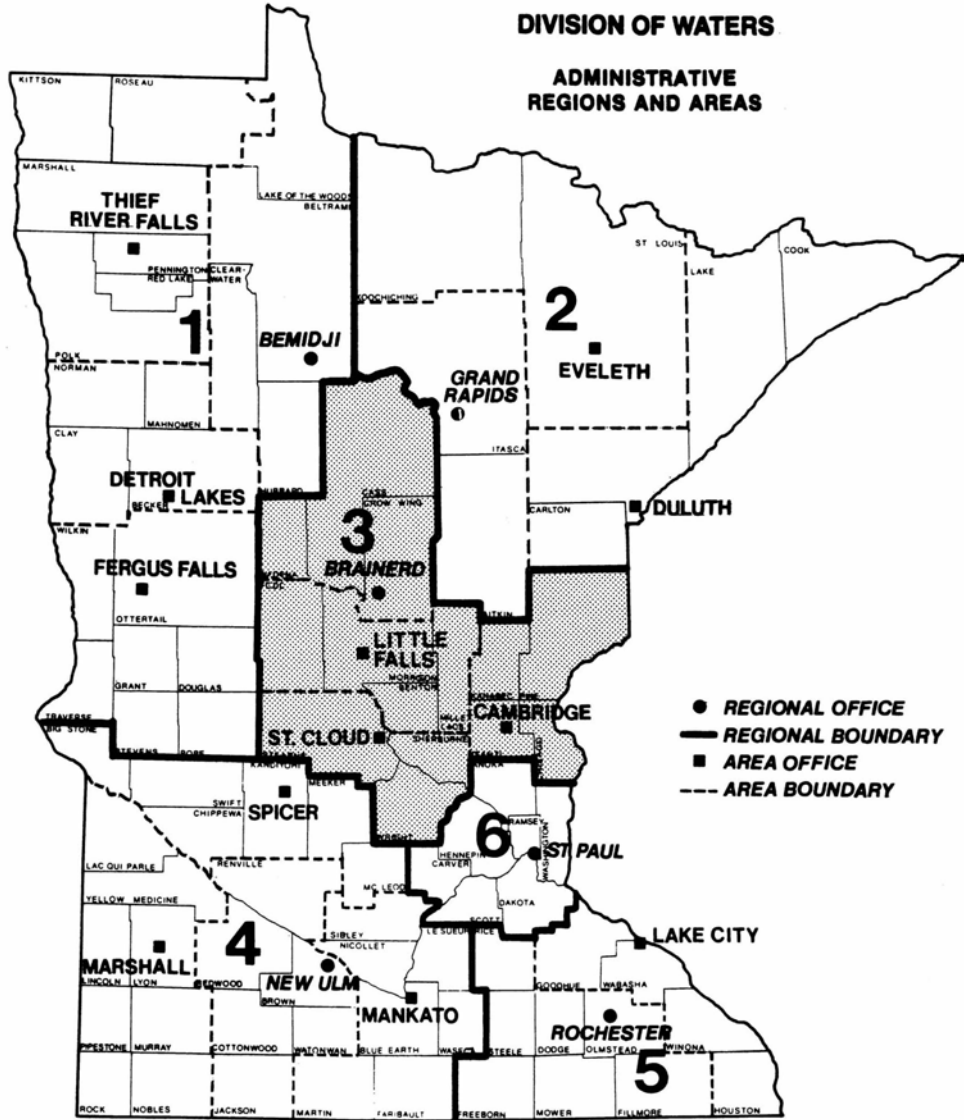
Zarth, R.J. 1977. The Quaternary Geology of the Wrenshall and Frogner Quadrangles, Northeastern Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.



**DNR REGION 3: CENTRAL MINNESOTA**

**Counties**

- Benton
- Cass
- Chisago
- Crow Wing
- Isanti
- Kanabec
- Mille Lacs
- Morrison
- Pine
- Sherburne
- Stearns
- Todd
- Wadena
- Wright



revised 6/90

**Region 3**

**PUBLICATIONS BY THE U.S. GEOLOGICAL SURVEY (USGS)**

**USGS HYDROLOGIC ATLASES (HA)**

- Ericson, D.W., Lindholm, G.F., and Helgesen, J.O. 1974. Water Resources of the Rum River Watershed, East-Central Minnesota. USGS Hydrologic investigations Atlases, HA-509.
- Helgesen, J.O., Ericson, D.W., and Lindholm, G.F. 1975. Water Resources of the Mississippi and Sauk Rivers Watershed, Central Minnesota. USGS Hydrologic investigations Atlases, HA-534.
- Helgesen, J.O., Lindholm, G.F., Broussard, W.L. and Ericson, D.W. 1973. Water Resources of the Kettle River Watershed, East-Central Minnesota. USGS Hydrologic investigations Atlases, HA-437.
- Lindholm, G.F., Farrell, D.F. and Helgesen, J.O. 1974. Water Resources of the Crow River Watershed, South-Central Minnesota. USGS Hydrologic investigations Atlases, HA-528.
- Lindholm, G.F., Helgesen, J.O., Broussard, W.L., and Ericson, D.W. 1974. Water Resources of the Snake River Watershed, East-Central Minnesota. USGS Hydrologic investigations Atlases, HA-488.
- Lindholm, G.F., Helgesen, J.O., Broussard, W.L. and Farrell, D.F. 1974. Water Resources of the Lower St. Croix River Watershed, East-Central Minnesota. USGS Hydrologic investigations Atlases, HA-490.
- Lindholm, G.F., Oakes, E.L., Ericson, D.W. and Helgesen, J.O. 1972. Water Resources of the Crow Wing River Watershed, Central Minnesota. USGS Hydrologic investigations Atlases, HA-380.
- Oakes, E.L., and Bidwell, L.E. 1968. Water Resources of the Mississippi Headwaters Watershed, North-Central Minnesota. USGS Hydrologic investigations Atlases, HA-278.
- Woodward, D.G. 1986. Hydrologic Framework and Properties of Regional Aquifers in the Hollendale Embayment, Southeastern Minnesota. USGS Hydrologic investigations Atlases, HA-677.

**USGS WATER RESOURCE INVESTIGATIONS (WRI)**

- Brown, R.G. 1984. Hydrologic Effects of Impoundments in Sherburne National Wildlife Refuge, Minnesota. USGS Water Resources Investigations WRI 84-4175, St. Paul, MN.
- Helgesen, J.O. 1977. Ground-Water Appraisal of the Pineland Sands Area, Central Minnesota. USGS Water Resources Investigations, WRI 77-102.
- Lindholm, G.F. 1980. Ground-Water Appraisal of Sand Plains in Benton, Sherburne, Stearns, and Wright Counties, Central Minnesota. USGS Water Resources Investigations, WRI 80-1285.
- McBride, M.A. 1975. Ground Water for Irrigation in the Viking Basin, West-Central Minnesota. USGS Water Resources Investigations, WRI 23-75.
- Myette, C.F. 1983. Appraisal of Water from Surficial-Outwash Aquifers in Todd County and Parts of Cass and Morrison Counties, Central Minnesota. USGS WRI 83-4156, St. Paul, MN.
- Myette, C.F. 1984. Ground Water Quality and Appraisal of Sand-Plain Aquifers in Hubbard, Morrison, Otter Tail, and Wadena Counties, Minnesota. USGS Water Resources Investigations, WRI 84-4080.
- Myette, C.F. 1985. Hydrogeology of Sand-Plain Aquifers in Carlton, Kanabec, and Pine Counties, East-Central Minnesota. USGS Water Resources Investigations, WRI 85-4334.
- Ruhl, J.F. 1988. Water Resources of the Fond du Lac Indian Reservation, East Central Minnesota. USGS Water Resources Investigations, WR 188-4114.
- Wolf, R.J. 1976. Buried Aquifers in the Brooten-Belgrade and Lake Emily Areas, West-Central Minnesota. USGS Water Resources Investigations, WRI 76-100.

**USGS WATER SUPPLY PAPERS (WS)**

- Helgesen, J.O. 1973. Appraisal of Ground Water for Irrigation in the Little Falls Area, Morrison County, Minnesota. USGS Water Supply Papers, WS 2009-D.
- Jones, J.R., Akin, P.D., and Schneider, R. 1963. Geology and Groundwater Conditions in the Southern Part of the Camp Ripley Military Reservation, Morrison County, Minnesota. USGS Water Supply Papers, WS 1669-A.
- Lindholm, G.F. 1970. An Appraisal of Ground Water for Irrigation in the Wadena Area, Central Minnesota. USGS Water Supply Papers, WS 1983.

Van Voast, W.A. 1971. Ground Water for Irrigation in the Brooten-Belgrade Area, West-Central Minnesota. USGS Water Supply Papers, WS 1899-E.

**USGS NUMBERED OPEN FILE REPORTS (OFR)**

Lindholm, G.F. 1980. Ground Water Appraisal for Sand Plains in Benton, Sherburne, Stearns and Wright Counties, West-Central Minnesota. USGS Open File Report, OFR 80-1285.

Myette, C.F. 1982. Baseline Water-Quality Data for Sand-Plain Aquifers in Hubbard, Morrison, Otter Tail and Wadena Counties, Minnesota. USGS Open File Report, OFR 82-909.

Siegal, D.I., and Winter, T.C. 1980. Hydrologic Setting of Williams Lake, North-Central Minnesota. USGS Open File Report, OFR 80-403.

Stark, J.R., and Zwilling, D. 1989. Effects of Ground-Water Withdrawals for Irrigation on the Quality of the Straight River, North-Central Minnesota. USGS Open File Report, OFR 89-252.

**GEOLOGY AND GROUND WATER REFERENCES OTHER THAN THE USGS**

Abstracts with Programs-Geological Society of America, in The Geological Society of America, North-Central Section, 21st Annual Meeting, Vol. 19, No.4, March 1987.

Anderson, H.W. 1987. Effects of Land Use on Quality of Water in the Anoka Sand Plain Aquifer, Minnesota.

Crum, J.R. 1984. Soils and Till Stratigraphy of West Central Minnesota. Ph.D. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.

Dennis, P.E., Aiken, P.O., and Worts, G.K. 1949. Geology and Ground-water Resources of Parts of Cass and Clay Counties, North Dakota and Minnesota.

Goldstein, B.S. 1986. Stratigraphy, Sedimentology, and Late-Quaternary History of the Wadena Drumlin Region, Central Minnesota. Ph.D. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.

Hackenmueller, J.M. 1983. Environmental Effects on the Magnetic Properties of Soils and Lake Sediments Across the Forest-Prairie Ecotone in Central Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.

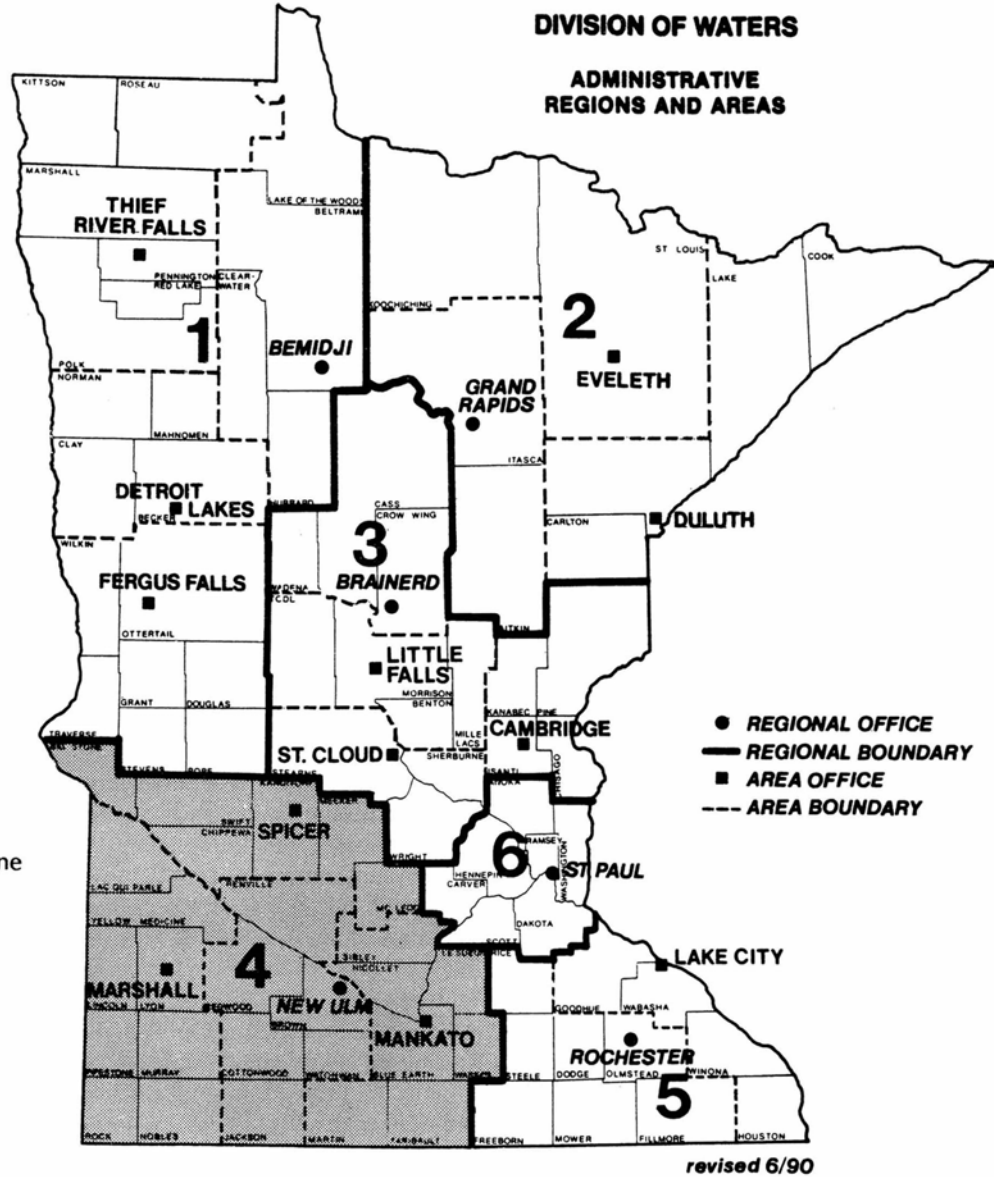
Helgesen, J.O., and Lindholm, G.F. 1973. Geology and Water Supply Potential of the Anoka Sand Plain Aquifer, Minnesota. DNR-DOW Technical Paper #6.

- Larson, G. 1985. Phosphorus Concentrations in Surface Water, Ground Water and Soils in the Anoka Sandplain and Peatlands. Plan B M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- McCormick, G.W. 1978. Till Genesis and Soils in East Central Minnesota. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Meyer, G.N. 1986. Subsurface Till Stratigraphy of the Todd County Area, Central Minnesota. MGS Report of Investigations 34.
- Mooers, H.D. 1988. Quaternary History and Ice Dynamics of the Late Wisconsin Rainy and Superior lobes, Central Minnesota. Ph.D. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Neumann, S.N. 1985. Lower and Middle Precambrian Geology of the Denham Area, Northern Pine County, East-Central Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Norton, A.R. 1983. Quaternary Geology of the Itasca-St. Croix Moraine Interlobate Area, North-Central Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Rosenberry, D.O. 1985. Factors Contributing to the Formation of Transient Water Table Mounds on the Outflow Side of a Seepage Lake, Williams Lake, Central Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Sabel, G., Bruemmer, L., Rongitsch, B., Zwilling, D. and Bloomgren, P. 1986. Land Use and Your Well: From the Field to the Faucet in Minnesota's Central Sandplain Region. MPCA and DNR-DOW.
- Schneider, A.F. 1957. Pleistocene Geology of Part of Central Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Schneider, A.F. 1961. Pleistocene Geology of the Randall Region, Central Minnesota. MGS Bulletin 40.
- Seaberg, J.K. 1985. Geohydrologic Interpretation of Glacial Geology near Williams Lake, Central Minnesota, with Emphasis on Lake-Groundwater Interaction. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- University of Minnesota. 1979. Irrigation Potential: Heartland, Ottertail Oasis, and Morrison County Regions, Minnesota. Ag Experiment Station and Ag Extension Service.
- USGS, North Dakota Ground-Water Studies; No. 11, Minnesota Ground-Water Studies No.1.

**DNR REGION 4: SOUTHWEST MINNESOTA**

**Counties**

- Big Stone
- Blue Earth
- Brown
- Chippewa
- Cottonwood
- Faribault
- Jackson
- Kandiyohi
- Lac Qui Parle
- LeSueur
- Lincoln
- Lyon
- Martin
- McLeod
- Meeker
- Murray
- Nicollet
- Nobles
- Pipestone
- Redwood
- Renville
- Rock
- Sibley
- Swift
- Waseca
- Watonwan
- Yellow Medicine



**REGION 4**

**PUBLICATIONS BY THE U.S. GEOLOGICAL SURVEY**

**USGS HYDROLOGIC ATLASES (HA)**

Anderson, H.W., Jr., Farrell, D.F., Broussard, W.L., Felsheim, P.E. 1978. Water Resources of the Cannon River Watershed, Southeastern Minnesota. USGS Hydrologic investigation Atlas, HA-522.

Anderson, H.W., Jr., Farrell, D.F., Broussard, W.L. 1974. Water Resources of the Blue Earth River Watershed, South-Central Minnesota. USGS Hydrologic investigation Atlas, HA-525.

Anderson, H.W., Jr., Farrell, D.F., Broussard, W.L. 1974. Water Resources of the Lower Minnesota River Watershed, South-Central Minnesota. USGS Hydrologic investigation Atlas, HA-526.

Anderson, H.W., Jr., Broussard, W.L., Farrell, D.F., and Hult, M.F. 1976. Water Resources of the Des Moines River Watershed, Southwestern Minnesota. USGS Hydrologic investigation Atlas, HA-553.

Anderson, H.W., Jr., Broussard, W.L., Farrell, D.F., and Felsheim, P.E. 1976. Water Resources of the Rock River Watershed, Southwestern Minnesota. USGS Hydrologic investigation Atlas, HA-555.

Broussard, W.L., Anderson, H.W., Jr., and Farrell, D.F. 1973. Water Resources of the Cottonwood River Watershed, Southwestern Minnesota. USGS Hydrologic investigation Atlas, HA-466.

Cotter, R.D., Bidwell, L.E., Van Voast, W.A., and Novitzki, R.P. 1968. Water Resources of the Chippewa River Watershed, West-Central Minnesota. USGS Hydrologic investigation Atlas, HA-286.

Cotter, R.D., and Bidwell, L.E. 1968. Water Resources of the Lac Qui Parle River Watershed, Southwestern Minnesota. USGS Hydrologic investigation Atlas, HA-269.

Cotter, R.D., Bidwell, L.E., Oakes, E.L., and Hollenstein, G.H. 1966. Water Resources of the Big Stone Lake Watershed, West-Central Minnesota. USGS Hydrologic investigation Atlas, HA-213.

- Cotter, R.D., and Bidwell, L.E. 1966. Water Resources of the Pomme de Terre River Watershed, West-Central Minnesota. USGS Hydrologic investigation Atlas, HA-220.
- Lindholm, G.F., Farrell, D.F., Helgesen, J.O. 1974. Water Resources of the Crow River Watershed, South-Central Minnesota. USGS Hydrologic investigation Atlas, HA-528.
- Ropes, L.H. 1969. Ground-Water Resources of the St. James Area, South-Central Minnesota. USGS Hydrologic investigation Atlas, HA-334.
- Novitzki, R.P., Van Voast, W.A., and Jerabek, L.A. 1969. Water Resources of the Yellow Medicine River Watershed, Southwestern Minnesota. USGS Hydrologic investigation Atlas, HA-320.
- Van Voast, W.A., Broussard, W.L., and Wheat, D.E. 1972. Water Resources of the Minnesota River-Hawk Creek Watershed, Southwestern Minnesota. USGS Hydrologic investigation Atlas, HA-391.
- Van Voast, W.A., Jerabek, L.A., and Novitzki, R.P. 1970. Water Resources of the Redwood River Watershed, Southwestern Minnesota. USGS Hydrologic investigation Atlas, HA-345.

**USGS WATER RESOURCE INVESTIGATIONS (WRI)**

- Adolphson, D.G. 1983. Availability and Chemical Quality of Water from Surficial Aquifers in Southwestern Minnesota. USGS Water Resource Investigation, WRI 83-4030.
- Delin, G.N. 1988. Geohydrology and Water Quality of Confined-Drift Aquifers in the Brooten-Belgrade Area, West-Central Minnesota. USGS Water Resource Investigation, WRI 88-4124.
- Delin, G.N. 1987. Evaluation of Availability of Water from Drift Aquifers near the Pomme de Terre and Chippewa Rivers, Western Minnesota. USGS Water Resource Investigation, WRI 86-4321.
- Delin, G.N. 1986. Hydrogeology of Confined-Drift Aquifers near the Pomme de Terre and Chippewa Rivers, Western Minnesota. USGS Water Resource Investigation, WRI 86-4098
- Soukup, W.G., Gillies, D.C., and Myette, C.F. 1984. Appraisal of the Surficial Aquifers in the Pomme de Terre and Chippewa River Valleys, Western Minnesota. USGS Water Resource Investigation, WRI 84-4086.
- Woodward, D.G., and Anderson, H.W., Jr. 1984. Hydrogeologic and Water-Quality Characteristics of the Cretaceous Aquifer, Southwestern Minnesota. USGS Water Resource Investigation, WRI 84-4153.



**USGS WATER SUPPLY PAPERS (WS)**

- Delin, G.N., and Woodward, D.G. 1984. Hydrogeologic Setting and the Potentiometric Surfaces of Regional Aquifers in the Hollandale Embayment, 1970-1980, Southeastern Minnesota. USGS Water Supply Paper, WS 2219.
- Hall, W.C., Meinzer, O.E., and Fuller, M.L. 1911. Geology and Underground Waters in Southern Minnesota. USGS Water Supply Paper, WS 256.
- Larson, S.P. 1976. An Appraisal of Ground Water for Irrigation in the Appleton Area, West-Central Minnesota. USGS Water Supply Paper, WS 2039-B.
- Norvitch, R.F. 1964. Geology and Groundwater Resources of Nobles County and Part of Jackson County, Minnesota. USGS Water Supply Paper, WS 1749.
- Rodis, H.G. 1963. Geology and Occurrence of Ground Water in Lyon County, Minnesota. USGS Water Supply Paper, WS 1619-N.
- Schneider, R., and Rodis, H.G. 1961. Aquifers in Meltwater Channels Along the Southwest Flank of the Des Moines Lobe, Lyon County, Minnesota. USGS Water Supply Paper, WS 1539-F.
- Thompson, G.I. 1962. Hydrology of Melt-Water Channels in Southwestern Minnesota. USGS Water Supply Paper, WS 1809-K.

**USGS OPEN FILE REPORTS (OFR)**

- Adolphson, D.G. 1982. Availability and Chemical Quality of Water from Surficial Aquifers in Southwestern Minnesota. USGS Open File Report, OFR 82-88.
- Lindholm, G.F., and Norvitch, R.F. 1976. Groundwater in Minnesota. USGS Open File Report, OFR 76-354.
- Myette, C.F. 1980. Hydrologic Budget for Eagle Lake near Willmar, Minnesota. USGS Open File Report, OFR 80-163.
- Soukup, W.G. 1980. Ground Water Appraisal in Northwestern Big Stone County, West Central Minnesota. USGS Open File Report, OFR 80-568.

**USGS UNNUMBERED OPEN FILE REPORTS AND OTHER USGS PUBLICATIONS**

- Delin, G.N. 1985. Confined-Drift Aquifer Studied Near the Pomme de Terre and Chippewa Rivers, West-Central Minnesota. USGS Water Fact Sheet.

Rodis, H.G. 1961. Availability of Groundwater in Lyon County, Minnesota. USGS Circ. 444.

Rodis, H.G., and Schneider. 1960. Occurrence of Groundwater of Low Hardness and High Chloride Content in Lyon County, Minnesota. USGS Circ. 423.

**GEOLOGY AND GROUND WATER REFERENCES OTHER THAN THE USGS**

Beissel, D.R. 1980. Groundwater Hydrology of Swift County, Minnesota: A Preliminary Investigation and Data Summary, Minnesota DNR, Division of Waters Bulletin 28.

Byers, A.C., Wenzel, L.K., Laird, W.M., and Dennis, P.E. 1946. Groundwater in the Fargo-Moorhead Area, North Dakota and Minnesota.

Economic Impact of Irrigated Agriculture in West Minnesota: DISC, Development of Irrigation and Special Crops. 1978. Agricultural Experiment Station, University of Minnesota, St. Paul, MN.

Economic Value of Irrigation for the Swift County Economy. 1982. Minnesota Extension Service. New Series, AG-FO-0429.

Fax, J.G., and Rongitsch, B.A. 1983. Ground-Water Hydrology of Lac Qui Parle County Minnesota: A Preliminary Investigation and Data Summary. Minnesota DNR, Division of Waters Bulletin 29.

Grove, A.M. 1960. The Stratigraphy of the City Wells and the Problems of Water Distribution at Mankato, Minnesota. Minnesota Academy of Science. Proceedings. 25/26:355-359.

Grow, S.R. 1986. Water Quality in the Forestville Creek Karst Basin of Southeastern Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.

Norvitch, R.F. 1960. Groundwater in Alluvial Channel Deposits, Nobles County, Minnesota. Minnesota DNR, Division of Waters Bulletin 14.

Rodis, H.G. 1961. Use of Water-Well Data in Interpreting Occurrence of Aquifers in Northeastern Lyon County, Minnesota. G.S.A. Bulletin, 72(8):1275-1278.

Rodis, H.G. 1958. Use of Water-Well Data in Interpreting the Occurrence of Upper Cretaceous Aquifers in Northeastern Lyon County, Minnesota. Economic Geology, 53(7):926. G.S.A. Bulletin, 69(12): 1634-1635.

Southern MN Rivers Basin Commission. 1977. Minnesota River Basin Report. Southern Minnesota Rivers Basin Commission, St. Paul, MN.

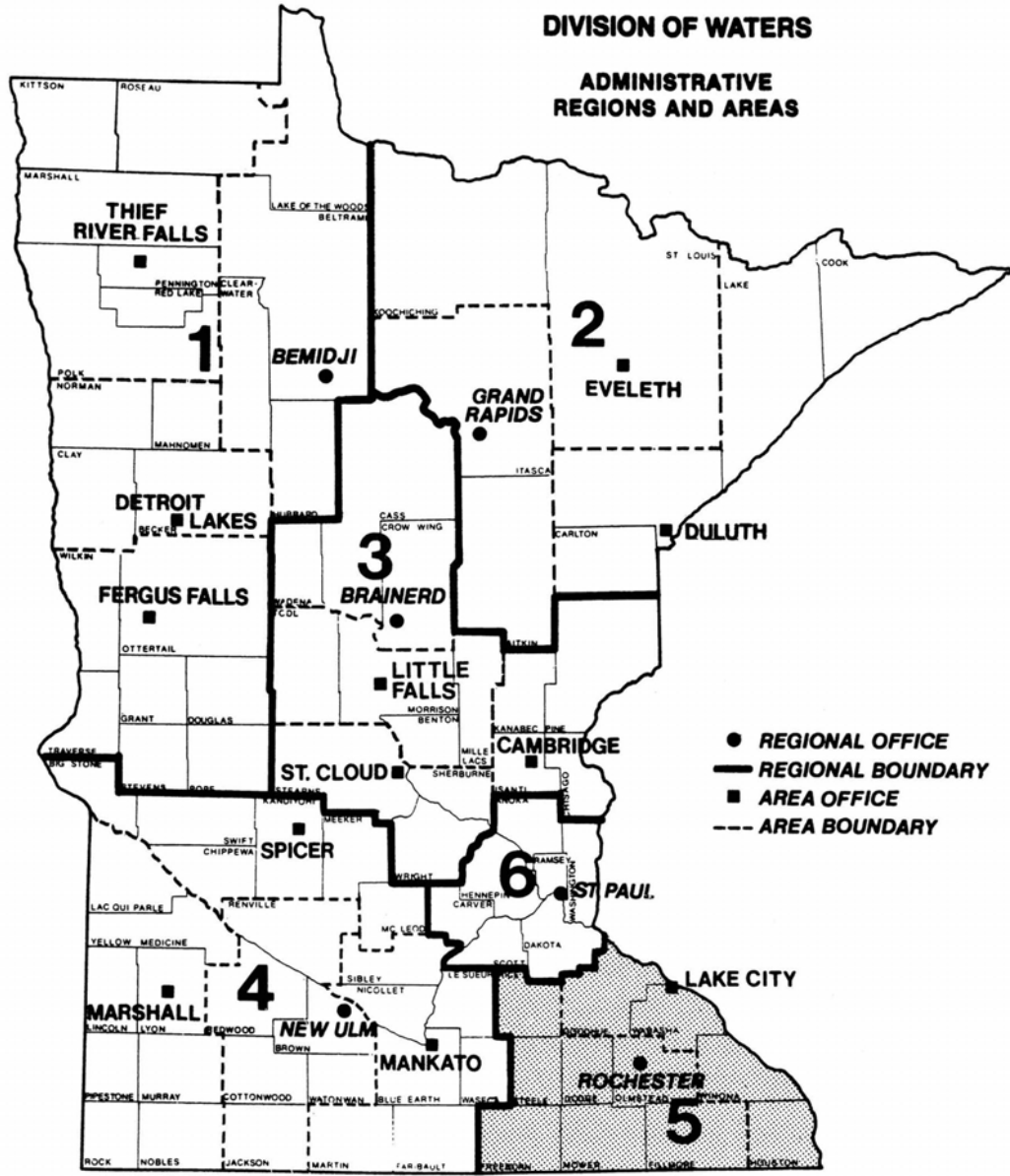
Straub, C.P., Goppers, V.M., and Singer, R.D. 1982. Public Water Supply Quality in the Rock River Watershed, Southwest Minnesota. University of Minnesota, St. Paul, October 1982.

Woodward, D.G., and Delin, G.N. 1981. Potentiometric Surfaces of Regional Aquifers in the Hollandale Embayment, Southeastern Minnesota: AGU Midwest Meeting, Minneapolis, MN.

**DNR REGION 5: SOUTHEAST MINNESOTA**

**Counties**

- Dodge
- Fillmore
- Freeborn
- Goodhue
- Houston
- Mower
- Olmsted
- Rice
- Steele
- Wabasha
- Winona



**REGION 5**

**PUBLICATIONS OF THE U.S. GEOLOGICAL SURVEY**

**USGS HYDROLOGIC ATLASES (HA)**

Anderson, H.W., Jr., Farrell, D.F., Broussard, W.L., and Felsheim, P.E. 1974. Water Resources of the Cannon River Watershed, Southeastern Minnesota. USGS Hydrologic investigations Atlas, HA-522.

Anderson, H.W., Jr., Farrell, D.F., Broussard, W.L., and Hult, M.F. 1975. Water Resources of the Zumbro River Watershed, Southeastern Minnesota. USGS Hydrologic investigations Atlas, HA-543.

Broussard, W.L., Farrell, D.F., Anderson, H.W., Jr., and Felsheim, P.E. 1975. Water Resources of the Root River Watershed, Southeastern Minnesota. USGS Hydrologic investigations Atlas, HA-548.

Farrell, D.F., Broussard, W.L., Anderson, H.W., Jr., and Hult, M.F. 1975. Water Resources of the Cedar River Watershed, Southeastern Minnesota. USGS Hydrologic investigations Atlas, HA-552.

Lindholm, G.F., Farrell, D.F., and Helgesen, J.O. 1974. Water Resources of the Crow River Watershed, South-Central Minnesota. USGS Hydrologic investigations Atlas, HA-528.

Woodward, D.G. 1986. Hydrogeologic Framework and Properties of Regional Aquifers in the Hollandale Embayment, Southeastern Minnesota. USGS Hydrologic investigations Atlas, HA-677.

**USGS WATER RESOURCE INVESTIGATIONS (WRI)**

Ruhl, J.F., Wolf, R.J., and Adolphson, D.G. 1982. Hydrogeologic and Water-Quality Characteristics of the Ironton-Galesville Aquifer, Southeast Minnesota. USGS Water Resource Investigation, WRI 83-4080.

Ruhl, J.F., Wolf, R.J., and Adolphson, D.G. 1983. Hydrogeologic and Water-Quality Characteristics of the Prairie du Chien-Jordan Aquifer, Southeast Minnesota. USGS Water Resource Investigation, WRI-83-4045.

Ruhl, J.F., Wolf, R.J., and Adolphson, D.G. 1983. Hydrogeologic and Water-Quality Characteristics of the St. Peter Aquifer, Southeastern Minnesota. USGS Water Resource Investigation, WRI-83-4200.

Ruhl, J.F., and Wolf, R.J. 1984. Hydrogeologic and Water-Quality Characteristics of the Upper Carbonate Aquifer, Southeastern Minnesota. USGS Water Resource Investigation, WRI 84-4150.

Wolf, R.J., Ruhl, J.F., and Adolphson, D.G. 1983. Hydrogeologic and Water-Quality Characteristics of the Mount Simon-Hinckley Aquifer, Southeastern Minnesota. USGS Water Resource Investigation, WRI 83-4031.

Woodward, D.G. 1983. Trends in Municipal-Well Installations and Aquifer Utilization in Southeastern Minnesota, 1880-1980. USGS Water Resource Investigation, WRI 83-4222.

#### **USGS WATER SUPPLY PAPERS (WS)**

Delin, G.N., and Woodward, D.G. 1984. Hydrogeologic Setting and the Potentiometric Surfaces of Regional Aquifers in the Hollandale Embayment, Southeastern Minnesota, 1979-1980. USGS Water Supply Paper, WS-2219.

Hall, C.W., Meinzer, O.E., and Fuller, M.L. 1911. Geology and Underground Waters of Southern Minnesota. USGS Water Supply Paper, WS-256.

Reeder, H.O. 1976. Artificial Recharge Through a Well in Fissured Carbonate Rocks, West St. Paul, Minnesota. USGS Water Supply Paper, WS-2004.

#### **USGS NUMBERED OPEN-FILE REPORTS (OFR)**

Ruhl, J.F. 1989. Flow of Ground Water Through Fractured Carbonate Rocks in the Prairie du Chien-Jordan Aquifer, Southeastern Minnesota. USGS Numbered Open-File Reports, OFR 89-253.

#### **GEOLOGY AND HYDROGEOLOGY REFERENCES OTHER THAN THE USGS**

Alexander, E.C., Jr., and Shaw, G.H. 1979. Southeastern Minnesota Ground Water Study in Problems Relating to Safe Water Supply in Southeastern Minnesota: Report Prepared for the Legislative Commission on Minnesota Resources, p. B1-B27.

- Alexander, E.C., Jr., (ed.) 1980. Introduction to the Caves of Minnesota, Iowa, and Wisconsin. Guidebook for the 1980 National Speleological Society Convention. NSS Convention Guidebook #21.
- Austin, G.S. 1963. Geology of Clay Deposits, Red Wing Area, Goodhue and Wabasha Counties, Minnesota. Minnesota Geological Survey Report Investigation 2, 23 p.
- Austin, G.S. 1969. Paleozoic Lithostratigraphic Nomenclature for Southeastern Minnesota. Minnesota Geological Survey Information Circular 6, 11 p.
- Austin, G.S. 1970. Deep Stratigraphic Test Well near Hollandale, Minnesota. Geological Survey Report Investigation 12, 52 p.
- Austin, G.S. 1971. Paleozoic Lithostratigraphy of Southeastern Minnesota. In: Sims, P.K., and Morey G.B., eds., Geology of Minnesota: A Centennial Volume, Minnesota Geological Survey, p. 459-473.
- Balaban, N.H. 1988. Geologic Atlas of Olmsted County, Minnesota. Minnesota Geological Survey County Atlas C-3. Scale 1:1,000,000.
- Balaban, N.H., and McSwiggen, P.I. 1984. Geologic Atlas of Winona County, Minnesota. Minnesota Geological Survey County Atlas C-2. Scale 1:1,000,000.
- Berg, R.R., Nelson, C.A., and Bell, W.C. 1956. Upper Cambrian Rocks in Southeastern Minnesota: In: Lower Paleozoic Geology of the Upper Mississippi Valley, Geol. Soc. America Guidebook.
- Bruemmer, L.B. 1982. Dealing with Groundwater Protection in Southeastern Minnesota. Minnesota Pollution Control Agency, St. Paul, MN.
- Craddock, C., Thiel, E.C., and Gross, B. 1963. A Gravity Investigation of the Precambrian of Southeastern Minnesota and Western Wisconsin, Journal of Geophysical Research, 68:6015-6032.
- Foss, J.E., and Rust, R.H. 1962. Soil Development in Relation to Loessial Deposition in Southeastern Minnesota, Soil Science Society of America. Proceedings., 26:270-274.
- Milski, J.A. 1982. Stratigraphy and Petrology of Clastic Sediments in Mystery Cave, Fillmore County, Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Minnesota Department of Health. 1976. Problems Relating to Safe Water Supply in Southeastern Minnesota: Report to the Legislative Commission on Minnesota Resources, p. 85.

- Mohr, R.E., and Pizzuto, J.E. 1979. The Analysis of Joint Orientation Systematics in a Small Area of Southeastern Minnesota, in Problems Relating to Safe Water Supply in Southeastern Minnesota: Report Prepared for the Legislative Commission on Minnesota Resources, p. B29-B46.
- Mohring, E.H. 1983. A Study of Subsurface Water Flow in a Southeastern Minnesota Karst Drainage Basin. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Morey, G.B. 1972. Petrology of Keweenaw Sandstones in the Subsurface of Southeastern Minnesota. In: Sims, P.K., and Morey, G.B., eds., Geology of Minnesota: A Centennial Volume, Minnesota Geological Survey, p. 436-449.
- Morey, G.B. 1977. Revised Keweenaw Subsurface Stratigraphy, Southeastern Minnesota. Minnesota Geological Survey Report of Investigations No. 16.
- Mossier, J.H. 1983. Paleozoic Lithostratigraphy of Southeastern Minnesota. Minnesota Geological Survey, Miscellaneous Map Series M-51, 8 p.
- Mossier, J.H. 1985. Sedimentology of the Middle Ordovician Platteville Formation, Southeastern Minnesota. Minnesota Geological Survey Report of Investigations No. 33.
- Mossier, J.H. 1987. Paleozoic Lithostratigraphic Nomenclature for Minnesota. Minnesota Geologic Survey Report Investigation 36.
- Parham, W.E., and Austin, G.S. 1967. Clay Mineralogy of the Glenwood Formation, Southeastern Minnesota and Adjacent Areas. Journal of Sedimentary Petrology, 37:863-868.
- Parham, W.E., and Austin, G.S. 1969. Clay Mineralogy, Fabric and Industrial Uses of the Shale of the Decorah Formation, Southeastern Minnesota. Minnesota Geological Survey, Report of Investigations 10, 32 p.
- Philbin, P.W., and Gilbert, F.P. 1966. Aeromagnetic Map of Southeastern Minnesota. U.S. Geol. Survey, Geophys. Inv. Map GP-559.
- Series, G.M., Schwartz, Editor, Field Trip No.2, p. 1-23. Bleifuss, R.L. 1972. The Iron Ores of Southeastern Minnesota. In: Sims, P.K., and Morey, G.B., eds., Geology of Minnesota: A Centennial Volume, Minnesota Geological Survey, p. 498-505.
- SIGMA Associates Inc. 1979. Southeastern Minnesota Ground Water Study: Final Report for the Period 1977-78: Report to the Legislative Commission on Minnesota Resources, Minnesota Department of Health, Minneapolis, Minnesota.

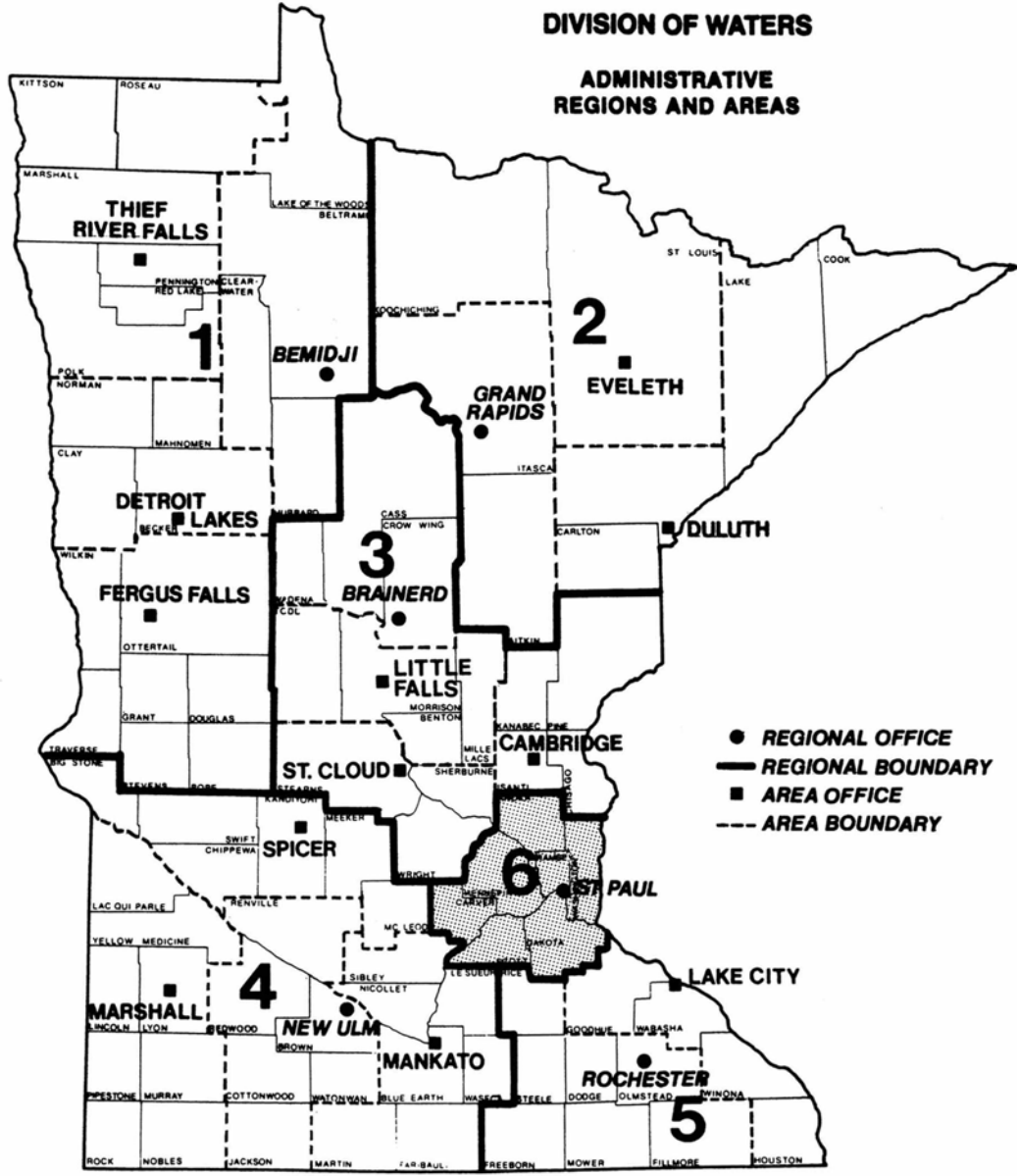


- Singer, R.D., Osterholm, M.T., and Straub, C.P. 1982. Ground Water Quality in Southeastern Minnesota. Water Resources Research Center Bulletin 109, Graduate School, University of Minnesota, St. Paul, Minnesota. 45 p.
- Sloan, R.E. 1987. Middle and Late Ordovician Lithostratigraphy and Biostratigraphy of the Upper Mississippi Valley, Minnesota Geological Survey, Report of Investigations No. 35.
- Southern MN Rivers Basin Commission. 1977. Minnesota River Basin Report. Southern Minnesota Rivers Basin Commission, St. Paul, MN.
- Stauffer, C.R. 1937a. A Diminutive Fauna from the Shakopee Dolomite (Ordovician) at Cannon Falls. Minnesota. Journal of Paleontology. 11 (1 ):55-60.
- Stauffer, C.R., and Thiel, G.A. 1941. The Paleozoic and Related Rocks of Southeastern Minnesota. Minnesota Geological Survey Bulletin 29, 261 p.
- Stauffer, C.R. 1944. The Iron Ores of Southeastern Minnesota, Economic Geology, 39:327-339.
- Stauffer, C.R. 1949. The Iron Ores of Southeastern Minnesota. Minnesota Geological Survey Summary Report 3, 6 p.
- Stone, D.J. 1980. The Geology of the Upper Dunleith Formation (Prosser Member Galena Formation) of Middle Ordovician Age in Southeastern Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Theil, G.A. 1944. The Geology and Underground Water of Southern Minnesota. Minnesota Geologic Survey Bulletin 31, 506 p.
- Thiel, G.A., and Schwartz, G.M. 1941. Subsurface Structure of the Paleozoic Rocks of Southeastern Minnesota. Geological Society of America Bulletin., 52:49-60.
- Trojan, M.D., and Perry, J.A. 1989. Analysis of Hydrogeologic Sensitivity in Winona County, Minnesota. Journal of the Minnesota Academy of Science JMNAAC, 54(3):30-36, Spring.
- Webers, G.F., and Austin, G.S. 1972. Field Trip Guidebook for Paleozoic and Mesozoic Rocks of Southeastern Minnesota, Minnesota Geologic Survey Guidebook Series No.4, 91 p.

**DNR REGION 6: TWIN CITIES METRO REGION**

**Counties**

- Anoka
- Carver
- Dakota
- Hennepin
- Ramsey
- Scott
- Washington



**REGION 6**

**PUBLICATIONS BY THE U.S. GEOLOGICAL SURVEY (USGS)**

**USGS HYDROLOGIC ATLASES (HA)**

Anderson, H.W., Jr. et al. 1974. Water Resources of the Cannon River Watershed, Southeastern Minnesota. USGS Hydrologic investigations Atlas, HA-522.

Anderson, H.W., Jr., Farrell, D.F. and Broussard, W.L. 1974. Water Resources of the Lower Minnesota River Watershed, South-Central Minnesota. USGS Hydrologic investigations Atlas, HA-526.

Ericson, D.W., Lindholm, G.F., and Helgesen, J.O. 1974. Water Resources of the Rum River Watershed, East-Central Minnesota. USGS Hydrologic investigations Atlas, HA-509.

Lindholm, G.F., Farrell, D.F., and Helgesen, J.O. 1974. Water Resources of the Crow River Watershed, South-Central Minnesota. USGS Hydrologic investigations Atlas, HA-528.

Lindholm, G.F., Helgesen, J.O., Broussard, W.L. and Farrell, D.F. 1974. Water Resources of the Lower St. Croix River Watershed, East-Central Minnesota. USGS Hydrologic investigations Atlas, HA-490.

**USGS WATER RESOURCE INVESTIGATIONS (WRI)**

Brown R.G. 1983. Atmospheric Deposition of Selected Chemicals and Their Effect on Non-Point Source Pollution in the Twin Cities Metropolitan Area, Minnesota. USGS Water Resource Investigation, WRI 83-4195.

Brown, R.G. 1985. Effects of Wetlands on Quality of Runoff Entering Lakes in the Twin Cities Area, Minnesota. USGS Water Resource Investigation, WRI 85-4170.

Brown, R.G. 1985. Hydrologic Factors Affecting Lake-Level Fluctuations in Big Marine Lake, Washington County, Minnesota. USGS Water Resource Investigation, WRI 85-4176.

Guswa, J.H., Siegel, D.I., and Gillies, D.C. 1982. Preliminary Evaluation of the Ground-Water-Flow System in the Twin Cities Metropolitan Area, Minnesota. USGS Water Resource Investigation, WRI 83-4033.

Horn, M.A. 1983. Ground-Water Use Trends in the Twin Cities Metropolitan Area, Minnesota, 1880-1980. USGS Water Resource Investigation, WRI 83-4033.

McBride, M.S. 1976. Hydrology of Lakes in the Minneapolis-St Paul Metropolitan Area: A Summary of the Available Data. USGS Water Resource Investigation, WRI 76-85.

Schoenberg, M.E. 1990. Effects of past and projected Ground water withholdings on Twin Cities aquifer systems, Minnesota. USGS Water Resource Investigation, WRI 90-4001.

Schoenberg, M.E. 1983. Water Levels and Water-Level Changes in the Prairie du Chien-Jordan and Mount Simon-Hinckley Aquifers, Twin Cities Metropolitan Area, Minnesota, 1971-1980. USGS Water Resource Investigation, WRI 83-4237.

Stark, J.R., and Hult, M.F. 1985. Ground-Water Flow in the Prairie du Chien-Jordan Aquifer Related to Contamination by Coal-Tar Derivatives, St. Louis Park, Minnesota. USGS Water Resource Investigation, WRI 85-4087.

Woodward, D.G. 1985. Seismic-Refraction Study of Suspected Drift-Filled Bedrock Valleys in Ramsey County, Minnesota. USGS Water Resource Investigation, WRI 85-4107.

#### **USGS WATER SUPPLY PAPERS (WS)**

Delin, G.N. and Woodward, D.G. 1984. Hydrogeologic Setting and the Potentiometric Surface of Regional Aquifers in the Hollandale Embayment, Southeastern Minnesota, 1970-1980. USGS Water Supply Paper, WS-2219.

Hult, M.F. and Schoenberg, M.E. 1984. Preliminary Evaluation of Ground Water Contamination by Coal Tar Derivatives, St. Louis Park Area, Minnesota. USGS Water Supply Paper, WS-2211.

#### **USGS NUMBERED OPEN-FILE REPORTS (OFR)**

Anderson, H.W. Jr. and Stoner, J.D. 1989. Effects of Controlled Agricultural Practices on Water Quality in a Sand-Plain Aquifer in Minnesota. USGS Open-File Report, OFR 89-267.

Anderson, H.W. 1987. Effects of Land Use on Quality of Water in the Anoka Sand-Plain Aquifer, Minnesota. USGS Open-File Report, OP 97.

Hager, M.L., and Miller, R. Y. 1987. Aquifer Thermal Energy Storage (ATES) Field Experiments and Modeling Using Franconia-Ironton-Galesville Confined Aquifer, St. Paul, Minnesota. USGS Open-File Report, OP 134.

- Horn, M.A., 1984. Annual Ground-Water Use in the Twin Cities Metropolitan Area, Minnesota, 1970-1979. USGS OFR 84-577, St. Paul, MN.
- Hult, M.F. 1984. Assessment of Ground Water Contamination by Coal Tar Derivatives, St. Louis Park Area, Minnesota. USGS Open-File Report, OFR 84-867.
- Hult, M.F. and Schoenberg, M.E. 1981. Preliminary Evaluation of Ground Water Contamination by Coal-Tar Derivatives, St. Louis Park Area, Minnesota. USGS Open-File Report, OFR 75-342.
- Larson-Higdem, D., Larson, S.P., and Norvitch, R.F. 1975. Configuration of the Water Table and Distribution of Downward Leakage to the Prairie du Chien-Jordan Aquifer in the Minneapolis-St. Paul Metropolitan Area, Minnesota. USGS Open-File Report, OFR 75-342.
- Nelson, L. and Brown, R.G. 1983. Streamflow and Water Quality Data for Lake and Wetland Inflows and Outflows in the Twin Cities Metropolitan Area, Minnesota. USGS Open-File Report, OFR 83-543.
- Schoenberg, M.E. 1989. Relation of Ground-Water Flow in Bedrock Aquifers and the Mississippi and Minnesota River, Minneapolis and St. Paul Area, Minnesota. USGS Open-File Report, OFR 89-268.
- Schoenberg, M.E. 1987. Effects of Future Groundwater Withdrawals on Water levels in the Twin Cities Aquifer System, Minnesota. Abs. with Programs, GSA 21st Annual Meeting, V. 19, No. 4, March 1987. USGS Open-File Report, OP-279.
- Trotta, L. 1988. Aggregation of Water-Use Data and Transfer of Data to the National Water-Use Data System: Procedures and Programs. USGS Open-File Report, OFR 87-40.
- Trotta, L. 1988. Inventory of Interbasin Water Transfers in Minnesota. USGS Open-File Report, OFR 88-466.

**USGS UNNUMBERED OPEN FILE REPORTS AND OUTSIDE PUBLICATIONS**

- Norvitch, R.F., and Brietkrietz, A. 1971. Hydrogeologic Maps of the Minneapolis-St. Paul Artesian Basins, Minnesota.
- Norvitch, R.F., Ross, T.G., and Brietkrietz, A. 1972. Water Resources Outlook for the Minneapolis-St. Paul Metropolitan Area, Minnesota. Published in cooperation with the Metropolitan Council of the Twin Cities Area.
- Norvitch, R.F., and Walter, M.S. 1979. Geologic and Hydrologic Aspects of Tunneling in the Twin Cities Area, Minnesota. USGS Misc. Inv. Map I-1157.

**GEOLOGY AND GROUND WATER REFERENCES OTHER THAN THE USGS**

Ayers, M.A., Brown, R.G., and Payne, G.A. 1981. Non-Point Source Runoff in the Twin Cities Metropolitan Area. AWRA 1981 Meeting.

Busacker, G.P. 1987. Water Quality of Hornbeam Lake, Dakota County, Minnesota: Before, During and After Construction of Interstate Highway I-494. Minnesota Department of Transportation, St. Paul, MN.

Helgesen, J.O., and Lindholm, G.F. 1973. Geology and Water Supply Potential of the Anoka Sand Plain Aquifer, Minnesota. DNR DOW Technical Report #6.

Liesch, B.A. 1961. Geohydrology of the Jordan Aquifer in the Minneapolis-St. Paul Area, Minnesota. Tech. Paper #2.

Metropolitan Council. 1978. Water Resources Outlook for the Minneapolis-St. Paul Area.

Miller, R. T. 1984. Anisotropy of the Iron-ton-Galesville Sandstone near a Thermal Energy Storage Well, St. Paul, Minnesota. Ground Water, 22(5):532-537, September-October 1984.

Sabel, G., Bruemmer, L., Rongitsch, B., Zwilling, D., and Bloomgren P. 1986. Land Use and Your Well: From the Field to the Faucet in Minnesota's Central Sandplain Region. MPCA and DNR DOW Pub.

**MAPS BY THE MINNESOTA GEOLOGICAL SURVEY (MGS)**

Balaban, N.H., and McSwiggner, P.L., eds. 1982. Geologic Atlas of Scott County, Minnesota. County Atlas Series C-1. Minnesota Geological Survey, St. Paul, MN.

**Surficial Maps**

Meyer, G.N. 1985. Quaternary Geologic Map of the Minneapolis-St. Paul Urban Area, Minnesota. Color. Scale 1:48,000. Minnesota Geological Survey, St. Paul, MN.

**Bedrock Maps**

Jirsa, M.A., Olsen, B.M., and Bloomgren, B.A. 1986. Bedrock Geologic and Topographic Maps of the Seven-County Twin Cities Metropolitan Area, Minnesota. Color. Scale 1:125,000, 2 pls. Minnesota Geological Survey, St. Paul, MN.

Bloomgren, B.A. 1985. Bedrock Geologic and Topographic Maps of the Minneapolis-St. Paul Urban Area, Minnesota. Color. Scale 1:48,000, 2 pls. Minnesota Geological Survey, St. Paul, MN.

**MINNESOTA (GENERAL)****PUBLICATIONS OF THE U.S. GEOLOGICAL SURVEY****USGS WATER RESOURCE INVESTIGATIONS (WRI)**

- Adolphson, D.G., Ruhl, J.F., and Wolf, R.J. 1981. Designation of Principal Water-Supply Aquifers in Minnesota. USGS Water Resource Investigation, WRI 81-51.
- Anderson, A.W., and Ruhl, J.F. 1981. Geohydrology and Quality of Water in Aquifers in Minnesota. USGS Water Resource Investigation, WRI 81-51.
- Anderson, H.W. 1986. Hydrogeologic and Water Quality Characteristics of Crystalline Rock: Aquifers of Archaean and Proterozoic Age, Minnesota. USGS Water Resource Investigation, WRI 86-4033.
- Horn, M.A. 1986. Development of a Water Use Data System in Minnesota. USGS Water Resource Investigation, WRI 85-4306.
- Jacques, J.E., and Lorenz, D.L. 1987. Techniques for Estimating the Magnitude and Frequency of Floods in Minnesota. USGS Water Resource Investigation, WRI 87-4170.
- Ruhl, J.F. 1987. Hydrogeologic and Water Quality Characteristics of Glacial Drift Aquifers in Minnesota. USGS Water Resource Investigation, WRI 87-4224.
- Ruhl, J.F. 1984. Hydrogeologic and Water-Quality Characteristics of the Upper Carbonates Aquifer in Minnesota. USGS Water Resource Investigation, WRI 84-4150.
- Siegal, D.I. 1981. Hydrogeologic Setting of the Glacial Lake Agassiz Peatlands, Northern Minnesota. USGS Water Resource Investigation, WRI 81-24.
- Stark, J.R., Strudell, J.D., Bloomgren, P.A. and Eger, P. 1987. Ground Water and Soil Contamination near Two Pesticide Burial Sites in Minnesota. USGS Water Resource Investigation, WRI 87-4115.
- Steinhilber, W.C., and Young, H.L. 1979. Plan of Study for the Northern Midwest Regional Aquifer-System Analysis. USGS Water Resource Investigation, WRI 79-44.
- Trotta, L.C. 1988. Water Use for Aquaculture in Minnesota. USGS Water Resource Investigation, WRI 88-4159.

Winterstein, T.A., and Artson, A.D. 1988. Cost Effectiveness of the Streamflow-Gaging Program in Minnesota. USGS Water Resource Investigation, WRI 88-4129.

Woodward, D.G., and Anderson, H.W. 1986. Hydrogeologic and Water Quality Characteristics of the Cretaceous Aquifer, Southwestern Minnesota. USGS Water Resource Investigation, WRI 84-4153.

### **USGS WATER SUPPLY PAPERS (WS)**

Brown, R.G. 1987. Errors in Estimating Ground-Water Components of Hydrologic and Phosphorus Budgets of Lakes. In: Selected Papers in the Hydrologic Sciences by Seymore Sabitzby. USGS Water Supply Paper, WS 2310.

Delin, G.N., and Woodward, D.G. 1984. Hydrogeologic Setting and the Potentiometric Surfaces of Regional Aquifers in the Hollandale Embayment, Southeastern Minnesota 1920-1980. USGS Water Supply Paper, WS 2219.

Gunard, K.T. 1985. Minnesota Water Facts - Surface Water Resources. USGS Water Supply Paper, WS 2300.

Reeder, H.O., Wood, W.W., Erlich, G.G., and Sun, R.J. 1976. Artificial Recharge Through a Well in Fissured Carbonate Rock, West St. Paul, Minnesota. USGS Water Supply Paper, WS 2004.

Schneider, R. 1961. Correlation of Ground-Water Levels and Air Temperatures in the Winter and Spring in Minnesota. USGS Water Supply Paper, WS 1539-D.

Woodward, D.G. 1985. Minnesota Water Facts - Ground Water Resources. USGS Water Supply Paper, WS 2275.

### **USGS WATER FACT SHEETS**

Albin, D.R. 1988. U.S. Geological Survey Ground Water Studies in Minnesota. USGS Water Fact Sheet, OFR 88-127.

Delin, G.N. 1986. Confined-Drift Aquifers Studied near the Pomme De Terre and Chippewa Rivers, West-Central Minnesota. USGS Water Fact Sheet.

Trotta, L.C. 1987. Sources of Water-Use Data in Minnesota. USGS Water Fact Sheet, OFR 87-544.

Woodward, D.G. 1986. The Study of Buried-Drift Aquifers in Minnesota by Seismic Geophysical Methods. USGS Water Fact Sheet.



**USGS NUMBERED OPEN FILE REPORTS (OFR)**

- Albin, D.R., and Bruemmer, L.B. 1987. Minnesota Ground-Water Quality. USGS Open-File Report, OFR 87-0733.
- Hult, M.F. 1979. Design of a Network for Monitoring Ground-Water Quality in Minnesota. USGS Open-File Report, OFR 79-1164.
- Larson, and Higden, D.C. 1976. Map Showing Altitude of the Bedrock Surface in Minnesota. USGS Open-File Report, OFR 76-788.
- Lindholm, G.F., and Norvitch, R.F. 1976. Ground Water in Minnesota. USGS Open-File Report, OFR 76-354.
- Lindholm, G.F., and Norvitch, R.F. 1976a. Remote Sensing as an Aide in Water Resource Studies in Minnesota. USGS Open-File Report, OFR 76-213.
- Miller, R. T. 1984. Preliminary Modeling of an Aquifer Thermal Storage System. USGS Open-File Report, OFR 84-8111.
- Payne, G.A., Ayers, M.A., and Brown, R.G. 1982. Quality of Runoff from Small Watersheds in the Twin City Metropolitan Area, Minnesota. USGS Open-File Report, OFR 82-504.
- Trotta, L.C. 1988. Inventory of Interbasin Water Transfers in Minnesota. USGS Open-File Report, OFR 88-466.
- Trotta, L.C. 1987. Aggregation of Minnesota Water-Use Data and Transfer of Data to the National Water-Use Data System: Procedures/Program. USGS Open-File Report, OFR 87-40.
- Winter, T.C. 1976. The Hydrologic Setting of Lakes in Minnesota and Adjacent States with Emphasis on the Interaction of Lakes and Groundwater. USGS Open-File Report, OFR 76-81.

**USGS UNNUMBERED OPEN FILE REPORTS**

- Miller, W.A., and Straka, G.C. 1969. Graphs of Groundwater levels in Minnesota. USGS Unnumbered Open File Report.

**USGS ANNUAL WATER DATA REPORTS**

- Surface Water Supply of the United States, 1951-1970. USGS Annual Water Data Report.

Quality of Surface Waters of the United States, 1941-1971. USGS Annual Water Data Report.

Groundwater Levels in the United States, 1935-1974. USGS Annual Water Data Report.

Water Resources Data for Minnesota, 1961-1974. Vol. 1 Surface Water Resources, Vol. 2 Water Quality Resources. USGS Annual Water Data Report.

Water Resources Data: Minnesota, 1975-Present. Vol. 1 Great Lakes and Souris-Red-Rainy River Basins. Vol. 2 Upper Mississippi and Missouri River Basins. Water Resources Division, USGS Annual Water Data Report.

### **BOOKS AND REPORTS OF THE MINNESOTA GEOLOGICAL SURVEY (MGS)**

Alexander, E.C., Jr. 1980. An Introduction to Caves of Minnesota, Iowa and Wisconsin 1980 NSS Convention Guidebook. Minnesota Geological Survey (MGS), St. Paul, MN.

Kanivetsky, R. 1979. A Regional Approach to Estimating the Groundwater Resources of Minnesota. Minnesota Geological Survey (MGS), St. Paul, MN.

Lively, R.S., and Southwick, D.L. 1981. Radon Activity in Ground Waters of Seven Test Areas in Minnesota. Minnesota Geological Survey (MGS), St. Paul, MN.

Olsen, B.M., Mohring, E.K., and Bloomgren, P.A. 1987. Using Groundwater Data for Water Planning. Minnesota Geological Survey, MGS Ed Series 8.

Ojakangas, R. W., and Matsch, C.L. 1982. Minnesota's Geology. Minnesota Geological Survey (MGS), St. Paul, MN.

Melone, T.G., and Veiss, L.W. 1951. Bibliography of Minnesota's Geology [through 1950]. Minnesota Geological Survey (MGS), St. Paul, MN.

Morey, G.B., Balaban, N.H., and Swanson, L. 1981. Bibliography of Minnesota's Geology 1951-1980. Minnesota Geological Survey (MGS), St. Paul, MN.

Swanson, L., Balaban, N.H. and Morey, G.B. 1986. Bibliography of Minnesota's Geology 1981-1985. Minnesota Geological Survey (MGS), St. Paul, MN.

Mossier, J.H. 1987. Paleozoic Lithostratigraphic Nomenclature for Minnesota. Minnesota Geological Survey (MGS), St. Paul, MN.

Sansome, C.J. 1983. Minnesota Underfoot. A Field Guide to the State's Outstanding Geologic Features. Minnesota Geological Survey (MGS), St. Paul, MN.

Schwartz, G.M., and Thiel, G.M. 1973. Minnesota's Rocks and Water: A Geological Story. Minnesota Geological Survey (MGS), St. Paul, MN, Bulletin 37

Sims, P.K., and Morey, G.F. eds. 1972. *Geology of Minnesota: A Centennial Volume*. Minnesota Geological Survey (MGS), St. Paul, MN.

Swanson, L. 1985. *Publications of the Minnesota Geological Survey and its predecessor, the Geological and Natural History Survey of Minnesota*. Minnesota Geological Survey (MGS), St. Paul, MN.

### **MAPS AVAILABLE FROM THE MGS**

Balaban, N.H. 1988. *Geologic Atlas of Olmsted County, Minnesota*. Scale 1:1,000,000. County Atlas C-3. Minnesota Geological Survey (MGS), St. Paul, MN.

Balaban, N.H., and McSwiggen, P.L., Eds. 1982. *Geologic Atlas of Scott County, Minnesota*. Scale 1:1,000,000 and smaller. County Atlas C-1. Minnesota Geological Survey (MGS), St. Paul, MN.

Balaban, N.H. and Olson, B.M. Eds. 1984. *Geologic Atlas of Winona County, Minnesota*. Scale 1:1,000,000 and smaller. County Atlas C-2. Minnesota Geological Survey (MGS), St. Paul, MN.

#### Surficial Maps

Hobbs, H.C., and Goebel, J.E. 1982. *Geologic Map of Minnesota, Quaternary Geology*. Color. Scale 1:500,000. Surficial Map, Minnesota Geological Survey (MGS), St. Paul, MN.

Goebel, J.E., and Walton, M. 1979. *Geologic Map of Minnesota, Quaternary Geology*. Color. Scale 1:3,168,000. Surficial Map, Minnesota Geological Survey (MGS), St. Paul, MN.

Goebel, J.E. 1976. *Quaternary Geologic Map Index of Minnesota*. 22 p., 1 pl. Surficial Map, Minnesota Geological Survey (MGS), St. Paul, MN.

State of Minnesota Watershed Boundaries. Minnesota Department of Natural Resources. 1979. Scale 1:500,000. Accompanying text. Minnesota Geological Survey (MGS), St. Paul, MN.

#### Hydrogeological Maps

Kanivetsky, R. 1978. *Hydrogeologic Map of Minnesota, Bedrock Hydrogeology*. Color. Sheet 1 (map), Sheet 2 (cross sections), and accompanying text. Scale 1:500,000. Minnesota Geological Survey (MGS), St. Paul, MN.

Kanivetsky, R. 1979. *Hydrogeologic Map of Minnesota, Quaternary Hydrogeology*. Color. Scale 1:3,168,000. Minnesota Geological Survey (MGS), St. Paul, MN.

Kanivetsky, R. 1979. Hydrogeologic Map of Minnesota, Bedrock Hydrogeology. Color, Scale 1:3,168,000. Minnesota Geological Survey (MGS), St. Paul, MN.

Kanivetsky, R. 1979. Hydrogeologic Map of Minnesota, Quaternary Hydrogeology. Color. Scale 1:500,000. Minnesota Geological Survey (MGS), St. Paul, MN.

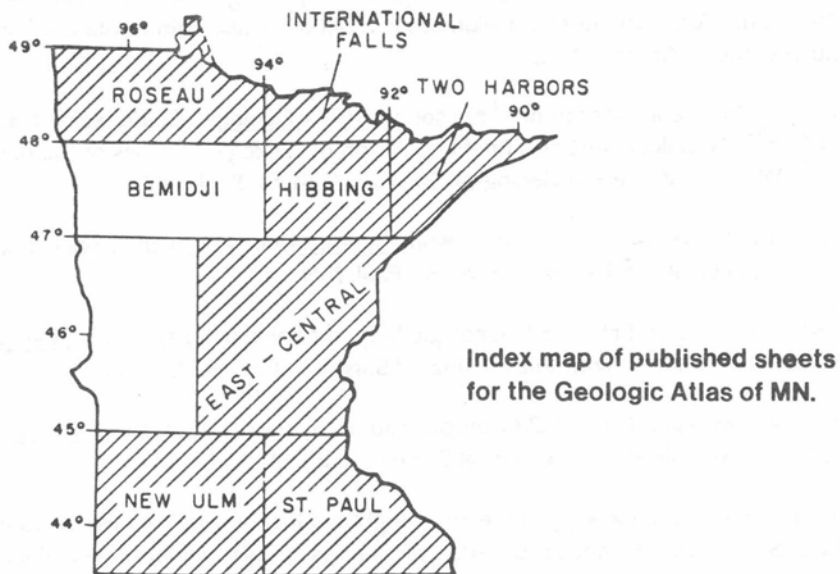
Kanivetsky, R. and Olsen, B.M. 1986. Hydrogeologic Sensitivity Mapping in Minnesota. (Reprint from Hydrological Science and Technology: Short Papers, Vol. 2, No.2, 1986, p. 45-50). Minnesota Geological Survey (MGS), St. Paul, MN.

Also to accompany the maps above:

Kanivetsky, R., and Walton M. 1979. Hydrologic Map of Minnesota Bedrock Hydrogeology: A Discussion to Accompany State Map Series S-2. Minnesota Geological Survey (MGS), St. Paul, MN.

Kanivetsky, R. 1979. A Regional Approach to Estimating the Groundwater Resources of Minnesota. Minnesota Geological Survey (MGS), St. Paul, MN.

Geologic Map Atlas of Minnesota



Austin, G.S., Grant, J.A., Ikola, R.J., and Sims, P.K. 1970. New Ulm Sheet, Bedrock Geology. Minnesota Geological Survey (MGS), St. Paul, MN.

Green, J.L. 1982. Two Harbors Sheet, Bedrock Geology. Minnesota Geological Survey (MGS), St. Paul, MN.

Morey, G.B., Olsen, B.M. and Southwick, D.L. 1981. East Central Minnesota, Bedrock Geology (includes Duluth and Stillwater sheets, plus the parts of Brainerd and St. Cloud sheets east of 95°). Minnesota Geological Survey (MGS), St. Paul, MN.

Ojakangas, R. W., Mossler, J.H., and Morey, G.B. 1979. Roseau Sheet, Bedrock Geology. Minnesota Geological Survey (MGS), St. Paul, MN.

Sims, P.K., Morey, G.B., Ojakangas, R.W., and Viswanathan, S. 1970. Hibbing Sheet, Bedrock Geology. Minnesota Geological Survey (MGS), St. Paul, MN.

Sloan, R.E., and Austin, G.S. 1966. St. Paul Sheet, Bedrock Geology. Minnesota Geological Survey (MGS), St. Paul, MN.

Southwick, D.I., and Ojakangas, R. W. 1979. International Falls Sheet, Bedrock Geology. Minnesota Geological Survey (MGS), St. Paul, MN.

### **USGS GEOLOGIC MAPS AND REPORTS AVAILABLE THROUGH MGS**

Norvitch, R.F., and Walton, M.S. 1979. Geologic and Hydrologic Aspects of Tunneling in the Twin Cities Area, Minnesota. Color. Scale 1:24,000, 7 pls. Minnesota Geological Survey (MGS), St. Paul, MN.

Morey, G.B. 1976. Geologic Map of Minnesota, Bedrock Geology. Color. Scale 1:3,168,000 (1 inch = 50 miles). Includes Brief Discussion of Geologic Terranes of Minnesota by Matt Walton. Minnesota Geological Survey (MGS), St. Paul, MN.

Morey, G.B. 1982. Geologic Map of Minnesota, Bedrock Outcrops. Color. Scale 1:3,168,000. Minnesota Geological Survey (MGS), St. Paul, MN.

Olsen, B.M. and Mossler, J.H. 1982. Geologic Map of Minnesota, Bedrock Topography. Scale 1:1,000,000. Minnesota Geological Survey (MGS), St. Paul, MN.

Olsen, B.M. and Mossier, J.H. 1982. Geologic Map of Minnesota, Depth to Bedrock. Scale 1:1,000,000. Minnesota Geological Survey (MGS), St. Paul, MN.

Stone, J.E. 1966. Surficial Geology of the New Brighton Quadrangle, Minnesota. Colored Map, Scale 1:24,000, and 39 p. text, 3 pls. 11 figs., 6 tbls. Minnesota Geological Survey (MGS), St. Paul, MN.

Wright, H.E. Jr., Mattson, L.A., and Thomas, J.A. 1970. Geology of the Cloquet Quadrangle. Colored Map, Scale 1:24,000, and 30 p. text, 12 figs., 2 tbls. Minnesota Geological Survey (MGS), St. Paul, MN.

USGS TOPOGRAPHIC MAPS

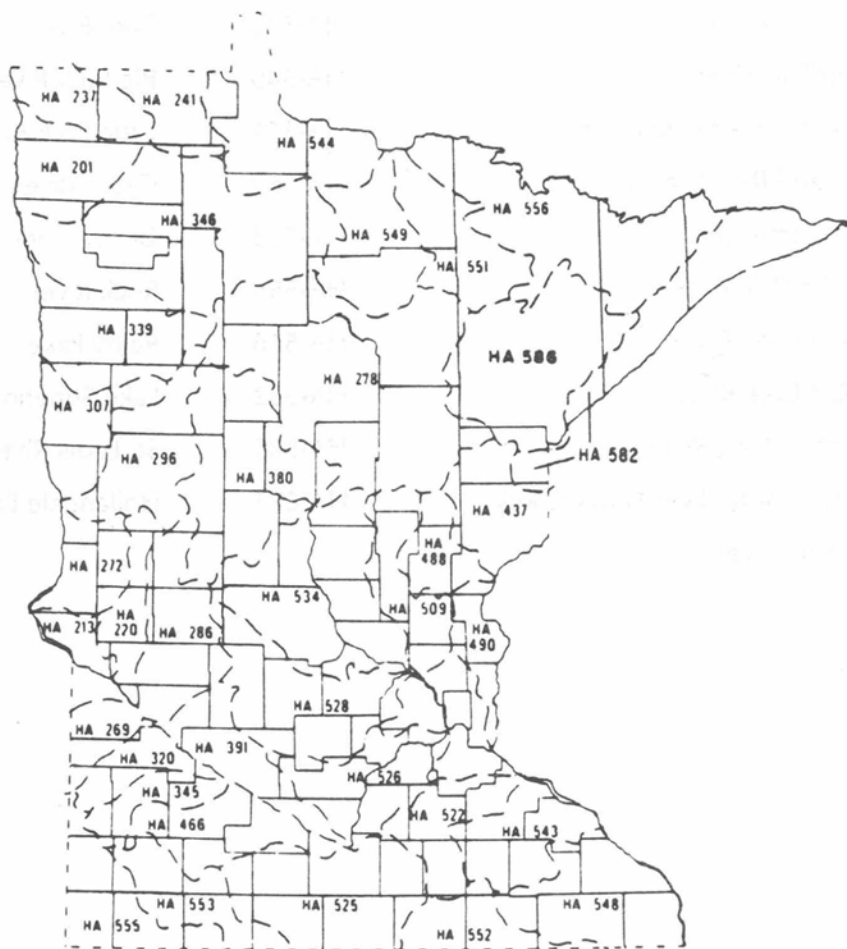
USGS Topographic maps of Minnesota are available from the Minnesota Geological Survey.

Entire state at the scale 1 :500,000 with topographic contour lines @ \$5.25. 1 :250,000 sheets (1 inch = 4 miles) @ \$4.50. 7 1/2 minute quadrangles (1 :24,000 or 1 inch = 2,000 feet) @ \$2.75. Index map upon request, \$1.00 for postage and handling.

USGS OUTSIDE PUBLICATIONS (OP)

Baedecker, M.J., Eganhouse, R.P., Miller, R.J., and Hult, M.F. 1986. The Composition and Fate of Hydrocarbons in a Glacial Aquifer. GSA 95th Annual Meeting. Vol. 18, No.6. USGS Outside Publications, OP-183.

Brown, R.G. and Stark, J.D, 1986. A Comparison of Ground Water and Surface Water Interaction in Wetlands: Minnesota and Wisconsin. Abs. in 31st Annual Midwest Groundwater Conference. USGS Outside Publications, OP-115.

USGS HYDROLOGIC ATLASES (Available through the MGS)

**Index Map of Hydrologic Atlases**

## MINNESOTA (GENERAL)

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HA-220	Pomme de Terre River	HA-490	Lower St Croix River
HA-237	Two Rivers	HA-509	Rum River
HA-241	Roseau River	HA-522	Cannon River
HA-269	Lac Qui Parle River	HA-525	Blue Earth River
HA-272	Mustinka-Bois de Sioux	HA-526	Lower Minnesota River
HA-278	Mississippi headwaters	HA-528	Crow River
HA- 280	Hibbing area	HA-534	Mississippi & Sauk Rivers
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HA-345	Redwood River	HA-556	Rainy Lake
HA-346	Red Lake River	HA-582	Lake Superior
HA-380	Crow Wing River	HA-586	St. Louis River
HA-391	Minnesota River-Hawk Creek	HA-677	Hollandale Embayment
HA-437	Kettle River		

**CHAPTER II****GROUNDWATER PUBLICATIONS BY SUBJECT****AGRICULTURE**

Agrichemicals and Groundwater Protection: Resources and Strategies for State and Local Management. Proceedings of a Conference Held October 24-25, 1988, St. Paul, MN. 1989. Freshwater Foundation, Navarre, MN.

Agrichemicals and Groundwater: Perspectives and Solutions. 1988. Journal of Freshwater.

Agricultural Chemicals and Groundwater Protection: Emerging Management and Policy. Proceedings of 1987 Conference. Freshwater Foundation, Navarre, MN.

Agricultural Chemicals and Groundwater Protection: Suggested Directions for Consideration and Action.

Agricultural Chemicals in Ground Water: Proposed Pesticides Strategy. 1987. Environmental Protection Agency, Office of Pesticides and Toxic Substances. Washington D.C.

Agricultural Chemicals in Ground Water: Summary Minutes from the 1987 Pesticide Strategy Workshop, July 23 and 24, 1987. Environmental Protection Agency, Office of Pesticides and Toxic Substances, Washington D.C.

Agricultural Non-Point Pollution. 1987. Minnesota Extension Service. New Series, AG-CS-3016.

Agriculture and the Environment. 1970. Minnesota Extension Service. New Series, CD-SS--4013. .

Almquist, A.W. 1955. Farm Drainage in the Red River Valley of Minnesota. M.S. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.

Arya, L.M. 1973. Water Flow in Soil in Presence of Soybean Root Sinks. Ph.D. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.

Austin, T.A., Anderson, C.E., Johnson, H.P., Shaw, and R.H. Golchin, J. 1982. Efficient Use of Water for Irrigation in the Upper Midwest. Iowa State Water Resources Research Inst. Ames, Iowa.



- Bergsrud, F. and Wright, J. 1986. Center Pivots and Wetlands. Minnesota Extension Service. New Series, AG-FO-3009.
- Bergsrud, F., and Linn, J. 1989 (Rev.). Water Quality for Livestock and Poultry. Minnesota Extension Service. New Series, AG-FO-1864.
- Brown, D.A., Gersmehl, C.A., Drake, J., and Skaggs, R.H. 1987. Crop Production Response to Moisture Supply in Minnesota. Special Report No.9. Water Resources Research Center, St. Paul, MN.
- Brown, D.A. et. al. 1987. Crop Production Response to Moisture Supply in Minnesota. Water Resources Research Center, St. Paul, MN. Special Report 9.
- Buzicky, G.C. 1982. Nitrogen Fertilizer Distribution Between Corn Plants, Soil and Aquifer Under Irrigated Conditions. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Dhaltar, M.A. 1980. Use of the Buffered and Covered Plots Method for Evaluating Water Requirements of a Rice Paddy. Ph.D. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Duncomb, D.R., Larson, W.E., Clapp, C.E., Dowdy, R.H., and Linden, D.R. 1982. Effect of Liquid Wastewater Sludge Application on Crop Yield and Water Quality. Journal of the Water Pollution Control Federation, 54(8):1185-1193, August.
- Dylla, A.S., Shull, H., and Timmons, D.R. 1980. Computer Simulation of Sprinkler Irrigation Practices for Minnesota. Transactions of the ASAE, 23(6):1419-1423, November/December. Department of Agriculture, Morris, MN.
- Economic Impact of Irrigated Agriculture in West Minnesota: DISC, Development of Irrigation and Special Crops. 1978. Agricultural Experiment Station, University of Minnesota, St. Paul, MN.
- Economic Value of Irrigation for the Swift County Economy. 1982. Minnesota Extension Service. New Series, AG-FO-0429.
- Eidman, V.R. 1977. Irrigation in Minnesota. Minnesota Agricultural Economist No. 592.
- Engel, R.E. 1983. Use of Cooling Tower Water from Electrical Power Plants for Irrigation in Minnesota. Ph.D. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Engel, R.E., Malzer, G.L., and Bergsrud, F.G. 1985. Saline Cooling Tower Water for Irrigation in Minnesota: II. Drainage Water Composition, Leaching Fraction, and Effect on Aquifer Quality. Journal of Environmental Quality, 14(1):36-40, January/March.

- Everts, C.J. 1980. Effects of Tillage and Manure on Nitrogen and Phosphorus Movement with Sediment and Surface Runoff. M.S. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Feedlot Regulations for the Poultry and Livestock Industries. 1987. Minnesota Extension Service. New Series, AG-FS-0639.
- Gantzer, C.J. 1976. Effects of No-Tillage on Several Physical Characteristics of a Southern Minnesota Aquic Argiudoll. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Gerwing, J.R. 1978. Water Quality of Aquifers as Affected by Movement of Fertilizer Nutrients Under Irrigation. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Gilley, J.R. 1971. Steady Two-Dimensional Infiltration from Buried Line Sources. Ph.D. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Hines, J.W. 1986. Measurement and Modeling of Soil Hydraulic Conductivity Under Different Tillage Systems. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Hines, J.W. 1986. Measurement and Modeling of Soil Hydraulic Conductivity Under Different Tillage Systems. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Irrigation Crop-Share or Crop-Share-Cash Farm Lease. 1980. Minnesota Extension Service. New Series, AG-FO-3432.
- Irrigation Guide for Minnesota. 1977. U.S. Department of Agriculture, Minneapolis, MN.
- Johnson, B.S. 1981. Re-Use of Agricultural Drainage Water for On-Site Soil Water Recharge and Irrigation. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Johnson, B.S., Blake, G.R., and Nelson, W.W. 1983. Midseason Soil Water Recharge for Corn in the Northwestern Corn Belt. Project Technical Report No. 113. Water Resources Research Center, St. Paul, MN.
- Killen, M.A. 1984. Modification of the Checkbook Method of Irrigation Scheduling for Use in Minnesota. Agricultural Engineering Department, University of Minnesota, M.S. Thesis, St. Paul, MN.
- Klaseus, T.G., Buzicky, G.C., and Schneider, E.C. 1988. Pesticides and Groundwater: Surveys of Selected Minnesota Wells. LCMR Report. Minnesota Department of Health, Department of Agriculture, and Legislative Commission on Minnesota Resources.

- Knoch, B.C.E. 1983. Predicting Direct Recharge of Surficial Aquifers. M.S. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN. Also, Transactions of the American Society of Agricultural Engineers, 27(6):1739-1744.
- Linden, D.R. 1979. A Model to Predict Soil Water Storage as Affected by Tillage Practices. Ph.D. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Lundstrom, D.R. 1988. The Projection of Irrigation Diversions Using Stochastic Models. Ph.D. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- McCormick, G.W. 1978. Till Genesis and Soils in East Central Minnesota. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- MN Department of Agriculture. 1988. Summary of Water Well Pesticide Surveys. MN Department of Agriculture (1981). The Use and Management of Water for Irrigated Agriculture in Minnesota.
- Molnau, M.P. 1963. A Field Study of Improved Techniques for the Development of Well Points for Irrigation Use. M.S. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Moore, I.D. 1979. Infiltration into Tillage Affected Soils. M.S. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Pierce, F.J. 1984. Assessing Soil Productivity in Relation to Land Use and Conservation. Ph.D. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Pretzer, D.D. 1981. Irrigation Crop-Share and Cash Rental Arrangements for Your Farm. Minnesota Extension Service. New Series, AG-BU-2389.
- Retka, E. 1972. Some Aspects of the Use of Water Wells in Unconsolidated Aquifers. Ph.D. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Soil Conservation Service. 1988. U.S. Department of Agriculture, Minneapolis, MN.
- Spreading Sewage Sludge on Farm Land, Some Questions and Answers. 1984. Metropolitan Council of the Twin Cities, St. Paul, MN.
- The Center for Agricultural Impacts on Water Quality. 1987. Minnesota Extension Service. New Series, AG-MI-3304.
- The Potential for Irrigated Crop Production: DISC, Development of Irrigation and Special Crops. 1976. Agricultural Experiment Station, University of Minnesota, St. Paul, MN.
- The Quality of Water for Irrigation. Technical Bulletin No. 239. Agricultural Experiment Station, University of Minnesota, St. Paul, MN.

- Understanding Nitrogen and Agricultural Chemicals in the Environment. 1987. Minnesota Extension Service. New Series.
- Water Requirements and Issues in the Minnesota Agriculture System. 1977. U.S. Department of Agriculture, Minneapolis, MN.
- Water Resources Projects Status Report. U.S. Department of Agriculture, Minneapolis, MN.
- Water Sources and Irrigation Economics: DISC, Development of Irrigation and Special Crops. 1978. Agricultural Experiment Station, University of Minnesota, St. Paul, MN.
- Williams, T. 1971. Effects of Mechanized Harvesting on Soil-Water Properties. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Willson, D.H., and Erdman, V.R. 1981. The Economy and Irrigating Medium and Fine Textured Soils in Minnesota. U.S. Department of Agriculture, Minneapolis, MN.
- Wilson, B.N. 1979. The Importance of Air Movement in the Prediction of Infiltration. M.S. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Wright, J., and Bergsrud, F. 1986. Irrigation Scheduling: Checkbook Method. Minnesota Extension Service. New Series, AG-FO-1322.
- Young, R.A., Otterby, M.A., and Roos, A. 1982. An Evaluation System to Rate Feedlot Pollution Potential. Agricultural Reviews and Manuals ARM-NC-17, April.

### **CLIMATE**

- Baker, D.C., Nelson, W.W., and Kuehnast, E.L. 1979. Climate of Minnesota. Part XII - The Hydrologic Cycle and Soil Water. Agricultural Experiment Station, University of Minnesota, St. Paul, MN.
- Bosch, D.D. 1986. The Effects of Rainfall on the Hydraulic Conductivity of Soil Surfaces. M.S. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Brown, D.A. *et. al.* 1987. Crop Production Response to Moisture Supply in Minnesota. Water Resources Research Center, St. Paul, MN. Special Report 9.
- Brown, R.G. 1988. Effects of Precipitation and Land Use on Storm Runoff. Water Resources Bulletin WARBAQ, 24(2):421-426, April.
- Curtis, W.R. 1964. Response of Springflow to Same Climatic Variables in the Driftless Area of Southwestern Wisconsin. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.

- Ljungkul, J.E., and Baker, D.G. 1982. An Experimental Investigation of Evapotranspiration Methods. Project Technical Report No. 112. Water Resources Research Center, St. Paul, MN.
- Oberts, G.L. 1983. Surface Water Management: Evaluation of Nationwide Urban Runoff. Metropolitan Council, St. Paul, MN.
- Oberts, G.L. 1984. Surface Water Management: Precipitation Frequency Analysis. Metropolitan Council, St. Paul, MN.
- Rosenberry, D.O., Sturrock, A.M., Scarborough, J.L., and Winter, T.C. 1988. Climatic Data for Williams Lake, Hubbard County, Minnesota, 1982. USGS Open File Report 88-89.
- Skaggs, R.H. 1987. Relationship Between Climate and the Mean Annual Flow of the Mississippi River at St. Paul, Minnesota. Water Resources Research Center, St. Paul, MN. Special Report 11.
- Sturrock, A.M., Rosenberry, D.O., and Winter, T.C. 1987. Climatic Data for Williams Lake, Hubbard County, Minnesota, 1985. USGS Open File Report OFR 86-607.
- Water Cycle and Land Use Reports. 1) 23 x 35 - no text. 2) 11 x 22 - with geology of Minnesota text. Board of Soil and Water Resources, St. Paul, MN.
- Wilson, B.N. 1979. The Importance of Air Movement in the Prediction of Infiltration. M.S. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.

## **FORESTRY**

- Baker, M.B. 1971. Spring Runoff as Affected by Soil Permeability on Two Forested Watersheds. Ph.D. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Harris, A.R. 1971. Effect of Deciduous, Conifer, and Abandoned Field Cover on the Hydrologic Properties and Frost Morphology of Frozen Soil. Ph.D. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Leete, J.H. 1986. Sediment and Phosphorus load to Streamflow from Natural and Disturbed Watersheds in Northeastern Minnesota. Ph.D. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Miles, P.D. 1983. Assessing the Economic Implications of Managing Nonpoint Forestry Sources of Water Pollutants: Case Studies in Five Midwest States. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.

- Mital, D.J. 1981. Observation and Prediction of Soil Moisture Under Four Aspen Stands in Minnesota. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Nicolson, J.A. 1973. Impact of Water Quality and Quantity on Forest Recreation in the North Central Region - a Minnesota Case Study. Ph.D. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Verry, E.S. 1986. Forest Harvesting and Water: The Lake States Experience. Water Resources Bulletin 22(6).
- Verry, E.S. 1985. Forest Harvesting and Water: The Lake States Experience. Proceedings, 3rd Society of American Foresters Regional Technical Conference; 1985 September 25-27; Madison WI: Timber Harvesting: The Link Between Management and Utilization. SAF Publication, 85-09:71-89.
- Verry, E.S. 1972. Effects of an Aspen Clearcutting on Water Yield and Quality in Northern Minnesota. In: National Symposium on Watersheds in Transition; June 19-22, 1972; Fort Collins, CO. American Water Resources Association Proceedings Series No. 14:276-284.
- Verry, E.S. 1987. Effect of Aspen Harvest and Growth on Water Yield in Minnesota. In: Forest Hydrology and Watershed Management. IAHS Publication No. 167. International Association of Hydrological Sciences Press, Institute of Hydrology, Wallingford, Oxfordshire, UK.
- Weible, R. 1978. The Economics of Managing Non Point Forestry Sources of Water Pollutants. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Wolford, R.A., Higgins, D.A., and Brooks, K.N. 1978. Non-Point Pollution Related to Forest Management Practices - Focus on N.E. Minnesota. Department of Forest Resources, University of Minnesota, St. Paul, MN.

## **GEOLOGY**

- Alexander, E.C., and Milske, J.A. 1986. In: Proceedings of the Environmental Problems in Karst Terranes and Their Solutions Conference. National Water Well Association, Dublin, OH.
- Anderson, H.W., and Ruhl, J.F. 1982. Geohydrology and Hydrochemistry of Aquifers in Cretaceous Rocks, Minnesota. In: Geohydrology of the Dakota Aquifer, Proceedings of the First C.V. Theis Conference on Geohydrology, October 5-6, 1982. Lincoln Nebraska. National Well Association, Worthington, OH.

- Baghadi, K.A. 1977. Application of the Gravity and the Seismic Refraction Methods for Mapping Bedrock Topography in East-Central Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Barr, K.D. 1978. Estimation of Groundwater and Lake Chemistry Parameters and Their Inter-Relationships in Glaciated Terrains. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Bauer, R.L. 1981. The Petrology and Structural Geology of the Western Lake Vermilion Area, Northeastern Minnesota. Ph.D. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Berner, H. 1977. Geologic Processes and Hazards in High-Relief Terrain. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN. 96 p.
- Berner, H. 1977. A Land Suitability Study for Lakewood Township in St. Louis County, Minnesota. Plan B M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN. 64 p.
- Born, S.M., Smith, S.A., and Stephenson, D.A. 1974. The Hydrogeologic Regime of Glacial-Terrain Lakes, With Management and Planning Applications. Upper Great Lakes Regional Commission.
- Brugam, R.B. 1981. Chemistry of Lake Water and Groundwater in Areas of Contrasting Glacial Drifts in Eastern Minnesota. *Hydrobiologia*, 80(1):47-62, April.
- Case, H.L. 1982. Hydrology of Inyan Kara and Dakota-Newcastle Aquifer System, South Dakota. In: *Geohydrology of the Dakota Aquifer*, Proceedings of the First C.V. Theis Conference on Geohydrology, October 5-6, 1982, Lincoln Nebraska. National Well Association, Worthington, OH.
- Chernicoff, S.E. 1980. The Superior-Lobe and Grantsburg-Sublobe Tills: Their Compositional Variability in East-Central Minnesota. Ph.D. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Clark, R.C. 1985. The Structural Geology of the Thomson Formation: Cloquet and Esko Quadrangles, East-Central Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Cohen, G.B. 1982. Dispersion and Sorption of Hydrocarbons in Aquifer Materials. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Connolly, M.R. 1981. The Geology of the Middle Precambrian Thomson Formation in Southern Carlton County, East-Central Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.

- Crum, J.R. 1984. Soils and Till Stratigraphy of West Central Minnesota. Ph.D. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Dalgleish, J.B. 1985. Sinkhole Distribution in Winona County, Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Dalgleish, J.B. 1985. Sinkhole Distribution in Winona County, Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Day, W.C. 1983. Petrology and Geochemistry of the Vermilion Granitic Complex, Northern Minnesota. Ph.D. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- DNR. 1985. Accelerated Ground Water Management. Geophysics Phase. Report of Biennium 1983-1985. LCMR Report. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- DNR. 1987. Ground Water Investigations and Data Automation. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Feirn, W.C. 1977. The Geology of the Early Precambrian Rocks of the Jasper Lake Area, Cook County, Northeastern Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Frantes, J.R. 1987. Petrology and Sedimentation of the Archean Seine Group Conglomerate and Sandstone, Western Wabigoon Belt, Northern Minnesota and Western Ontario. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Freidman, A.L. 1981. Surficial Geology of the Isabella Quadrangle, Northeastern Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Geology (Record). 1978. Minnesota Extension Service. New Series, 4H-FO-0323.
- Geology. 1975. Minnesota Extension Service. New Series, 4H-FO-0324.
- Goldstein, B.S. 1986. Stratigraphy, Sedimentology, and Late-Quaternary History of the Wadena Drumlin Region, Central Minnesota. Ph.D. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Greenhalgh, S.A. 1979. Studies With a Small Seismic Array in East-Central Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Gross, L.B. 1982. The Stratigraphy and Lithology of the Glaciogenic Sediments of the Two Harbors Area, Northeastern Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.



- Gross, L.B. 1982. The Stratigraphy and Lithology of the Glaciogenic Sediments of the Two Harbors Area, Northeastern Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Hawkinson, C.F., Verry, E.S., and Elon, S. 1975. Specific Conductance Identifies Perched and Ground Water lakes. Research Paper No. NC-120. North Central Forest Experiment Station, St. Paul, MN.
- Hewett, M.J. 1982. Hydrology of Stockpiles of Sulfide Bearing Gabbro in Northeastern Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Hewett, M.J. 1980. Hydrology of Stockpiles of Sulfide Bearing Gabbro in Northeastern Minnesota. Minnesota Department of Natural Resources, Division of Minerals, St. Paul, MN. 184 p.
- Kronig, D.M. 1977. Cavity Detection by Geophysical Methods. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Krum, W.M. 1935. A Petrologic Study of the "Gray" St. Cloud Intrusive. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Leonard-Mayer, P.J. 1984. A Surface Resistivity Method for Measuring Hydrologic Characteristics of Jointed Formations. U.S. Bureau of Mines, Minneapolis, MN.
- Liesch, B.A. 1961. Geohydrology of the Jordan Aquifer in the Minneapolis-St. Paul Area, Minnesota. Technical Paper 2. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Makeig, K.S. 1978. Hydrogeologic Evaluation of a Drift-Filled Bedrock Valley Aquifer by Means of a Pumping Test and Finite Element Model. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Miller, J.D. 1986. The Geology and Petrology of Anorthositic Rocks in the Duluth Complex, Snowbank Lake Quadrangle, Northeastern Minnesota. Ph.D. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Milski, J.A. 1982. Stratigraphy and Petrology of Clastic Sediments in Mystery Cave, Fillmore County, Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.

- Mooers, H.D. 1988. Quaternary History and Ice Dynamics of the late Wisconsin Rainy and Superior lobes, Central Minnesota. Ph.D. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Neumann, S.N. 1985. Lower and Middle Precambrian Geology of the Denham Area, Northern Pine County, East-Central Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Norton, A.R. 1983. Quaternary Geology of the Itasca-St. Croix Moraine Interlobate Area, North-Central Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Nourse, S.M. 1986. A Laboratory Investigation of Mass Transfer from Hydrocarbons to Water in Porous Media. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Ojakangas, R.W., and Matsch, C.L. 1982. Minnesota's Geology. University of Minnesota Press, Minneapolis.
- Olsen, B. 1976. Stratigraphic Occurrence of Argillaceous Beds in the St. Peter Sandstone. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Oulgout, B. 1984. Groundwater Use of Geoelectric Resistivity for Estimating the Thickness of Glacial Deposits in Clear Lake Area, Sherburne County. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Pollock, D.W. 1977. Numerical Simulation of Energy Transport in Shallow Aquifers Subjected to a Thermal Stress from High Temperature Energy Storage in the Unsaturated Zone. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Reid, D.F. 1973. Quaternary Geology of the Lake Johanna Region, West-Central Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Sander, J.E. 1978. The Blind Zone in Seismic Ground-Water Exploration. *Groundwater*, 16(6):394-397.
- Sansome, C.J. 1972. Minnesota Geology: A Laboratory and Field Manual for a First Course in Geology with an Elaboration on the Ordovician Stratigraphy in Sogn Quadrangle, Goodhue County. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Sansome, C.J. 1983. Minnesota Underfoot: A Field Guide to the State's Outstanding Geologic Features. Voyagers Press. Bloomington, MN.

- Saremba, S.P. 1971. Macrofabric Analysis of Glacial Till. Plan B M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Schneider, A.F. 1957. Pleistocene Geology of Part of Central Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Schwartz, G.M., and Thiel, G.A. 1963 (Rev.). Minnesota's Rocks and Waters. University of Minnesota Press, Minneapolis, MN.
- Schwartz, G. Ed. 1956. Precambrian of Northeast Minnesota. Guidebook Series Fieldtrip No. 1 GSA. Minnesota Geological Survey, St. Paul, MN.
- Seaberg, J.K. 1985. Geohydrologic Interpretation of Glacial Geology near Williams Lake, Central Minnesota, with Emphasis on Lake-Groundwater Interaction. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Squillace, P.J. 1979. The Geology of the New Richmond Member of the Shakopee Formation (Lower Ordovician) Upper Mississippi Valley. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Steinmaus, K. 1983. Geology and Exploration Geochemistry of the Glacial Deposits of Northeastern Itasca County, Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Stone, D.J. 1980. The Geology of the Upper Dunleith Formation (Prosser Member Galena Formation) of Middle Ordovician Age in Southeastern Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Straub, C.P., Goppers, V.M., and Singer, R.D. 1982. Public Water Supply Quality in the Rock River Watershed, Southwest Minnesota. University of Minnesota, St. Paul, October 1982.
- Streitz, A.R. 1986. Seismic Exploration for Groundwater. Water Talk 1(1):6-7, Fall.
- Streitz, A.R. 1989. The Application of Shallow Reflection Seismic Investigations to the Delineation of Buried Drift Features. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Streitz, A. 1987. Off-End Surface Seismic Reflection Sounding with Vertical Seismic Profiling in Glacial Terrain. In: Proceedings of the First National Outdoor Action Conference on Aquifer Restoration, Ground Water Monitoring and Geophysical Methods. National Water Well Association, Dublin, OH.
- Tilley-Grogan, C.L. 1978. Oil Retention of Unconsolidated Deposits. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.

- Trojan, M.D., and Perry, J.A. 1989. Analysis of Hydrogeologic Sensitivity in Winona County, Minnesota. *Journal of the Minnesota Academy of Science JMNAAC*, 54(3):30-36, Spring.
- Vervoort, J.D. 1987. Petrology and Geochemistry of the Archean Rocks of the Jap Lake Area, Northeastern Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Vinje, S.P. 1979. Archean Geology of an Area Between Knife Lake and Kekekabic Lake, Eastern Vermilion District, Northeastern Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Weber, R.E. 1982. Petrology and Sedimentation of the Upper Precambrian Sioux Quartzite, Minnesota, South Dakota and Iowa. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Wright, S. 1972. Contribution to Research in Surface Conductivity, Hydrogeological and Petrophysical Applications. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Zamzow, C.E. 1979. Early Precambrian Bedrock Geology of the Northwest Angle, Lake of the Woods County, Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.
- Zarth, R.J. 1977. The Quaternary Geology of the Wrenshall and Frogner Quadrangles, Northeastern Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.

**REFERENCE DOCUMENTS**

- Department of Health. 1989. Bibliography on Groundwater.
- DNR-Division of Waters. 1989. Bibliography of Groundwater Education Materials and Curriculum Guides.
- Directory of Great Lakes Educational Materials Public Info Services, IJC Great Lakes Regional Office P.O. Box 32859, Detroit, MI 48232.
- The Minnesota Project Groundwater Curriculum Materials.
- MPCA. 1984. Groundwater: A Compilation of Annotated References. Minnesota Pollution Control Agency, St. Paul, MN.
- Natural Resource Handbook - Land Use and Natural Resource Inventory and Trends. Metropolitan Council of the Twin Cities, St. Paul, MN.

- U.S. Army Corps of Engineers. 1980. List of Publications of the U.S. Army Corps of Engineers Waterways.
- Walton, W.C. 1973. Inventory of Water Resources Research Conducted in Minnesota-1963 through 1972. Project Technical Report No. 65. Water Resources Research Center, St. Paul, MN.
- Walton, W.C. 1966. Lists of References and Selected Books Bearing on Water Resources in Minnesota. Project Technical Report No.4. Water Resources Research Center, St. Paul, MN.
- Walton, W.C. 1974. Understanding the Water Resources Research Center, Graduate School, University of Minnesota. Project Technical Report No. 73. Water Resources Research Center, St. Paul, MN.
- WRRC 1987. Directory of Water Resources Expertise in Minnesota Universities and Colleges. Special Report No. 8. Water Resources Research Center, St. Paul, MN.
- Waste Management Board. 1989. Waste Education Clearing House.

## **SOIL**

- Baker, M.B. 1971. Spring Runoff as Affected by Soil Permeability on Two Forested Watersheds. Ph.D. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Boelter, D.H. 1974. The Hydrologic Characteristics of Undrained Organic Soils in the Lake States. Histosols: Their Characteristics, Use and Classification. Soil Science Society of America.
- Boelter, D.H. 1971. Water Table Drawdown Around an Open Ditch in Organic Soils. Journal of Hydrology, 15(4):329-340.
- Crum, J.R. 1984. Soils and Till Stratigraphy of West Central Minnesota. Ph.D. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Gafni, A. 1986. Field Tracing Approach to Determine Flow Velocity and Hydraulic Conductivity in Saturated Peat Soils. Ph.D. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Gantzer, C.J. 1976. Effects of No-Tillage on Several Physical Characteristics of a Southern Minnesota Aquic Argiudoll. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.

- Gantzer, C.J. 1980. Physical and Morphological Investigations of Surface Seal Formation on Selected Soils. Ph.D. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Gross, E.R. 1973. Buried Soils of the Drainageways in the Driftless Area of the Upper Mississippi River Valley. Ph.D. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Hackenmueller, J.M. 1983. Environmental Effects on the Magnetic Properties of Soils and Lake Sediments Across the Forest-Prairie Ecotone in Central Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Harris, A.R. 1971. Effect of Deciduous, Conifer, and Abandoned Field Cover on the Hydrologic Properties and Frost Morphology of Frozen Soil. Ph.D. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Hensel, J. 1984. HRSA: High Rate Soil Absorption Task Force Final Report. Minnesota Pollution Control Agency, St. Paul, MN.
- Jensen, J.E. 1981. The Relationship of Artificial Drainage to Soils in Blue Earth County, Minnesota. Special Report No.2. Water Resources Research Center, St. Paul, MN.
- McCormick, G.W. 1978. Till Genesis and Soils in East Central Minnesota. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Olson, R.J., Johnson, D.W., and Shriner, D.S. 1982. Regional Assessment of Potential Sensitivity of Soils in the Eastern United States to Acid Precipitation. Environmental Sciences Div, Oak Ridge National Lab. Oak Ridge TN.
- Pierce, F.J. 1984. Assessing Soil Productivity in Relation to Land Use and Conservation. Ph.D. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Palta, J.P. 1971. Effect of an Asphalt Barrier on Water Redistribution after Infiltration in Sandy Soil. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Pflug, A.D., and Burton, M.B. 1987. Pentachlorophenol and Creosote Contaminated Soil and Groundwater Remediation.
- Relationship of Septic Tank Absorption Systems to Soils. 1976. Metropolitan Council of the Twin Cities, St. Paul, MN.
- Schuh, W.M. 1981. Evaluation of Unsaturated Hydraulic Conductivity in Relation to Soil Properties and Methods of Estimation. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.

- Skarie, R.L. 1978. Soil Salinity in Clay County, Minnesota and the Application of Color Infrared Imagery to the Delineation of Affected Areas. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Verry, E.S. 1969. Water Storage and Related Physical Characteristics of Four Mineral Soils in Northern Central Minnesota. USDA Forest Service, North Central Forest Experiment Station, St. Paul, MN. Research Note NC-78. 4 pages.
- Wall, D.B. 1987. The Influence of Snow Depth on Soil Frost Penetration Depth M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Willson, D.H., and Erdman, V.R. 1981. The Economy and Irrigating Medium and Fine Textured Soils in Minnesota. U.S. Department of Agriculture, Minneapolis, MN.

### **SURFACE WATER**

- Almendinger, J.E. 1988. Lake and Groundwater Paleohydrology: A Groundwater Model to Explain Past Lake Levels in West-Central Minnesota. Ph.D. Thesis, Ecology Department, University of Minnesota, St. Paul, MN.
- Anderson, K.L. 1987. Twin Cities Surface Water Simulation Modeling Demonstration. Water Resources Research Center, St. Paul, MN. Special Report 12.
- Anderson, K.L. 1987. Bear Creek Surface Water Simulation Modeling Demonstration. Water Resources Research Center, St. Paul, MN. Special Report 13.
- Baker, M.B. 1971. Spring Runoff as Affected by Soil Permeability on Two Forested Watersheds. Ph.D. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Berglund, E.R. 1984. Infiltration Analysis in a Minnesota Taconite Tailing Basin. P. 525-529. In Proceedings of the National Symposium of Surface Mining Hydrology, Sedimentology and Reclamation (University of Kentucky, Lexington), November 28-December 2. Office of Engineering Services, College of Engineering, University of Kentucky, Lexington, KY.
- Born, S.M., Smith, S.A., and Stephenson, D.A. 1974. The Hydrogeologic Regime of Glacial-Terrain Lakes, With Management and Planning Applications. Upper Great Lakes Regional Commission.
- Brown, R.G. 1985. Effects of Wetlands on Quality of Runoff Entering Lakes in the Twin Cities Metropolitan Area, Minnesota. Water Resources Investigations Report 85-4170.
- Brown, R.G. 1988. Effects of Precipitation and Land Use on Storm Runoff. Water Resources Bulletin WARBAQ, 24(2):421-426, April.

- Busacker, G.P. 1987. Water Quality of Hornbeam Lake, Dakota County, Minnesota: Before, During and After Construction of Interstate Highway I-494. Minnesota Department of Transportation, St. Paul, MN.
- Curtis, W.R. 1964. Response of Springflow to Same Climatic Variables in the Driftless Area of Southwestern Wisconsin. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Department of Agriculture. 1980. Southeast Minnesota Tributaries Basin Report. Department of Agriculture, University of Minnesota, St. Paul, MN.
- DNR, Division of Waters. 1968. An Inventory of Minnesota Lakes. Bulletin No. 25. Minnesota Department of Natural Resources, Division of Waters, Soils, and Minerals, St. Paul, MN.
- Dovenmuehle, B.L. 1976. The Use of Aerial Photography to Assess Lake Water Quality Status and Trends in Minnesota. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Driver, N.E., Mustard, M.H., Rhinesmith, R.B. and Middelburg, R.F. 1985. U.S. Geological Survey Urban Stormwater Data Base for 22 Metropolitan Areas Throughout the United States. USGS Open File Report OFR 85-337.
- Dunsmore, L, and Quade, H.W. 1979. Public Drainage Atlas: Lesueur County, Minnesota. Limnological Contribution No.7, May, 1979.
- Dunsmore, L, and Quade, H.W. 1979. Public Drainage Atlas: Brown County, Minnesota. Limnological Contribution No. 10, June, 1979.
- Eger, A.P., and Lapakko, K.A. 1980b. Transport of Chemical Constituents Present in Mining Runoff Through a Creek System. Minnesota Department of Natural Resources, Division of Minerals, St. Paul, MN. 47 pages plus appendices.
- Erickson, D.R. 1981. A Study of Littoral Groundwater Seepage at Williams Lake, Minnesota Using Seepage Meters and Wells. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Eychaner, J.H. 1974. Interflow: One Facet of Subsurface Flow. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Ferguson, R.R. 1981. An Investigation of Lake Level Fluctuations for the Minneapolis Chain of Lakes. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.



- Golany, P. 1970. Effects of Watershed Characteristics on the time-parameters of Runoff Hydrographs. Ph.D. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Groschen, G. 1987. Geochemistry of Williams Lake, Hubbard County, Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Guide for Water Quality Investigations of Metropolitan Area Lakes. 1982. Metropolitan Council, St. Paul, MN.
- Haak, A, and Oberts, G.L. 1983. Surface Water Management: Management Practices Evaluation. Metropolitan Council, St. Paul, MN.
- Have, M.R. 1980. Water Quality of Rogers Lake, Dakota County, Minnesota. USGS Water Resources Investigations, WRI 80-5 January.
- Hawkinson, C.F., and Verry, E.S. 1975. Specific Conductance Identifies Perched and Ground Water Lakes. USDA Forest Service Research Paper NC-120. North Central Forest Experiment Station, St. Paul, MN.
- Higgins, D. 1979. Suspended Sediment Transport in Three Northeastern Minnesota Streams. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Hirschi, M. 1980. Hydraulic Conductivity and Degree of Saturation During Infiltration. M.S. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Idike, F.I. 1977. Experimental Evaluation of Infiltration Equations. M.S. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Jouseau, M. 1983. Surface Water Management: Financing Local Storm Water Management Programs. Metropolitan Council, St. Paul, MN.
- Lapakko, K.A, and Eger, A.P. 1981 b. Transport of Trace Metals and Other Chemical Components in Mining Runoff Through a Shallow Bay. Minnesota Department of Natural Resources, Division of Minerals, St. Paul, MN. 38 pages plus appendices.
- Leek, R.M., and Jouseau, M. 1983. Surface Water Management: Watershed Planning Guide. Metropolitan Council, St. Paul, MN.
- Leete, J.H. 1977. Assessment of Water Quality Status and Trends in Minnesota by Remote Sensing Techniques. Plan B M.F. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.

- Leete, J.H. 1986. Sediment and Phosphorus Load to Streamflow from Natural and Disturbed Watersheds in Northeastern Minnesota. Ph.D. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Lundquist, J.B. 1975. A Primer on Limnology. Public Report No.1. Water Resources Research Center, St. Paul, MN.
- Mein, R.G. 1971. Modeling of the Infiltration Component of the Watershed Rainfall-Runoff Process. Ph.D. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Metropolitan Council. 1978. Water Pollution from Urban Runoff. Metropolitan Council, St. Paul, MN.
- Miller, J.E., and Frink, D.L. 1984. Changes in Flood Response of the Red River of the North Basin, North Dakota-Minnesota. USGS Water-Supply Paper 2243.
- Moore, J.D., and Larson, C.I. 1979. Effects of Drainage Projects on Surface Runoff from Small Depressional Watersheds in the North Central Region. Project Technical Report No. 99. Water Resources Research Center, St. Paul, MN.
- MPCA. 1982. Minnesota River Watershed Water Quality: An Assessment of Non-Point Source Pollution. Minnesota Pollution Control Agency, St. Paul, MN.
- MPCA. 1984. Garvin Brook Watershed Water Quality - General Program for the Rural Clean Water Program. Minnesota Pollution Control Agency, St. Paul, MN.
- MPCA. 1988. Water Quality Sampling Program: Minnesota Lakes and Streams. A Compilation of Analytical Data, October, 1984 - September, 1987; Vol. 13. Minnesota Pollution Control Agency, St. Paul, MN.
- Nelson, L., and Brown, R.G. 1983. Streamflow and Water Quality Data for Lake and Wetland Inflows and Outflows in the Twin City Metropolitan Area, Minnesota, 1981-82. U.S. Geologic Survey, St. Paul, MN.
- Oberts, G.L. 1983. Surface Water Management: Evaluation of Nationwide Urban Runoff. Metropolitan Council, St. Paul, MN.
- Oberts, G.L. 1984. Surface Water Management: Precipitation Frequency Analysis. Metropolitan Council, St. Paul, MN.
- Oberts, G.L. 1983. Surface Water Management: Simplified Modeling for Watersheds. Metropolitan Council, St. Paul, MN.
- Olson, P.L. 1987. Statewide Instream Flow Assessment Technical Report, 1985-1987. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.

- Payne, G.A., Ayers, M.A., and Brown, R.G. 1982. Quality of Runoff from Small Watersheds in the Twin Cities Metropolitan Area - Hydrologic Data for 1980. Metropolitan Council, St. Paul, MN.
- Payne, G.A., Ayers, M.A., and Brown, R.G. 1982. Quality of Runoff From Small Watersheds in the Twin Cities Metropolitan Area, Minnesota: Hydrologic Data for 1980. USGS Open File Report OFR 82-504.
- Reinke, J. 1968. The Hydrology of a Typical Ice Block Glacial Lake. M.S. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Rosenberry, D.O. 1985. Factors Contributing to the Formation of Transient Water Table Mounds on the Outflow Side of a Seepage Lake, Williams Lake, Central Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Rosenberry, D.O. 1985. Factors Contributing to the Formation of Transient Water Table Mounds on the Outflow Side of a Seepage Lake, Williams Lake, Central Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Runke, H.M., and Shapiro, J. 1983. Current Status of Water Quality in Long, Johanna and Josephine lakes: A Summary Report on the Detailed Evaluation of the Long Lake Chain of Lakes Improvement Project. Environmental Research Group Inc. St. Paul, MN.
- Schlosser, I.J., and Ebel, K.K. 1989. Effects of Flow Regime and Cyprinid Predation on a Headwater Stream. Ecological Monographs ECMOAG, 69(6):41-57, March.
- Schneider, S.R., McGinnis, D.F., and Pritchard, J.A. 1979. Delineation of Drainage and Physiographic Features in North and South Dakota Using NOAA-5 Infrared Data. In: Satellite Hydrology. Proceedings of the Fifth Annual William T. Pecora Memorial Symposium on Remote Sensing, Sioux Falls, South Dakota, June 10-15, 1979.
- Scobie, P. 1986. Tracking Disappearing Water Underground. Minnesota Volunteer 49(284):36-42, January/February.
- Seaberg, J.K. 1985. Geohydrologic Interpretation of Glacial Geology near Williams Lake, Central Minnesota, with Emphasis on lake-Groundwater Interaction. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Siegel, D.I. 1981. The Effect of Snowmelt on the Water Quality of Filson Creek and Omaday Lake, Northeastern Minnesota. Water Resources Research, 17(1):238-242, February.
- Siegel, D.I., and Ptannkuch, H.O. 1984. Silicate Dissolution Influence on Filson Creek Chemistry, Northeastern Minnesota. Geological Society of America Bulletin, 95(12), December.

- Southern MN Rivers Basin Commission. 1977. Minnesota River Basin Report. Southern Minnesota Rivers Basin Commission, St. Paul, MN.
- Surface Water Management: An Overview of Runoff Quantity and Quality Models. 1984. Metropolitan Council of the Twin Cities, St. Paul, MN.
- The Aging Lakes. 1971. Minnesota Extension Service. New Series, CD-FM-4753.
- Understanding Watershed and Lake Management: Proceedings of a Conference Sponsored by the Metropolitan Council on March 23, 1984 at the Marriott Inn, Bloomington, MN. 1984. Metropolitan Council, St. Paul, MN.
- Verry, E.S. 1985. Selection of Water Impoundment Sites in the Lake States. In: Proceedings, Water Impoundments for Wildlife: A Habitat Management Workshop; August 31-September 2, 1982; Bemidji, MN. USDA Forest Service, North Central Forest Experiment Station, St. Paul, MN: General Technical Report NC-100: 31-38.
- Verry, E.S. 1985. Water Quality and Nutrient Dynamics in Shallow Water Impoundments. In: Proceedings, Water Impoundments for Wildlife: A Habitat Management Workshop; August 31-September 2, 1982; Bemidji, MN. USDA Forest Service, North Central Forest Experiment Station, St. Paul, MN: General Technical Report NC-100: 51-60.
- Verry, E.S. 1983. Water Quality Dynamics in Shallow Water Impoundments of North Central Minnesota. Fort Collins CO: Colorado State University, Ph.D. dissertation. 150 pages.
- Verry, E.S. 1981. Acidity of Lakes and Impoundments in North Central Minnesota. USDA Forest Service, North Central Forest Experiment Station, St. Paul, MN. Research Note NC-273. 4 pages.
- Verry, E.S. 1972. Effects of an Aspen Clearcutting on Water Yield and Quality in Northern Minnesota. In: National Symposium on Watersheds in Transition; June 19-22, 1972; Fort Collins, CO. American Water Resources Association Proceedings Series No. 14:276-284.
- Verry, E.S. 1987. Effect of Aspen Harvest and Growth on Water Yield in Minnesota. In: Forest Hydrology and Watershed Management. IAHS Publication No. 167. International Association of Hydrological Sciences Press, Institute of Hydrology, Wallingford, Oxfordshire, UK.
- Winter, T.C. 1976. The Hydrologic Setting of Lakes in Minnesota and Adjacent States With Emphasis on the Interaction of Lakes and Groundwater. Ph.D. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Winter, T.C. 1981. Effects of Water-Table Configuration on Seepage Through Lakebeds. *Limnology and Oceanography*, 26(5):925-934, September.

**SURFACE WATER-GROUND WATER INTERACTIONS**

- Barr, K.D. 1978. Estimation of Groundwater and Lake Chemistry Parameters and Their Inter-Relationships in Glaciated Terrains. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Barwell, V.K., and Lee, D.R. 1981. Determination of Horizontal-to-Vertical Hydraulic Conductivity Ratios from Seepage Measurements on Lake Beds. *Water Resources Research*, 17(3):565-570, June.
- Brugham, R.B. 1981. Chemistry of Lake Water and Groundwater in Areas of Contrasting Glacial Drifts in Eastern Minnesota. *Hydrobiologia* 80(1).
- Hickok, E.A., and Associates. 1978. Effects of Wastewater Stabilization Pond Seepage on Groundwater Quality. Minnesota Pollution Control Agency, St. Paul, MN.
- McBride, M.S. 1972. Hydrology of Lake Sallie, Northwestern Minnesota, with Special Attention to Ground Water-Surface Water Interactions. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Mohring, E.H. 1986. The Effects of Lake Level Lowering on Lake-Groundwater Interaction at School Section Lake, Stearns County, Minnesota. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Scobie, P. 1986. Tracking Disappearing Water Underground. *Minnesota Volunteer* 49(284):36-42, January/February.
- Seaberg, J.K. 1985. Geohydrologic Interpretation of Glacial Geology near Williams Lake, Central Minnesota, with Emphasis on Lake-Groundwater Interaction. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Winter, T.C. 1976. The Hydrologic Setting of Lakes in Minnesota and Adjacent States With Emphasis on the Interaction of Lakes and Groundwater. Ph.D. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Winter, T.C. 1981. Effects of Water-Table Configuration on Seepage Through Lakebeds. *Limnology and Oceanography*, 26(5):925-934, September.

**WASTE (Hazardous, municipal, etc.)**

- Administration of Individual Sewage Treatment Systems in the Rural Areas. 1980. Metropolitan Council, St. Paul, MN.

- Baedecker, M.J., Cozzarelli, I.M., and Hopple, J.A. 1987. Composition and Fate of Hydrocarbons in a Shallow Glacial-Outwash Aquifer. In: USGS Program on Toxic Waste Ground Water Contamination: Proceedings of the Third Technical Meeting, Pensacola, FL. March 23-27, 1987.
- Barr Engineering. 1973. Hazardous Waste Generation in the Twin Cities Metro Area. Minnesota Pollution Control Agency, St. Paul, MN.
- Beehler, G.R, and Moore, J.A. 1980. A Study of the Characteristics and Pollution Potential of Land Spread Domestic Septage on Groundwater Quality. Water Resources Research Center Report, January 1980. University of Minnesota, St. Paul.
- Bennett, P.C. 1987. Solid Phase Studies of Aquifer Sediments, Bemidji, Minnesota, Research Site. In: USGS Program on Toxic Waste Ground Water Contamination: Proceedings of the Third Technical Meeting, Pensacola. FL. March 23-27, 1987.
- Berner, H. 1977. Municipal Solid Waste Disposal: a Problem in Environmental Geology. Plan B M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN. 84 p.
- Canton, C. 1985. Adoption of the NIRM Model for Land Application of Wastewater. Ph.D. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Chang, F.H., Noben, N.N., and Bullert, J.A. 1987. Microbial Degradation of Petroleum in Subsurface Environments, Bemidji, Minnesota, Research Site. In: USGS Program on Toxic Waste Ground Water Contamination: Proceedings of the Third Technical Meeting, Pensacola, FL. March 23-27, 1987.
- Clanton, C.J., Anderson, J.L., Machmeier, R.E., and Hansel, M.J. 1984. Land Treatment of Septage. Minnesota Water Resources Research Center Completion Report, St. Paul, December, 1984, A-045-Minn. University of Minnesota, St. Paul.
- Clark, T.P., and Sabel, G.V. 1980. Requirements of State Regulatory Agencies for Monitoring Ground-Water Quality at Waste Disposal Sites. *Ground Water*, 18(2):168-174, March-April.
- Czarnecki, J.B. 1988. Characterization of the Subregional Ground-Water Flow System of a Potential Site for a High-Level Nuclear Waste Repository. Ph.D. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- DNR. 1984. A Report on Three Pesticide Burial Sites on Department of Natural Resources Lands. Divisions of Forestry, Minerals, and Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Duncomb, D.R, Larson, W.E., Clapp, C.E., Dowdy, R.H., and Linden, D.R. 1982. Effect of Liquid Wastewater Sludge Application on Crop Yield and Water Quality. *Journal of the Water Pollution Control Federation*, 54(8):1185-1193, August.

- Edens, M.H. 1979. Hydrogeologic Study of a Landfill Site Consisting of Highly Compressed Solid Waste. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Eganhouse, R.P., Dorsey, T.F., and Phinney, C.S. 1987. Transport and Fate of Monoaromatic Hydrocarbons in the Subsurface, Bemidji, Minnesota, Research Site. In: USGS Program on Toxic Waste Ground Water Contamination: Proceedings of the Third Technical Meeting, Pensacola, FL. March 23-27, 1987.
- Engel, R.E. 1983. Use of Cooling Tower Water from Electrical Power Plants for Irrigation in Minnesota. Ph.D. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Environmental Impacts of Sanitary Landfills in the Twin Cities Metropolitan Area. 1984. Metropolitan Council, St. Paul, MN.
- EQB. 1980. Environmental Issues Relating to Animal Feedlots. Environmental Quality Board, St. Paul, MN.
- Frost, J.L., Thron, R.W., Knuth, D.J., and Hickok, E.A. 1982. Choosing Sewage Ash Disposal Sites in the Twin Cities Metropolitan Area. In: Proceedings of the Fifth Annual Madison Conference of Applied Research and Practice on Municipal and Industrial Waste. September 22-24, 1982. Wisconsin Univ. Dept. of Engineering and Applied Science, Madison, WI.
- Hazardous Waste is Everybody's Problem. 1980. Minnesota Extension Service. New Series, AG-SS-4300.
- Hickok and Associates. 1983. Hydrogeologic Assessment of a Clay Landfill. Minnesota Pollution Control Agency, St. Paul, MN.
- Hoff, R. 1982. Striking Back Against Toxic Waste. Minnesota Volunteer, 45(265):11-17, November/December.
- Hult, M.F. 1987. Movement and Fate of Crude Oil Contaminants in the Subsurface Environment at Bemidji, Minnesota. In: USGS Program on Toxic Waste Ground Water Contamination: Proceedings of the Third Technical Meeting, Pensacola, FL. March 23-27, 1987.
- Hydrogeologic Evaluation at Proposed Sludge/Ash Landfill Sites. 1982. Metropolitan Council of the Twin Cities, St. Paul, MN.
- Johnson, B.S. 1981. Re-Use of Agricultural Drainage Water for On-Site Soil Water Recharge and Irrigation. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.

- Katsoulis, M.P. 1984. Hazardous Waste Disposal in Crystalline Rock. In: Seventh Annual Madison Waste Conference on Municipal and Industrial Waste, September 11-12.
- Kreft, D.R. 1987. Soil Physical Properties as Influenced by the Addition of Municipal Compost. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Labno, B.A. 1973. The Hydrogeological Implications of Chemical Waste Disposal in a Glaciated Terrain, Rosemount, Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Lapham, S.M. 1986. Advanced Stages of a Hydrocarbon Recovery/Closed Loop Hydrocarbon Flushing System Successful in a Highly Permeable Glacial Outwash in Apple Valley, Minnesota. In: Proceedings of the NWWA/ API Conference on Petroleum Hydrocarbons and Organic Chemicals in Ground Water: Prevention, Detection and Restoration. Houston, Texas. November 12-14, 1986. National Water Well Association, Dublin, OH.
- Leachate Generation Potential from Landfills in the Twin City Metro Area. 1978. Metropolitan Council, St. Paul, MN.
- Machmeier, R.E. 1988. Get to Know Your Septic Tank. Minnesota Extension Service. New Series, AG-FO-0639.
- Magner, J.A., Book, P.R., and Alexander, E. C. 1986. Waste Treatment/Disposal Site Evaluation Process for Areas Underlain by Carbonate Aquifers. Ground Water Monitoring Review, 6(2):117-121. Spring.
- MDH. 1987. Water Supply Monitoring Near Metropolitan Solid Waste Disposal Facilities: Status Report to the Legislative Commission on Waste Management. Minnesota Department of Health, Section of Water Supply and Engineering, Minneapolis, MN.
- Miller, R. T. 1987. Effects of Local Hydraulic Discontinuities on the Transport of Crude-Oil Residuals in Ground Water, Bemidji, Minnesota, Research Site. In: USGS Program on Toxic Waste Ground Water Contamination: Proceedings of the Third Technical Meeting, Pensacola, FL. March 23-27, 1987.
- MPCA. 1978. Residual Wastes. Minnesota Pollution Control Agency, St. Paul, MN. Minnesota Pollution Control Agency, St. Paul, MN.
- MPCA. 1979. Water Quality Monitoring at Solid Waste Disposal Sites in Minnesota. Minnesota Pollution Control Agency, St. Paul, MN.
- Municipal Wastewater Treatment by Land Application. 1978. Metropolitan Council of the Twin Cities, St. Paul, MN.



- Nichols, D.S., Prettyman, D., and Gross, M. 1983. Movement of Bacteria and Nutrients from Pit Latrines in the Boundary Waters Canoe Area Wilderness. *Water, Air, and Soil Pollution*, 20(2):171-180, August.
- Nichols, D.S., and Boelter, D.H. 1982. Treatment of Secondary Sewage Effluent with a Peat-Sand Filter Bed. *Journal of Environmental Quality*, 11(1):86-92, January-March.
- Pfannkuch, H.O. 1987. Bulk and Distributed Parameter Mass-Transfer Models for Determination of the Source Strength at an Oil Spill/Ground-Water Interface. In: USGS Program on Toxic Waste Ground Water Contamination: Proceedings of the Third Technical Meeting, Pensacola, FL. March 23-27, 1987.
- Relationship of Septic Tank Absorption Systems to Soils. 1976. Metropolitan Council of the Twin Cities, St. Paul, MN.
- Saint, P.K. 1973. Effects of Landfill Disposal of Chemical Wastes on Groundwater Quality. Ph.D. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Shilepsky, A.P., and Pulford, R.B. 1983. Minnesota's Hazardous Waste Siting Criteria. *Journal of Water Resources Planning and Management*, 109(2):165-173, April.
- Spreading Sewage Sludge on Farm Land, Some Questions and Answers. 1984. Metropolitan Council of the Twin Cities, St. Paul, MN.
- Thompson, D.B. 1985. Ground Water Analysis Near Open Dumps. LCMR Report. Minnesota Pollution Control Agency, St. Paul, MN.
- Town and Country Sewage Treatment. 1980. Minnesota Extension Service. New Series, Extension Bulletin 304.
- Wangensteen, M.W. 1988. The Hydrogeological Impact of Heavy Metal-Laden Ash Landfilling at the WLSSD Landfill, Rice Lake, Minnesota. M.S. Thesis, Geology Department, University of Minnesota, Duluth, MN.

### **WATER RESOURCE MANAGEMENT AND POLICY**

- 208 Areawide Plan/Development Guide on Water Quality Management: Draft. 1978. Metropolitan Council, St. Paul, MN.
- Bay, R.R. 1970. Water Resource Research in Minnesota by the North Central Forest Experiment Station, USDA Forest Service. In: Proc. of Conf. on Ongoing Water Resources Research in Minnesota, March 1970. Bulletin 21. p. 50-56.

- Born, S.M., Smith, S.A., and Stephenson, D.A 1974. The Hydrogeologic Regime of Glacial-Terrain Lakes, With Management and Planning Applications. Upper Great Lakes Regional Commission.
- Bowman, J.A, and Clark, G.R. 1989. Transitions in Midwestern Ground Water Law. Water Resources Bulletin WARBAQ, 25(2):413-420.
- Cook, K.V. 1982. Water Resources as a Possible Growth-Limiting Factor in a World Futures Model. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Environmental Protection Agency. 1983. Water Management in Rural Lakes Areas EPA Region 5. Final Generic EIS. EPA, Washington, D.C.
- Five-Year Water Resources Research and Development Plan: Goals and Objectives, 1982-1986. Univ. of Minnesota, Water Resources Research Center, St. Paul Campus.
- Gunard, K.T., Hess, J.H., Zirbel, J.L. and Cornelius, C.E. 1983. Water Resources Data, Minnesota Water Year 1982, Volume 2: Upper Mississippi and Missouri River Basins. USGS Water Data Report MN-82-2.
- Haak, A, and Oberts, G.L. 1983. Surface Water Management: Management Practices Evaluation. Metropolitan Council, St. Paul, MN.
- Hansen, Z.J. 1983. Water Conservation in the Twin Cities Metropolitan Area. Metropolitan Council, St. Paul, MN.
- Interim Output Report 108 Areawide Water Quality Management Program Twin City Metro Area. 1977. Metropolitan Council of the Twin Cities, St. Paul, MN.
- Jouseau, M. 1983. Surface Water Management: Financing Local Storm Water Management Programs. Metropolitan Council, St. Paul, MN.
- Leek, R.M., and Jouseau, M. 1983. Surface Water Management: Watershed Planning Guide. Metropolitan Council, St. Paul, MN.
- Lundberg, M.D., and Wells, J.R. 1987. Handbook for Comprehensive Local Water Planning. Minnesota State Planning Agency, St. Paul, MN.
- MDH. 1987. A Guide to Local Health Professionals Involved in County Comprehensive Water Management Plans. Minnesota Department of Health, Minneapolis, MN.
- Miles, P.D. 1983. Assessing the Economic Implications of Managing Nonpoint Forestry Sources of Water Pollutants: Case Studies in Five Midwest States. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.

- Minnesota Peat Program: Management Goals, Objectives and Policy Alternatives. 1979.  
Minnesota Department of Natural Resources.
- Natural Resource Handbook - Land Use and Natural Resource Inventory and Trends.  
Metropolitan Council of the Twin Cities, St. Paul, MN.
- Oberts, G.L. 1983. Surface Water Management: Evaluation of Nationwide Urban Runoff.  
Metropolitan Council, St. Paul, MN.
- Oberts, G.L. 1984. Surface Water Management: Precipitation Frequency Analysis. Metropolitan  
Council, St. Paul, MN.
- Oberts, G.L. 1983. Surface Water Management: Simplified Modeling for Watersheds.  
Metropolitan Council, St. Paul, MN.
- Oberts, G.L. 1982. Water Resources Management: Non-Point Source Pollution Technical  
Report. Metropolitan Council, St. Paul, MN.
- Oberts, G.L. 1983. Water Use in the Twin Cities Metropolitan Area. Metropolitan Council, St.  
Paul, MN.
- Part Three: Water Resources Management. Water Availability and Use: Summary. 1985.  
Metropolitan Council, St. Paul, MN.
- Pfankuch, H.O. 1975. Study of Criteria and Models Establishing Optimum Level of  
Hydrogeologic Information for Groundwater Basin Management. Project Technical  
Report No. 81. Water Resources Research Center, St. Paul, MN.
- Proposed Amendments to Part I - Water Resources Management Development. 1984.  
Metropolitan Council of the Twin Cities, St. Paul, MN.
- Regional Water Resource Management - Council Role and Program. 1977. Metropolitan  
Council of the Twin Cities, St. Paul, MN.
- Rickson, R.E., Tichenor, P.J., Donohue, G.A., and Olien, C.E. 1979. Role of the Scientist  
Technician in Water Policy Decisions at the Community Level: A Study in Perspective  
Communications. Project Technical Report No. 79. Water Resources Research Center,  
St. Paul, MN.
- Steeler, J.H., and Morandi, L.B. 1983. Groundwater Management and Protection: A Midwestern  
States' Policy Agenda. National Conference of State Legislatures, Denver, CO.
- Tayaa, M. 1977. Watershed Management Practices for Rehabilitation of Critical Areas. M.S.  
Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.

Understanding Watershed and Lake Management: Proceedings of a Conference Sponsored by the Metropolitan Council on March 23, 1984 at the Marriott Inn, Bloomington, MN. 1984. Metropolitan Council, St. Paul, MN.

USACE. 1977. Water Resources Development in Minnesota. North Central Division, U.S. Army Corps of Engineers.

United States Water Resources Council. 1968. The Nation's Water Resources, The First National Assessment. Washington, D.C.

Walton, W.C. 1975. Minnesota's Water Resources: A Primer. Public Report No.2. Water Resources Research Center, St. Paul, MN.

Water Management in Transition, 1985: A Special Report - 1985. Freshwater Society, Navarre, MN.

WRRC 1975. Proceedings: 8th Annual Water Resources Seminar Groundwater Resources and Development. Public Report No. 87. Water Resources Research Center, St. Paul, MN.

WRRC 1971. Publications Related to Water Resources Research Center Projects, 1965-1971. Abstract-Index. Project Technical Report No. 32. Water Resources Research Center, St. Paul, MN.

Water Quality Management Development Guide/Policy Plan. 1981. Metropolitan Council, St. Paul, MN.

Water Quality Management Plan for the Twin City Metro Area. 1975. Metropolitan Council of the Twin Cities, St. Paul, MN.

Water Resources Outlook for Minneapolis/St. Paul Metro Area. 1973. Metropolitan Council of the Twin Cities, St. Paul, MN.

Water Values and Markets: Emerging Management Tools: A Special Report by the Freshwater Society. 1986. Freshwater Society, Navarre, MN.

Watershed Districts in Minnesota. (Pamphlet) 1986. Board of Soil and Water Resources, St. Paul, MN.

Watershed Management - A Community Commitment. 1989. Board of Soil and Water Resources, St. Paul, MN.

## **WATER QUALITY**

208 Areawide Plan/Development Guide on Water Quality Management: Draft. 1978. Metropolitan Council, St. Paul, MN.

- Amundson, D., Lindholm, C., Goyla, S.M., and Robinson, R.A. 1988. Microbial Pollution of Well Water in Southeastern Minnesota. *Journal of Environmental Science and Health (A) JESEDU*, 23(5):453-468.
- Assessment of Water Pollution From Mining Activities. 1977. Metropolitan Council of the Twin Cities, St. Paul, MN.
- Ayers, M.A., Brown, R.G., and Oberts, G.L. 1985. Runoff and Chemical Loading in Small Watersheds in the Twin Cities Metropolitan Area, Minnesota. USGS Water Resources Investigations Report WRI 85-4122.
- Ayers, M.A., Payne, G.A., and Oberts, G.L. 1980. Quality of Runoff from Small Watersheds in the Twin Cities Metropolitan Area, Minnesota: A Project Plan. USGS Open File Report OFR 80-592.
- Bergsrund, F., and Linn, J. 1989.(Rev.). Water Quality for Livestock and Poultry. Minnesota Extension Service. New Series, AG-FO-1864.
- Blomquist, P.K. 1984. Abandoned Water Wells in Southeastern Minnesota. In: Innovative Means of Dealing with Potential Sources of Ground Water Contamination. Proceedings of the Seventh National Ground Water Quality Symposium, September 26-28, 1984, Las Vegas, Nevada. National Water Well Association, Worthington, Ohio.
- Bloomgren, P., and Bruemmer, L. 1985. Groundwater - Understanding Our Hidden Resource. Board of Soil and Water Resources, St. Paul, MN.
- Boisdet, A. 1985. Interseasonal Heat Storage in an Aquifer at Medium Depth (Stockage de Chaleur Intersaisonnier en Aquifere a Moyenne Profondeur). *La Houille Blanche*, No. 3/4:307-312, 1985. Bureau de Recherches Geologiques et Minieres, Orleans (France).
- Bruemmer, L.B., and Thomas, P.C. 1984. Ground Water in Minnesota: A User's Guide to Understanding Minnesota's Ground Water Resource. Minnesota Pollution Control Agency, St. Paul, MN.
- Bruemmer, L.B. 1982. Dealing with Groundwater Protection in Southeastern Minnesota. Minnesota Pollution Control Agency, St. Paul, MN.
- Burton, J.S. 1985. State Water Resources Research Institute Program: Ground Water Research. In: Groundwater Contamination and Reclamation, Proceedings of a Symposium held in Tucson, Arizona, August 14-15. 1985. American Water Resources Association, Bethesda, Maryland.
- Clean Water - Everybody's Concern. 1988. Minnesota Extension Service. New Series,
- DiNovo, F., and Jaffe, M. 1984. Local Groundwater Protection - Midwest Region. American Planning Assoc.

- Ehrlich, G.G., Goerlitz, D.F., Godsy, E.M., and Hult, M.F. 1982. Degradation of Phenolic Contaminants in Ground Water by Anaerobic Bacteria: St. Louis Park, Minnesota. *Ground Water*, 20(6):703-710, November-December.
- EQB. 1980. Environmental Issues Relating to Animal Feedlots. Environmental Quality Board, St. Paul, MN.
- EQB. 1986. Ground Water in Minnesota: A User's Guide to Understanding Minnesota's Ground Water Resource. Pollution Control Agency, St. Paul, MN.
- EQB. 1988. Minnesota Environmental Quality - Trends in Resource Conditions and Current Issues. Environmental Quality Board, St. Paul, MN.
- EQB. 1988. Protecting Minnesota Waters - Priorities for 89/91 Biennium. Environmental Quality Board, St. Paul, MN.
- EQB. 1988. Trends in Resource Conditions and Current Issues. Environmental Quality Board, St. Paul, MN. Environmental Quality Board, St. Paul, MN.
- Freshwater Society. 1985. Health Effects of Lead in the Environment: Summary of a conference held May 21, 1985. Freshwater Society, Navarre, Minnesota.
- Garvin Brook Clean Water Project. 1983. Minnesota Extension Service. New Series, AG-SS 1897.
- Goyal, S.A., and Robinson, R.A. 1988. Groundwater Pollution by Human and Animal Enteric Viruses. Project Technical Report No. 127. Water Resources Research Center, St. Paul, MN.
- Groundwater and Environmental Pollution, Self Help Checklist for Farmsteads and Farm Fields. 1987. MN Farm Bureau Federation, St. Paul, MN.
- Groundwater Pollution in Southeast Minnesota's Karst Region. 1984. Minnesota Extension Service. New Series, CD-SS-1959.
- Groundwater Pollution Prevention in Southeast Minnesota's Karst Region. 1982. Minnesota Extension Service. New Series, CD-BU-0547.
- Groundwater: New Perspectives, New Initiatives. 1985. Freshwater Foundation, Navarre, MN.
- Grow, S.R. 1986. Water Quality in the Forestville Creek Karst Basin of Southeastern Minnesota. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Hughes, R. 1979. Freshwater Biological Institute: What Makes Water Tick? *Minnesota Volunteer*, 42(245):10-15, July/August.

- Luoma, J.R. 1984. Can We Really Protect Minnesota's Groundwater? *Minnesota Volunteer* 47(277):52-57, November/December.
- Machmeier, R.E. 1985. How to Run a Percolation Test. Minnesota Extension Service. New Series, AG-FO-0583.
- Maier, W.J. 1987. On Site Biodegradation of Organic Pollutants in Contaminated Soils and Groundwater. Project Technical Report No. 123. Water Resources Research Center, St. Paul, MN.
- Maier, W.J., Gast, D.G., Nelson W.W., and Anderson, C.T. 1976. Carbon Contacts of Surface and Underground Waters in South Central Minnesota. *Journal of Environmental Quality*, 5(2):124-128
- MDH. 1979. Water Distribution System Operation and Maintenance. Minnesota Department of Health, Minneapolis, MN.
- MDH. 1983. Wells and Well Water in Minnesota: A Consumer's Guide to Water Wells. Minnesota Department of Health, Minneapolis, MN.
- MDH. 1985. Volatile Organic Survey of Community Water Supplies. Minnesota Department of Health, Minneapolis, MN.
- MDH. 1986. Nitrate Fact Sheet. Minnesota Department of Health, Minneapolis, MN.
- MDH. 1987. Minnesota Water Well Manual. Minnesota Department of Health, Minneapolis, MN.
- MDH. 1988. Abandoned Wells, Protecting Groundwater is Everybody's Business. Minnesota Department of Health, Minneapolis, MN.
- MDH. 1988. Coliforms in Drinking Water. Minnesota Department of Health, Minneapolis, MN.
- MDH. 1989. Minnesota Water Well Construction Code. Minnesota Department of Health, Minneapolis, MN.
- MDH. 1989. Nitrates in Drinking Water. Minnesota Department of Health, Minneapolis, MN.
- MDH. 1988. Noncommunity Public Water Supply Survey for Volatile Organic Chemicals – LCMR Report. Minnesota Department of Health, Section of Water Supply and Engineering, Minneapolis, MN.
- MDH. 1988. Noncommunity Public Water Supply Survey for Volatile Organic Chemicals (microform): LCMR Report. Minnesota Department of Health, Section of Water Supply and Engineering, Minneapolis, MN.

- MDH. 1989. Volatile Organics in Drinking Water. Minnesota Department of Health, Minneapolis, MN.
- MDH. and MPCA. 1987. Soil Lead Report to the MN State Legislature: A Statement. Minnesota Pollution Control Agency, St. Paul, MN, and Minnesota Department of Health, Minneapolis, MN.
- MEEB. 1987. Groundwater: What's in it for you? Southeast Environmental Education Council. Minnesota Environmental Education Board, St. Paul, MN.
- MEEB. 1988. Groundwater Take a Closer look: Prairie - Woods Environmental Education Council. Minnesota Environmental Education Board, St. Paul, MN.
- Metropolitan Council. 1978. Water Pollution from Urban Runoff. Metropolitan Council, St. Paul, MN.
- Metropolitan Council. 1979. Water Pollution from Non-Point Sources. An Assessment and Recommendations. Metropolitan Council, St. Paul, MN.
- Miles, P.D. 1983. Assessing the Economic Implications of Managing Nonpoint Forestry Sources of Water Pollutants: Case Studies in Five Midwest States. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Miller, R.T. Preliminary Modeling of a Doublet-Well System for Aquifer Thermal-Energy Storage. USGS Water Supply Paper WSP 2270, .
- Minnesota Water Problems. 1977. Minnesota Extension Service. New Series, CD-SS-4446.
- MPCA. 1978. Water Quality and Non-Point Sources. Minnesota Pollution Control Agency, St. Paul, MN.
- MPCA. 1980. Water Quality Management - Minnesota's 208 Plan. Minnesota Pollution Control Agency, St. Paul, MN.
- MPCA. 1981. Animal Feedlots. Minnesota Pollution Control Agency, St. Paul, MN.
- MPCA. 1983. Groundwater Contamination in Minnesota. Minnesota Pollution Control Agency, St. Paul, MN.
- MPCA. 1983. Groundwater Protection Strategy Framework for Minnesota. Minnesota Pollution Control Agency, St. Paul, MN.
- MPCA. 1984. Garvin Brook Watershed Water Quality - General Program for the Rural Clean Water Program. Minnesota Pollution Control Agency, St. Paul, MN.
- MPCA. 1985. An Appraisal of Minnesota's Groundwater Quality. Minnesota Pollution Control Agency, St. Paul, MN.



- MPCA. 1986. Minnesota Water Quality, Water Years 1984-1985. The 1986 Report to the Congress of the U.S. Minnesota Pollution Control Agency, St. Paul, MN.
- MPCA. 1986. Minnesota Water Quality Management Plan. Minnesota Pollution Control Agency, St. Paul, MN.
- MPCA. 1988. Minnesota Ground Water Protection Strategy. Minnesota Pollution Control Agency, St. Paul, MN.
- Nicolson, J.A. 1973. Impact of Water Quality and Quantity on Forest Recreation in the North Central Region - a Minnesota Case Study. Ph.D. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Nitrates and Ground Water: A Public Health Concern. Freshwater Foundation, Navarre, MN.
- Nye, J.D. 1987. Abandoned Wells: How One State Deals with Them. Water Well Journal WWJOA9, 41(9):42-46, September.
- Oberts, G.L. 1986. Pollution Associated with Sand and Salt Applied to Roads in Minnesota. Water Resources Bulletin 22, p. 479-483.
- Olsenius, C. 1979. Is Minnesota's Clean Water Running Out? Minnesota Volunteer 42(245):6-9, July/August.
- Our World of Water (Record). 1978. Minnesota Extension Service. New Series, 4H-FO-0327.
- Our World of Water. 1978. Minnesota Extension Service. New Series, 4H-BU-0328.
- Overdahl, C.J. 1985. Nitrogen Fertilization and Possible Relationship to Groundwater (A Review of Research in the Soil Science Department, University of Minnesota). Minnesota Extension Service. New Series, AG-FO-2734.
- Payne, G.A, Ayers, M.A, and Brown, R.G. 1982. Quality of Runoff from Small Watersheds in the Twin Cities Metropolitan Area - Hydrologic Data for 1980. Metropolitan Council, St. Paul, MN.
- Pereira, W.E., Rostad, C.E., Updegraff, D.M., and Bennett, J.L. 1987. Fate and Movement of Azaarenes and Their Anaerobic Biotransformation Products in an Aquifer Contaminated by Wood-Treatment Chemicals. Environmental Toxicology and Chemistry ETOCDK, 6(3):163-176.
- Pflug, A.D., and Burton, M.B. 1987. Pentachlorophenol and Creosote Contaminated Soil and Groundwater Remediation.
- Planning Research Corporation and MPCA. 1969. Pollution Control through Land Use Management. Planning Research Corporation, Los Angeles, CA.

- Private Farm/Family Well Analysis Program (Wells) Version 1.1. 1987. Minnesota Extension Service. New Series, CO-CS-2834.
- Rees, T.F., and Ranville, J.F. 1987. Characterizing Colloids in Natural Water. In: USGS Program on Toxic Waste Ground Water Contamination: Proceedings of the Third Technical Meeting, Pensacola, FL. March 23-27, 1987.
- Runoff: land Use and Water Quality. 1978. Minnesota Extension Service. New Series, AG-FM-5153.
- Secrets of Limestone Groundwater. 1979. Minnesota Extension Service. New Series, AG-FM-5165.
- Singer, R.D., Osterholm, M.J., and Straub, CP. 1982. Ground Water Quality in Southeastern Minnesota. Project Technical Report No. 109. Water Resources Research Center, St. Paul, MN.
- Straub, C.P., Goppers, V.M., and DuChene, A. 1977. Water Quality Status and Trends in Minnesota-Indices for Water Supply and Ground Water Pollution. Project Technical Report No. 95. Water Resources Research Center, St. Paul, MN.
- Straub, C.P., Goopers, V.M., and Singer, R.D. 1981. Water Quality Study, SW Minnesota Public Water Supplies.
- The Minnesota Project. 1984. Model Ordinance for Groundwater Protection. The Minnesota Project, P.O. Box 4, Preston, MN.
- Thurman, E.M. 1984. Humic Substances in Groundwater. In: Humic Substances in Soil, Sediment, and Water: Geochemistry, Isolation, and Characterization. John Wiley and Sons, New York, NY.
- Van Voast, W.A., and Novitzki, R.P. 1968. Groundwater Flow Related to Streamflow and Water Quality. *Water Resources Research*, 4(4):769-775.
- Waelti, J. 1969. Understanding the Water Quality Controversy in Minnesota. Ag. Extension Service. University of Minnesota, St. Paul, MN.
- Water Quality Management Development Guide/Policy Plan. 1981. Metropolitan Council, St. Paul, MN.
- Water Quality Management Plan for the Twin City Metro Area. 1975. Metropolitan Council of the Twin Cities, St. Paul, MN.
- Weible, R. 1978. The Economics of Managing Non Point Forestry Sources of Water Pollutants. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.

Winter, T.C. 1974. The Natural Quality of Ground Water in Minnesota. Bulletin 26. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.

Wolford, R.A., Higgins, D.A, and Brooks, K.N. 1978. Non-Point Pollution Related to Forest Management Practices - Focus on N.E. Minnesota. Department of Forest Resources, University of Minnesota, St. Paul, MN.

### **Agrichemicals**

Agrichemicals and Groundwater Protection: Resources and Strategies for State and Local Management. Proceedings of a Conference Held October 24-25, 1988, St. Paul, MN. 1989. Freshwater Foundation, Navarre, MN.

Agrichemicals and Groundwater: Perspectives and Solutions. 1988. Journal of Freshwater.

Agricultural Chemicals and Groundwater Protection: Emerging Management and Policy. Proceedings of 1987 Conference. Freshwater Foundation, Navarre, MN.

Agricultural Chemicals and Groundwater Protection: Suggested Directions for Consideration and Action.

Agricultural Chemicals in Ground Water: Proposed Pesticides Strategy. 1987. Environmental Protection Agency, Office of Pesticides and Toxic Substances. Washington D.C.

Agricultural Chemicals in Ground Water: Summary Minutes from the 1987 Pesticide Strategy Workshop, July 23 and 24, 1987. Environmental Protection Agency, Office of Pesticides and Toxic Substances, Washington D.C.

Agricultural Non-Point Pollution. 1987. Minnesota Extension Service. New Series, AG-CS 3016.

Almquist, A.W. 1955. Farm Drainage in the Red River Valley of Minnesota. M.S. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.

EQB. 1988. Protecting Minnesota Waters - Strategy for the Wise Use of Pesticides and Nutrients. Environmental Quality Board, St. Paul, MN.

Gerwig, J.R., and Caldwell, A.C. 1979. Fertilizer Nitrogen Distribution Under Irrigation Between Soil, Plant (Maize) and Aquifer (Contamination, GW Pollution, MN). Journal of Environmental Quality 8:(3).

Gerwing, J.R. 1978. Water Quality of Aquifers as Affected by Movement of Fertilizer Nutrients Under Irrigation. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.

- MN Department of Agriculture. 1988. Summary of Water Well Pesticide Surveys. MN Department of Agriculture (1981). The Use and Management of Water for Irrigated Agriculture in Minnesota.
- Pesticides and Groundwater: A Health Concern for the Midwest. 1986. (conference proceedings). Freshwater Foundation, Navarre, MN.
- Pesticides in the Environment. 1975. Minnesota Extension Service. New Series, AG-SS-4497.
- Protecting our Groundwater - A Grower's Guide. MN Farm Bureau Federation, St. Paul, MN.
- Protecting the Environment from Pesticides. 1975. Minnesota Extension Service. New Series, AG-SS-4535.
- Quade, H.W. 1985. Agricultural Land Improvement and Water Quality in South Central Minnesota. In: Perspectives on Nonpoint Source Pollution, Proceedings of a National Conference, Kansas City, MO. May 19-22, 1985. Environmental Protection Agency.
- Rosen, C.J., Taylor, D.H., and White, D.B. 1986. Preventing Pollution Problems from Lawn and Garden Fertilizers. Minnesota Extension Service. New Series, AG-FS-2923.
- The Center for Agricultural Impacts on Water Quality. 1987. Minnesota Extension Service. New Series, AG-MI-3304.
- The Quality of Water for Irrigation. Technical Bulletin No. 239. Agricultural Experiment Station, University of Minnesota, St. Paul, MN.
- Understanding Nitrogen and Agricultural Chemicals in the Environment. 1987. Minnesota Extension Service. New Series.

### **Monitoring**

- Clark, T.P., and Sabel, G.V. 1980. Requirements of State Regulatory Agencies for Monitoring Ground-Water Quality at Waste Disposal Sites. Ground Water, 18(2):168-174, March-April.
- Kadwell, R.J., and Magner, J.A. 1986. Monitoring a Hydrocarbon Land Treatment Facility in Clayey Glacial Till. In: Proceedings of the NWWA/API Conference on Petroleum Hydrocarbons and Organic Chemicals in Ground Water: Prevention, Detection and Restoration. Houston, Texas. November 12-14, 1986. National Water Well Association, Dublin, OH.
- Kanivetsky, R. 1978. Design of a Groundwater Sampling Network for Minnesota. USDOE GJBX-1 (78).

- Klaseus, T. 1986. Minnesota Pesticide Monitoring Survey Interim Report: Minnesota Department of Health and Minnesota Department of Agriculture. Minneapolis, Minnesota.
- Klaseus, T.G., Buzicky, G.C., and Schneider, E.C. 1988. Pesticides and Groundwater: Surveys of Selected Minnesota Wells. LCMR Report. Minnesota Department of Health, Department of Agriculture, and Legislative Commission on Minnesota Resources.
- Klauseus, T.G., Buzicky, G.C., and Schneider, E.C. 1988. Pesticides and Groundwater: Surveys of Selected Minnesota Wells - LCMR Report. Minnesota Department of Health, Minneapolis, MN, and Minnesota Department of Agriculture, St. Paul, Minnesota.
- Knighton, M.D., and Streblow, D.E. 1981. A More Versatile Soil Water Sampler. Soil Science Society of America Journal, 45(1):158-159.
- MDH. 1985. CHS Well Water Testing Reference List. Minnesota Department of Health, Minneapolis, MN.
- MDH. 1987. Water Supply Monitoring Near Metropolitan Solid Waste Disposal Facilities: Status Report to the Legislative Commission on Waste Management. Minnesota Department of Health, Section of Water Supply and Engineering, Minneapolis, MN.
- MPCA. 1979. Water Quality Monitoring at Solid Waste Disposal Sites in Minnesota. Minnesota Pollution Control Agency, St. Paul, MN.
- Need, E.A., and Costello, M.J. 1984. Hydrogeologic Aspects of Slurry Wall Isolation Systems in Areas of High Downward Gradients. In: The Fourth National Symposium and Exposition on Aquifer Restoration and Ground Water Monitoring, May 23-25, 1984.
- Office of the Legislative Auditor. 1987. Water Quality Monitoring. Office of the Legislative Auditor, State of Minnesota, St. Paul, MN.
- Office of the Legislative Auditor. 1987. Water Quality Monitoring Evaluation Report 87-01.
- Pfannkuch, H.O. 1979. Groundwater, Monitor System Design and Operation for a Pipeline Break in Glacial Drift Deposits, Clearwater County, MN. Conference Paper, AGU Fall Meeting 1979.
- Pfannkuch, H.O., and Labnu, B.D. 1976. Design and Optimization of Groundwater Monitoring Networks for Pollution Studies. Ground Water, 14(6):455-462.
- Rees, M., and Finklea, E. 1976. Water Quality Monitoring: A Needed Safeguard Against Pollution from Cu-Ni Mining in Minnesota. Minnesota Public Interest Research Group.
- Sabel, G.V. 1985. Groundwater Quality Monitoring Program: A Compilation of Analytical Data Collected 1978-1984. Minnesota Pollution Control Agency, St. Paul, MN.

- Sabel, G.V., and Clark, T.P. 1985. Procedures for Ground Water Monitoring, MPCA Guidelines. Minnesota Pollution Control Agency, St. Paul, MN.
- Sabel, G.V. 1987. Role of Ambient Ground Water Monitoring in Standard Setting and Ground Water Protection Strategy Development in Minnesota. In: Proceedings of the First National Outdoor Action Conference on Aquifer Restoration, Ground Water Monitoring and Geophysical Methods. National Water Well Association. Dublin, OH.
- Sabel G.V., and Porcher, E. 1987. Groundwater Quality Monitoring Program: An Appraisal of Minnesota's Ground Water Quality, 1987. Minnesota Pollution Control Agency, St. Paul, MN.
- Schroeter, J.H., Day, D.N., Goudreault, P., and TenBroek, M.J. 1986. Applying Three Dimensional Ground Water Modeling to Monitoring Network Design: A Case History. In: Proceedings of the Sixth National Symposium and Exposition on Aquifer Restoration and Ground Water Monitoring. Columbus, Ohio. May 19-22. National Water Well Association, Dublin, OH.
- Sielaff, B.R. 1987. Ground Water Monitoring Techniques. Minnesota Pollution Control Agency, St. Paul, MN.
- Summary of State Ground Water Quality Monitoring Well Regulations, EPA Region V. 1986. National Water Well Association, Dublin, OH.

### **Petroleum Products**

- Aiken, G.R., Thorn, K.A., and Brooks, M.H. 1987. Nonvolatile Organic Acids in Ground Water Contaminated with Crude Oil. In: USGS Program on Toxic Waste Ground Water Contamination: Proceedings of the Third Technical Meeting, Pensacola, FL. March 23-27, 1987.
- Chang, F.H., Hult, M., and Noben, N.N. 1987. Quantitative Studies of Biodegradation of Petroleum And Some Model Hydrocarbons in Ground Water and Sediment Environments. Ground Water Quality and Agricultural Practices. Lewis Publishers, Chelsea, Michigan.
- Cohen, G.B. 1982. Dispersion and Sorption of Hydrocarbons in Aquifer Materials. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Convery, M.P. 1979. The Behavior and Movement of Petroleum Products in Unconsolidated Surficial Deposits. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.

- Eames, V. 1982. Influence of Water Saturation on Oil Retention Under Field and Laboratory Conditions. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Hult, M.F. 1987. Microbial Oxidation of Petroleum Vapors in the Unsaturated Zone. In: USGS Program on Toxic Waste Ground Water Contamination: Proceedings of the Third Technical Meeting, Pensacola, FL. March 23-27, 1987.
- Hult, M.F. 1987. Movement and Fate of Crude Oil Contaminants in the Subsurface Environment at Bemidji, Minnesota. In: USGS Program on Toxic Waste Ground Water Contamination: Proceedings of the Third Technical Meeting, Pensacola, FL. March 23-27, 1987.
- Lapham, S.M. 1986. Advanced Stages of a Hydrocarbon Recovery/Closed Loop Hydrocarbon Flushing System Successful in a Highly Permeable Glacial Outwash in Apple Valley, Minnesota. In: Proceedings of the NWWA/API Conference on Petroleum Hydrocarbons and Organic Chemicals in Ground Water: Prevention, Detection and Restoration. Houston, Texas. November 12-14, 1986. National Water Well Association, Dublin, OH.
- Miller, R.T. 1987. Effects of Local Hydraulic Discontinuities on the Transport of Crude-Oil Residuals in Ground Water, Bemidji, Minnesota, Research Site. In: USGS Program on Toxic Waste Ground Water Contamination: Proceedings of the Third Technical Meeting, Pensacola, FL. March 23-27, 1987.
- Nourse, S.M. 1986. A Laboratory Investigation of Mass Transfer from Hydrocarbons to Water in Porous Media. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Olhoeft, G.R. 1986. Direct Detection of Hydrocarbon and Organic Chemicals with Ground Penetrating Radar and Complex Resistivity. In: Proceedings of the NWWA/API Conference on Petroleum Hydrocarbons and Organic Chemicals in Ground Water: Prevention, Detection and Restoration. Houston, Texas. November 12-14, 1986. National Water Well Association, Dublin, OH.
- Pfannkuch, H.O. 1983. Hydrocarbon Spills: Their Retention in the Subsurface and Propagation into Shallow Aquifers. Project Technical Report No. Water Resources Research Center, St. Paul, MN.
- Pfannkuch, H.O. 1987. Bulk and Distributed Parameter Mass-Transfer Models for Determination of the Source Strength at an Oil Spill/Ground-Water Interface. In: USGS Program on Toxic Waste Ground Water Contamination: Proceedings of the Third Technical Meeting, Pensacola, FL. March 23-27, 1987.
- Tilley-Grogan, C.L. 1978. Oil Retention of Unconsolidated Deposits. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.

**Radon / Radium**

Angell, W.J. 1988. Radon Facts for House Sellers and Buyers. Minnesota Extension Service. New Series, HE-FS-3533.

Angell, W.J., and Thompson, P.G. 1988. Radon Issues in House Buying and Selling. Minnesota Extension Service. New Series, HE-FO-3532.

MDH. 1988. Radon Facts. Minnesota Department of Health, Minneapolis, MN.

MDH. 1989. Survey of Radon in Minnesota Homes. Minnesota Department of Health, Minneapolis, MN.

Minnesota Indoor Air Quality Task Force. 1988. Minnesota Homeowner's Guide to Radon: How to Find Out if You Have a Radon Problem in Your Home - What it Means - and What You Can Do About It. Minnesota Indoor Air Quality Task Force.

Straub, C.P. 1989. Radium in Water and Wastewater Treatment Residuals: Handling and Disposal: A Report. Prepared for Minnesota Department of Health, Radiation Control Section, Minneapolis, MN.

**Water Supply**

Brustman, S. 1984. How Safe is Our Drinking Water? Minnesota Volunteer 47(272):17-23, January/February.

Gibson, U.P., and Singer, R.D. 1969. Water Well Manual - A Practical Guide for Locating and Constructing Wells for Individual and Small Community Water Supplies. Berkeley, California, Premier Press.

Interim Output Report 108 Areawide Water Quality Management Program Twin City Metro Area. 1977. Metropolitan Council of the Twin Cities, St. Paul, MN.

Iron in Drinking Water. 1970. Minnesota Extension Service. New Series, AG-FO-1318.

Machmeier, R.E. 1971. Chlorination of Private Water Supplies. Minnesota Extension Service. New Series, AG-FO-1319.

Machmeier, R.E. 1985. Drinking Water Quality in Minnesota. Minnesota Extension Service. New Series, AG-FO-0814.

Maderak, M.L. 1965. Chemical Quality of Ground Water in the Minneapolis-St. Paul Area, Minnesota. Bulletin 23. U.S. Geologic Survey, U.S. Department of the Interior, and Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.



- MDH. 1977. Implications of the Safe Drinking Water Act in Minnesota. Minnesota Department of Health, Minneapolis, MN.
- MDH. 1977. Rural Domestic Water Supply in Minnesota. Minnesota Department of Health, Minneapolis, MN.
- MDH. 1977. Water Quality of Municipal Supply Systems in Minnesota. Minnesota Department of Health, Minneapolis, MN.
- MDH. 1979. Problems Relating to Safe Water Supply in Southeast Minnesota: Report to the Legislative Commission on Minnesota Resources. Minnesota Department of Health, Minneapolis, MN.
- MDH. 1979. Problems Relating to Safe Water Supply in Southeastern Minnesota. Minnesota Department of Health, Minneapolis, MN.
- MDH. 1989. Public Water Supply Data 1989. Minnesota Department of Health, Division of Environmental Health, Minneapolis, MN.
- Straub, C.P., Goppers, V.M., and Singer, R.D. 1981. Water Quality Study of Southwest Minnesota Public Water Supplies. Water Resources Research Center Report, March, 1981. University of Minnesota, Minneapolis.
- Straub, C.P., Goppers, V.M., and Singer, R.D. 1982. Public Water Supply Quality in the Rock River Watershed, Southwest Minnesota. University of Minnesota, St. Paul, October 1982.

### **WATER QUANTITY**

- Anderson, L.I., and Petersen, J.M. 1985. What is Minnesota's Water Worth? Minnesota Volunteer 48(279):45-49, March/April.
- Blackwelder, B., and Carlson, P. 1982. Survey of the Water Conservation Programs in the Fifty States: Model Water Conservation Program for the Nation. Environmental Policy Inst., Washington, DC.
- Blomquist, P.K. and Rongitsch, B. 1984. An Inventory of Water Wells on DNR-Managed Land in Southeastern Minnesota. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Bloomgren, P. and Rongitsch, B. Ground Water. DNR Report No. 105. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Bloomgren, P., and Bruemmer, L. 1985. Groundwater - Understanding Our Hidden Resource. Board of Soil and Water Resources, St. Paul, MN.

- Boelter, D.H. 1971. Water Table Drawdown Around an Open Ditch in Organic Soils. *Journal of Hydrology*, 15(4):329-340.
- Caroon, J.B., and Ford, D.R. 1984. Surveying Our Underground Reservoir of Water. *Minnesota Volunteer* 47(276):43-46, September/October.
- Detournay, C.P. 1980. Unconfined Steady Flow of Infiltrated Groundwater Over a Sloping Bed. M.S. Thesis, Civil and Mineral Engineering Department, University of Minnesota, Minneapolis, MN.
- DNR, Division of Waters. 1976. Ground Water Resources in Minnesota: A Review of General Availability, Quality, Distribution, Use and Problems. Bulletin No. 27. Minnesota Department of Natural Resources, St. Paul, MN.
- DNR, Department of Conservation, Division of Waters. 1962. Water Resources of Minnesota; A Study Guide. Bulletin 16. Minnesota Department of Natural Resources, St. Paul, MN.
- DNR, Department of Conservation, Division of Waters. 1962. Water Use for Irrigation in Minnesota. Bulletin 17. Minnesota Department of Natural Resources, St. Paul, MN.
- DNR, Department of Conservation, Division of Waters. 1961. Water Resources of the Minneapolis-St. Paul Metropolitan Area. Bulletin 11. Minnesota Department of Natural Resources, St. Paul, MN.
- DNR, Department of Conservation, Division of Waters. 1959. Hydrologic Atlas of Minnesota. Bulletin No. 10. Minnesota Department of Natural Resources, St. Paul, MN.
- DNR. 1984 through 1987.
- \*Observation Well Data Summary - Water Year 83 - Region 1, June 1984.
  - \*Observation Well Data Summary - Water Year 83 - Region 2, June 1984.
  - \*Observation Well Data Summary - Water Year 83 - Region 3, June 1984.
  - \*Observation Well Data Summary - Water Year 83 - Region 4, June 1984.
  - \*Observation Well Data Summary - Water Year 83 - Region 5, June 1984.
  - \*Observation Well Data Summary - Water Year 83 - Region 6, June 1984.
  - \*Observation Well Data Summary - Water Year 83 - Statewide, June 1984.
  - \*Also for Water Years 84, 85, 86, 87 and 88.
- Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- DNR. 1987. Ground Water Investigations and Data Automation. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- DNR. 1987. Water Allocation and Management 1985-1987. LCMR Report. Primary Reports: Volume I: The Value of Water to Minnesota, Volume II: Developing a Geographic Information System for Minnesota Water Resources, Volume III: The Economic Value of Water.

- Driscoll, F.G. 1986. Groundwater and Wells. Johnson Division, St. Paul, MN 55112.
- Drought and the Urban Landscape. 1988. Minnesota Extension Service. New Series, AG-FO-3548.
- Erickson, D. 1989. How the 1988 Drought Hurt Minnesota's Natural Resources. Minnesota Volunteer, 52(302):2-8, January/February.
- Franzi, D.A. 1988. Surficial and Subsurface Distribution of Aquifer Sediments at the Bemidji, Minnesota, Research Site. In: U.S. Geological Survey Program on Toxic Waste Ground Water Contamination: Proceedings of the Second Technical Meeting, Cape Cod, Massachusetts. October 21-25, 1985. USGS Open File Report 86-481.
- Frellsen, S.A. 1952. An Estimate of Total Water Use in Minnesota for 1950 and 1975. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.,
- Frischman, J.R., and Leete, J.H. 1989. Ground Water Technical Guidelines. Minnesota Department of Natural Resources, St. Paul, MN.
- Gerbig, B. 1987. Minnesota's Water Bank Program. Water Talk 1(3):8, Spring.
- Gibson, G., and Seymour, L. 1987. 1987: Year of Flood or Drought? Minnesota Volunteer 50(290):2-8, January/February.
- Great Lakes Basin Framework Study. 1975. Appendix 3: Geology and Groundwater, Appendix 6: Water Supply: Municipal, Industrial and Rural, Appendix 15: Irrigation. Great Lakes Basin Commission.
- Helgesen, J.O., and Lindholm, G.F. 1977. Geology and Water-Supply Potential for the Anoka Sand-Plain Aquifer, Minnesota. Technical Paper 6. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Highland, W.R. 1975. The Reynold's Number in Problems of Flow Through Porous Media - a Comparison of Some Theoretical and Experimental Techniques. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Hollenstein, G. 1985. Planning for Water in Minnesota's Future. Minnesota Volunteer 48(281):17-19, July/August.
- Japs, J., Frischman, J., Dostert, D., Kramka, L. 1990. Consumptive Water Use Study, Report to the Legislative Water Commission. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Jerauld, G.R. 1985. Flow and Transport in Chaotic Media: Four Case Studies. Ph.D. thesis, Chemical Engineering Department, University of Minnesota, Minneapolis, MN.

- Johnston, R.M. et al. 1980. Selected Aquifer Tests in Minnesota. Technical Paper 8. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Kanivetsky, R., and Palen, B. 1983. Ground Water Recharge Rates in Minnesota as Related to Precipitation. Water Resources Research Center Completion Report, University of Minnesota, St. Paul, MN.
- Kanivetsky, R. 1979. Regional Approach to Estimating Groundwater Resources of Minnesota. University of Minnesota and U.S. Geological Survey. No. 22 0076-9177.
- Kelly, T.J. 1987. Significance of Water-Related Outdoor Recreation to the State and Regional Economies in Minnesota. Office of Planning, Minnesota Department of Natural Resources, St. Paul, MN.
- Knighton, M.D., and Streblov, D.E. 1981. A More Versatile Soil Water Sampler. Soil Science Society of America Journal, 45(1):158-159.
- Knoch, B.C.E. 1983. Predicting Direct Recharge of Surficial Aquifers. M.S. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN. Also, Transactions of the American Society of Agricultural Engineers, 27(6):1739-1744.
- Leete, J.H., and Burman, S.J. 1985. Pilot Study of Ground Water Resource Management in Swift County, Minnesota. LCMR Report. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Leete, J.H. 1989. Procedure for Analysis of Ground Water Appropriation Permit Applications for Contamination Pump-outs. Minnesota Department of Natural Resources, St. Paul, MN.
- Machmeier, R.E. 1985. Driving a Well Point. Minnesota Extension Service. New Series, AG-FS-0951.
- MDH. 1977. A Summary of Municipal Water Use. Minnesota Department of Health, Minneapolis, MN.
- MEEB. 1987. Groundwater: What's in it for you? Southeast Environmental Education Council. Minnesota Environmental Education Board, St. Paul, MN.
- MEEB. 1988. Groundwater Take a Closer Look: Prairie - Woods Environmental Education Council. Minnesota Environmental Education Board, St. Paul, MN.
- Minnesota Water Problems. 1977. Minnesota Extension Service. New Series, CD-SS-4446.
- Mital, D.J. 1981. Observation and Prediction of Soil Moisture Under Four Aspen Stands in Minnesota. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.

- Mohring, E. 1988. DOW Expands Ob-Well Network in Southwest Minnesota. *Water Talk* 2(4):10-11, Summer.
- Mohring, E.H. 1983. A Study of Subsurface Water Flow in a Southeastern Minnesota Karst Drainage Basin. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Natural Resources Research Institute. 1987. The Value of Water for Economic Production and Recreation in Minnesota. Natural Resources Research Institute.
- Nicolson, J.A. 1973. Impact of Water Quality and Quantity on Forest Recreation in the North Central Region - a Minnesota Case Study. Ph.D. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Our World of Water (Record). 1978. Minnesota Extension Service. New Series, 4H-FO-0327.
- Our World of Water. 1978. Minnesota Extension Service. New Series, 4H-BU-0328.
- Private Farm/Family Well Analysis Program (Wells) Version 1.1. 1987. Minnesota Extension Service. New Series, CO-CS-2834.
- Retka, E. 1972. Some Aspects of the Use of Water Wells in Unconsolidated Aquifers. Ph.D. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Rieke, H. 1983. Why We're Using More Water Today Than Ever Before. *Minnesota Volunteer* 46(269):10-14, July/August.
- Sandstrom, B. 1978. Water Violations. *Minnesota Volunteer* 41(238):2-9, May/June
- Sandstrom, B. 1986. Minnesota Groundwater: Past-Present-Future. *Water Talk* 1 (1):6-7, Fall.
- Sandstrom, B. 1988. Increased Well Interference Complaints. *Water Talk* 3(1):10, Fall.
- Schneider, R. 1958. Correlation of Groundwater Levels and Air Temperature in Winter and Spring in Minnesota. Technical Paper 1. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Scott, G. 1973. Location of Ground-Water Observation Wells. Map H-2. U.S. Geologic Survey, Washington, D.C.
- Straka, G.C., and Miller, W.A. 1963. Graphs of Ground Water Levels in Minnesota 1957-1961. Bulletin 18. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Straka, G.C., and Schneider, R. 1957. Graphs of Ground Water Levels in Minnesota through 1956. Bulletin 9. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.

- Swerman, R.R. 1987. Minnesota Drought. Water Resources Research Center, St. Paul, MN. Special Report 15.
- Swerman, R.R., Baker, D.A., and Skaggs, R.H. 1987. Minnesota Drought. WRRL Special Report No. 15. Water Resources Research Center, St. Paul, MN.
- Taylor, Don. 1987. Watering Lawns and Other Turf. Minnesota Extension Service. New Series, AG-FS-2364.
- Trotta, L.C. 1988. Aggregation of Minnesota Water Use Data and Transfer of Data to the National Water Use Data System: Procedures and Programs. USGS Open File Report OFR 87-40.
- Tufford, S. 1985. Water-Rich Minnesota. DNR Report No. 83. Minnesota Department of Natural Resources, St. Paul, MN.
- Tufford, S., and Young, G. 1985. Water Shortages in Minnesota: It's Possible. Minnesota Volunteer 48(283):36-40, November/December.
- Volunteer Reports. 1984. Minnesota's Pending Water Crisis. Minnesota Volunteer 47(277):2-9, November/December.
- Water Bank Program, 1972 Through September 30, 1979. Agricultural Stabilization and Conservation Service, Washington, DC. Management Services Div. Report, February, 1980.
- Water Movement in the Soil. 1962. Minnesota Extension Service. New Series, AG-FM-5239.
- Whye, M., and Holman, D. 1982. Supplying Water to the Rural Community. Public Works, 113(5):p 58-60, May.
- Wood, J. 1981. Minnesota in the Year 2000 - Water. Minnesota Volunteer 44(254):7-8, January/February.
- Woodward, D.G. 1977. Ground Water and Aquifer Tests. Technical Report No.5. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Young, P.G. 1987. An Analysis of Water Use in Minnesota. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Young, P.G., and Woods, S.C. 1987. Water Use in Minnesota Agriculture. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Young, P.G., and Woods, S. 1987. Water Use in Minnesota Agriculture. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.

- Young, H.L., Siegel, D.I., Mandle, R.J. and Kontis, A.L. 1986. Northern Midwest Regional Aquifer-System Study. In: Regional Aquifer System Analysis Program of the USGS: Summary of Projects, 1978-84/ USGS Circular 1002, 1986.
- Zwilling, D., Leete, J.H., and Rongitsch, B. 1989. Understanding Ground Water Level Trends: A Key to Managing Water Use. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Zwilling, D. 1988. Straight River Groundwater Survey. Water Talk 2(2):3, Winter.

### **Modelling**

- Almendinger, J.E. 1988. Lake and Groundwater Paleohydrology: A Groundwater Model to Explain Past Lake Levels in West-Central Minnesota. Ph.D. Thesis, Ecology Department, University of Minnesota, St. Paul, MN.
- Anderson, K.L. 1987. Twin Cities Surface Water Simulation Modeling Demonstration. Water Resources Research Center, St. Paul, MN. Special Report 12.
- Anderson, K.L. 1987. Bear Creek Surface Water Simulation Modeling Demonstration. Water Resources Research Center, St. Paul, MN. Special Report 13.
- Anderson, K.L., and Sheer, B.W. 1987. A Program to Exchange ERDAS and EPPL7 Data Files, Water Resources Research Center. Special Report 16. St. Paul, MN.
- Asgian, M.I. 1977. The Analytic Solutions of Two Groundwater Flow Problems. M.S. Thesis, Civil and Mineral Engineering Department, University of Minnesota, Minneapolis, MN.
- Bakovil, I.L., and Nieber, J.L. 1987. Modeling Soil Water Variability. Special Report No. 14. Water Resources Research Center, St. Paul, MN.
- Barwell, V.K., and Lee, D.R. 1981. Determination of Horizontal-to-Vertical Hydraulic Conductivity Ratios from Seepage Measurements on Lake Beds. Water Resources Research, 17(3):565-570, June.
- Curtis, T.G., Jr. 1983. Simulation of Salt Water Intrusion by Analytic Elements. Ph.D. Thesis, Civil and Mineral Engineering Department, University of Minnesota, Minneapolis, MN.
- Czarnecki, J.B. 1988. Characterization of the Subregional Ground-Water Flow System of a Potential Site for a High-Level Nuclear Waste Repository. Ph.D. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Czarnecki, J.B. 1983. Fortran Computer Programs to Plot and Process Aquifer Pressure and Temperature Data. USGS Water Resources Investigations Report, WRI 83-4051.

- Dahlin, W.Q. 1961. A Study of Seepage into Sub Surface Drains by the Hydraulic and Electric Analog Methods. M.S. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Detournay, C.P. 1985. Application of Boundary Elements to the Hydrograph Method. Ph.D. Thesis, Civil and Mineral Engineering Department, University of Minnesota, Minneapolis, MN.
- DNR. 1987. Ground Water Investigations and Data Automation. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Dylla, A.S., Shull, H., and Timmons, D.R. 1980. Computer Simulation of Sprinkler Irrigation Practices for Minnesota. Transactions of the ASAE, 23(6):1419-1423, November/December. Department of Agriculture, Morris, MN.
- Fitts, C.R. 1985. Modeling Aquifer Inhomogeneities with Analytic Elements. M.S. Thesis, Civil and Mineral Engineering Department, University of Minnesota, Minneapolis, MN.
- Goudreault, P.R. 1985. A Two-Dimensional, Finite-Difference Groundwater Flow Model of the Minneapolis Chain of Lakes and Surrounding Surficial Water Table Aquifer. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Haitjema, H.M. 1982. Modeling Three-Dimensional Flow in Confined Aquifers Using Distributed Singularities. Ph.D. Thesis, Civil and Mineral Engineering Department, University of Minnesota, Minneapolis, MN.
- He, H.Y. 1987. Groundwater Modeling of Leaky Well. M.S. Thesis, Civil and Mineral Engineering Department, University of Minnesota, Minneapolis, MN.
- Heitzman, G.E. 1977. Analytical Modeling of Multi-Layered Groundwater Flow. M.S. Thesis, Civil and Mineral Engineering Department, University of Minnesota, Minneapolis, MN.
- Hines, J.W. 1986. Measurement and Modeling of Soil Hydraulic Conductivity Under Different Tillage Systems. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Hines, J.W. 1986. Measurement and Modeling of Soil Hydraulic Conductivity Under Different Tillage Systems. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Hyun, A.J. 1987. Analysis of Dewatering Under Different Ram-face Configurations in Compression Drying. Ph.D. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.



- Keil, G.D. 1982. A Dupuit Analysis for Leaky Unconfined Aquifers. M.S. Thesis, Civil and Mineral Engineering Department, University of Minnesota, Minneapolis, MN.
- Knoch, B.D., Slack, D.C, and Larson C.L. 1983. Modeling Direct Recharge of Surficial Aquifers. Water Resources Research Center Completion Report, Department of Agricultural Engineering, University of Minnesota, St. Paul, MN.
- Linden, D.R. 1979. A Model to Predict Soil Water Storage as Affected by Tillage Practices. Ph.D. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Lundstrom, D.R. 1988. The Projection of Irrigation Diversions Using Stochastic Models. Ph.D. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Makeig, K.S. 1978. Hydrogeologic Evaluation of a Drift-Filled Bedrock Valley Aquifer by Means of a Pumping Test and Finite Element Model. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Mein, R.G. 1971. Modeling of the Infiltration Component of the Watershed Rainfall-Runoff Process. Ph.D. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.
- Melnyk, J.J. 1982. Solving Steady State Groundwater Problems Using Potentials. MGeoT Thesis, Geo-Engineering Department, University of Minnesota, Minneapolis, MN.
- Miller, R.T., and Voss, C.I. 1986. Finite Difference Grid for a Doublet Well in an Anisotropic Aquifer. Ground Water GRWAAP, 24(4):490-496, July-August.
- Oberts, G.L. 1983. Surface Water Management: Simplified Modeling for Watersheds. Metropolitan Council, St. Paul, MN.
- Pollock, D.W. 1977. Numerical Simulation of Energy Transport in Shallow Aquifers Subjected to a Thermal Stress from High Temperature Energy Storage in the Unsaturated Zone. M.S. Thesis, Geology and Geophysics Department, University of Minnesota, Minneapolis, MN.
- Quinodoz, H.A.M., and Kinanidis, P.K. 1988. Estimation of Transmissivities, Heads, and Velocities in Steady-State Groundwater Modeling. Project Technical Report No. 126. Water Resources Research Center, St. Paul, MN.
- Sium, O. 1986. Hydrologic Evaluation of Small Watersheds in Minnesota Using TR-20 Model. Division of Waters, Minnesota Department of Natural Resources, St. Paul, MN.
- Strack, O.D.L., Fitts, CR., and Zaadnoordijk, W.J. 1987. Application and Demonstration of Analytic Element Models. In: Proceedings of the NWWA Conference on Solving Ground Water Problems with Models. National Water Well Association, Dublin, OH.

Vanlent, T.J. 1983. Modeling of Finite Canals Using Isolated Singularities. M.S. Thesis, Civil and Mineral Engineering Department, University of Minnesota, Minneapolis, MN.

Zaadnoordijk, W.J. 1988. Analytic Elements for Transient Groundwater Flow. Ph.D. Thesis, Civil and Mineral Engineering Department, University of Minnesota, Minneapolis, MN.

## **WETLANDS**

Almendinger, J.C., Almendinger, J.E., and Glaser, P.H. 1986. Topographic Fluctuations Across a Spring Fen and Raised Bog in the Lost River Peatland, Northern Minnesota. *Journal of Ecology JECOAB*, 74(2):393-401, June.

Bay, R. 1967. Interpretation of Fundamental Hydrologic Relationships of Forested Bogs in Northern Minnesota. M.S. Thesis, Agricultural Engineering Department, University of Minnesota, St. Paul, MN.

Bay, R.R. 1965. Factors Influencing Soil-Moisture Relationships in Undrained Forested Bogs. International Symposium on Forest Hydrology, Proc. of a Nat. Science Foundation Advanced Science Seminar, Penn. State Univ. August 29-September 10, 1965.

Berg, G. 1990. Wetlands and Wildlife Habitat. *Water Talk* 4(2):9, Winter.

Bergsrud, F. and Wright, J. 1986. Center Pivots and Wetlands. Minnesota Extension Service. New Series, AG-FO-3009.

Boelter, D.H. 1975. Methods for Analyzing the Hydrological Characteristics of Organic Soils in Marsh-Ridden Areas. In: Proceedings of the Minsk Symposium, June 1972. The UNESCO Press, Paris 1975.

Boelter, D.H. 1974. Forest Drainage in North Central United States. In: Proceedings of the International Symposium on Forest Drainage, September 2-6, 1974. Jyvaskyla-Oulu, Finland.

Boelter, D.H., and Close, G.E. 1974. Pipelines in Forested Wetlands. *Journal of Forestry*, 72(9):561-563.

Bremicker, T., and Nargang, R. 1990. Ten Ways to Save Minnesota's Wetlands. *Minnesota Volunteer* 53(309):62-65, March/April.

Brown, R.G. 1985. Effects of Wetlands on Quality of Runoff Entering Lakes in the Twin Cities Metropolitan Area, Minnesota. *Water Resources Investigations Report* 85-4170.

Burton, T.M. 1985. Effects of Water Level Fluctuations on Great Lakes Coastal Marshes. In: *Coastal Wetlands*. Lewis Publishers, Chelsea, Michigan.

- Decker, J. 1990. National Wetland Inventory. *Water Talk* 4(2):13, Winter.
- Eger, A.P., and Lapakko, K.A. 1988a. Nickel and Copper Removal from Mine Drainage by Natural Wetlands. p.301-309. In Proc. 1988 Mine Drainage and Surface Mine Reclamation Conference, April 19-21, 1988, Pittsburgh, PA. V. 1. Mine Water and Mine Waste. USDI Bureau of Mines IC9183.
- Eger, A.P., and Lapakko, K.A. 1988b. The Use of Wetlands to Remove Nickel and Copper from Mine Drainage. Presented at the International Conference of Constructed Wetlands for Wastewater Treatment, June 13-17, 1988, Chattanooga, Tennessee.
- Gerbig, B.H. 1990. Developing A State Wetland Evaluation Methodology. *Water Talk* 4(2):14-15, Winter.
- Harnack, R.D. 1990. No Net Loss Wetland Heritage Act 1990. *Water Talk* 4(2):1,8, Winter.
- Harris, S.W., and Marshall, W.H. 1963. Ecology of Water-Level Manipulations on a Northern Marsh. *Ecology*, 44(2):331-343, Spring.
- Heide, C. 1990. Twin Cities Wetlands Forum Created. *Water Talk* 4(2):4, Winter.
- Hickok, E.A 1979. Wetlands and Organic Soils for the Control of Urban Stormwater. In: Lake Restoration, Report No. EPA 440/5-79-001.
- Hickok, E.A. 1980. Wetlands For the Control of Urban Stormwater. In: National Conference on Urban Erosion and Sediment Control: Institutions and Technology, October 10-12, 1979, St. Paul, Minnesota. Environmental Protection Agency Report EPA-905/9-80-002, January, 1980.
- King, K.E. 1980. A History of Drainage Law in Minnesota with Special Emphasis on the Legal Status of Wet Lands. Water Resources Research Center, University of Minnesota, Minneapolis, Bulletin 106, November.
- Leete, J.H. 1978. Phosphorus Release Following Clearcutting of a Black Spruce Fen and a Black Spruce Bog. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Leitch, J.A. 1983. Economics of Prairie Wetland Drainage. *Transactions of the American Society of Agricultural Engineers*, 26(5):1465-1475, September-October.
- Leuthe, D. 1990. Wetland Storage Restoration - a Costly Undertaking in Southwestern MN. *Water Talk* 4(2):5, Winter.
- Madsen, C. 1986. Wetland Restoration: A Pilot Project. *Journal of Soil and Water Conservation JSWCA3*, 41(3):159-160, May-June.

- Martin, S.K. 1979. Effects of Drainage and Fertilization on Soil Solution in a Northern Minnesota Fen. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Nelson, M. 1990. Wetlands and Erosion Control. *Water Talk*4(2):10, Winter.
- Nelson, L., and Brown, R.G. 1983. Streamflow and Water Quality Data for Lake and Wetland Inflows and Outflows in the Twin City Metropolitan Area, Minnesota, 1981-82. U.S. Geologic Survey, St. Paul, MN.
- Nelson, L., and Brown, R.G. 1983. Streamflow and Water-Quality Data for Lake and Wetland Inflows and Outflows in the Twin Cities Metropolitan Area, Minnesota, 1981-82. USGS Open File Report 83-543.
- Nichols, D.S. 1983. Capacity of Natural Wetlands to Remove Nutrients from Wastewater. *J. Water Pollution Control Federation*, 55(5):495-505.
- Nichols, D.S., and Brown, J.M. 1980. Evaporation from a Sphagnum Moss Surface. *Journal of Hydrology*, Vol. 48:289-302, November.
- Peterson, R. 1990. Economic Value of Wetland to the Commercial and Residential Developer. *Water Talk*4(2):6, Winter.
- Ryes, R.P. 1978. Microbial Degradation of 2,4-D to CO<sub>2</sub> in Groundwater Fen Soils. M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Sander, J.E. 1976. An Electric Analog Approach to Bog Hydrology. *Groundwater*, 14(1).
- Sandstrom, B. 1988. DNR Wins Wetland Case in Sup. Court. *Water Talk* 2(2):11, Winter.
- Stoeckeler, J.H. 1967. Wetland Road Crossings: Drainage Problems and Timber Damage. North Central Forest Research Station. Note NC-27.
- Stoeckeler, J.H. 1965. Drainage Along Swamp Forest Roads. *Journal of Forestry*, 63(10):772-776.
- Urban, N.R., Eisenreich, S.J., and Gorham, E. 1987. Aluminum, Iron, Zinc, and Lead in Bog Waters of Northeastern North America. *Canadian Journal of Fisheries and Aquatic Sciences* CJFSDX, 44(6):1165-1172, June.
- Urban, N.R., and Eisenreich, S.J. 1988. Nitrogen Cycling in a Forested Minnesota Bog. *Canadian Journal of Botany* CJBOAW,66(3):435-449, March.
- Van der Valk, A. 1989. Effective Wetlands Policy: Sticks or Carrots. *Environmental Forum* ENVFEN 6(1):21-26.

- Vanamburg, G.L. 1983. The Effects of Agricultural Runoff Upon Natural Wetland Ecosystems. Water Resources Research Center Completion Report, September. Univ. of Minnesota, St. Paul.
- Verry, E.S. 1988. The Hydrology of Wetlands and Man's Influence on it. In: Symposium on the Hydrology of Wetlands in Temperate and Cold Regions Vol. 2 (Keynote paper). June 6-8, 1988. Joensuu Finland. Publications of the Academy of Finland (5/1988). p. 41-61.
- Verry, E.S., Brooks, K.N., and Barten, P.K. 1988. Streamflow Response from an Ombrotrophic Mire. Symposium on the Hydrology of Wetlands in Temperate and Cold Regions - Vol. 1. June 6-8, 1988. Joensuu Finland. Publications of the Academy of Finland 4/1988:52-59.
- Verry, E.S. 1980. Streamflow and Water Table Changes Following Stripcutting and Clearcutting in an Undrained Black Spruce Bog. In: Proceedings, 6th International Peat Congress; August 17-23, 1980; Duluth, MN: International Peat Society; 493-498.
- Verry, E.S. 1978. Wetlands and Water. *The Journal of Freshwater*, 2(3): 36-37.
- Verry, E.S., and Boelter, D.H. 1972. Influence of Bogs on the Distribution of Streamflow from Small Bog-Upland Watersheds. In: Symposium on Hydrology of Marsh Ridden Area: July 17-24, 1972; Minsk, Russia. The Unesco Press and the International Association of Hydrological Sciences, Paris: 469-478.
- Werth, L.F., and Meyer, M.P. 1979. Comparison of Remote Sensing Techniques for Minnesota Wetlands Classification. In: Satellite Hydrology. Proceedings of the Fifth Annual William T. Pecora Memorial Symposium on Remote Sensing, Sioux Falls, South Dakota, June 10-15, 1979. Agricultural Experiment Station Project No. MIN-42-037. Univ. of Minnesota.
- Wingate, J. 1990. Wetlands and Fisheries Resources. *Water Talk* 4(2):11, Winter.

### **Peatlands**

- Barton, P.K. 1985. Testing and Refinement of the Peatland Hydrologic Impact Model. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Bay, R.R. 1970. Water Table Relationships on Experimental Basins Containing Peat Bogs. IASH-UNESCO, Wellington, New Zealand, December 1970. p. 360-368.
- Bay, R.R. 1969. Runoff from Small Peatland Watersheds. *Jour. of Hydrology*, 9:90-102.
- Bay, R.R. 1967. Ground Water and Vegetation in Two Peat Bogs in Northern Minnesota. *Ecology*, 48(2):308-310.

- Boelter, D.H. 1962. A Study of Some Physical Properties of Several Peat Materials and Their Relation to Field Water Conditions in the Peat Bog. Ph.D. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Boelter, D.H., and E.S. Verry. 1977. Peatland and Water in the Northern Lake States. USDA Forest Service, North Central Forest Experiment Station, St. Paul, MN. General Technical Report NC-31. 22 pages.
- Boelter, D.H. 1974. The Ecological Fundamentals of Forest Drainage Peatland Hydrology: Peatland Water Economy. The Coordinators' Papers and Discussions of The International Symposium on Forest Drainage. September 2-6, 1974, Jyväskylä-Oulu, Finland.
- Boelter, D.H. 1972. Preliminary Results of Water Level Control on Small Plots in a Peat Bog. In: Proceedings of the 4th Int. Peat Congress I-IV, Helsinki 1972.
- Brooks, K.H., and Dreft, D.R. 1989. A Hydrologic Model for Minnesota Peatlands. *Journal of the Minnesota Academy of Science*, 55(1):113-119.
- Chason, D.B., and Siegel, D.I. 1986. Hydraulic Conductivity and Related Physical Properties of Peat, Lost River Peatland, Northern Minnesota. *Soil Science SOSCAK*, 142(2):91-99, August.
- Clausen, J.C. 1981. Methods for Assessing the Quality of Runoff from Minnesota Peatlands. Ph.D. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Clausen, J.C., and Brooks, K.N. 1983. Quality of Runoff from Minnesota Peatlands: II. A Method for Assessing Mining Impacts. *Water Resources Bulletin*, 19(5):769-772, October.
- Clausen, J.C., and Brooks, K.N. 1983. Quality of Runoff from Minnesota Peatlands: I. A Characterization. *Water Resources Bulletin*, 19(5):763-767, October.
- Crawford, R.L. 1978. Effects of Peat Utilization on Water Quality in Minnesota. Minnesota Department of Natural Resources. St. Paul, MN.
- Eger, A.P., Lapakko, K.A., and Otterson, P. 1980. Trace Metal Uptake by Peat: Interaction of a White Cedar Bog and Mining Stockpile Leachate. p. 542-547. In: Proc. of the 6th International Peat Congress. International Peat Society, Duluth, MN. August 17-23, 1980.
- Farnham, R.S. 1978. Status of Present Peatland Uses for Agricultural and Horticultural Peat Production. Minnesota Department of Natural Resources. St. Paul, MN.

- Gafni, A. 1986. Field Tracing Approach to Determine Flow Velocity and Hydraulic Conductivity in Saturated Peat Soils. Ph.D. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Glaser, P.H. 1983. Vegetation Patterns in the North Black River Peatland, Northern Minnesota. *Canadian Journal of Botany*, Vol. 61:2085-2104.
- Glaser, P.H., Wheeler, G.A., Gorham, E., and Wright, H.E. Jr. 1981. The Patterned Mires of the Red Lake Peatland, Northern Minnesota: Vegetation, Water Chemistry, and Landforms. *Journal of Ecology*, 69(2):575-599, July.
- Guertin, D.P., Barten, P.K., and Brooks, K.N. Peatland Hydrologic Impact Model: Development and Testing. *Nordic Hydrology NOHYBB*, 18(2)79-100.
- Haertel, J.E. 1978. Snow Accumulation and Ablation on Select Minnesota Peatlands. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Larson, G. 1985. Phosphorus Concentrations in Surface Water, Ground Water and Soils in the Anoka Sandplain and Peatlands. Plan B M.S. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Malterer, T.J. 1985. The Genesis and Characterization of Some Calcareous Peatlands in West Central Minnesota. Ph.D. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Minnesota Peat Program: Management Goals, Objectives and Policy Alternatives. 1979. Minnesota Department of Natural Resources.
- Predmore, S.R. 1978. Hydrologic Factors of Peat Harvesting. Plan B M.S. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.
- Siegal, D.I. 1981. Groundwater and the Evolution of Patterned Mines, Red Lake Peatlands, N. Minnesota.
- Siegel, D.I. 1979. Potential Hydrologic Effects of Peat Mining in the Red Lake Peatlands, North Central Minnesota: A Project Plan. USGS Open File Report OFR79-1591, December 1979.
- Siegel, D.I. 1983. Ground Water and the Evolution of Patterned Mires, Glacial Lake Agassiz Peatlands, Northern Minnesota. *Journal of Ecology*, 71(3):913-921, November.
- Siegel, D.I., and Glaser, P.H. 1987. Groundwater Flow in a Bog-Fen Complex, Lost River Peatland, Northern Minnesota. *Journal of Ecology JECOAB*, 75(3):743-754, September.
- Stiles, T.C. 1982. Some Water Quality Characteristics of Dredged Ponds in Northern Minnesota Peatlands. Ph.D. Thesis, Forest Resources Department, University of Minnesota, St. Paul, MN.

- Swanson, D. 1988. Properties of Peatlands in Relation to Environmental Factors in Minnesota. Ph.D. Thesis, Soil Science Department, University of Minnesota, St. Paul, MN.
- Urban, N.R., Bayley, S.E., and Eisenreich, S.J. 1989. Export of Dissolved Organic Carbon and Acidity from Peatlands. *Water Resources Research* WRERAQ, 25(7):1619-1628, July.
- Verry, E.S. 1984. Microtopography and Water Table Fluctuation in a Sphagnum Mire. In: Proceedings, 7th International Peat Congress; June 18-23, 1984; Budline, Ireland: International Peat Society. Volume II:11-31.
- Verry, E.S. and Timmons, D.R. 1982. Waterborne Nutrients Flow Through an Upland Peatland Watershed in Minnesota. *Ecology*, 63(5):1456-1467.
- Verry, E.S., and Boelter, D.H. 1981. Peatland Hydrology. In: Proceedings, Midwest Conference on Wetland Values and Management; June 17-19, 1981; St. Paul, MN. Abstract.
- Verry, E.S. 1979. Peatland Hydrology. In: Wetland Functions and Values; The State of our Understanding. Proceedings of the National Symposium on Wetlands. November 7-10, 1978; Lake Buena Vista FL: American Water Resources Association: 389-402.
- Verry, E.S. 1975. Streamflow Chemistry and Nutrient Yields from Upland-Peatland Watersheds in Minnesota. *Ecology*, 56:1149-1157.



**CHAPTER III. ADDITIONAL GROUND WATER INFORMATION**

**NEWSLETTERS**

AWG Newsletter

Association for Women GeoScientists

AWRA Newsletter

American Water Resources Association

The Conservation Mentor Newsletter

MN Association of Soil and Water Conservation Districts  
MN Association of Watershed District, Inc.  
MN Board of Water and Soil Resources

EQB Monitor

MN Environmental Quality Board

Facets of Freshwater

Journal of Freshwater

U.S. Water News

Freshwater Foundation

The International Coalition Annual Report

The International Coalition  
Box 127, Moorhead, MN 56560

Minnesota Agriculture Magazine

Minnesota Agriculture in the Classroom  
90 West Plato Blvd., St. Paul, MN 55107

Minne Gram

Water Resources Research Center  
University of Minnesota

Minnesota Geological Survey Newsletter

Minnesota Geological Survey  
University of Minnesota

Minnesota Ground Water Association Newsletter

Minnesota Ground Water Association

Minnesota Ground Water Newsletter  
MN Department of Health

The Technical Assistance Times

Minnesota Rural Water "Today"  
Minnesota Rural Water Association  
Elbow Lake, MN 56531

Water Fact Sheet  
United States Geological Survey

Minnesota Water Resources Summary  
U.S. Geological Survey

Construction Grants Memorandum  
MN Pollution Control Agency

Generator News  
MN Pollution Control Agency

Lake Watch  
MN Pollution Control Agency

Operator Training and Certification Bulletin  
MN Pollution Control Agency

Solid Waste Briefings  
MN Pollution Control Agency

Tire Tracks  
MN Pollution Control Agency

Seiche  
MN Sea Grant

Water Talk  
MN Department of Natural Resources Division of Waters

Facts and Issues  
League of Women Voters of Minnesota

Soil Survey Scene  
Ed, by Soil Science Dept. Specialists, University of Minnesota

**DIRECTORIES**

Celebrate Minnesota Telephone Directory. 1990. Department of Administration, St. Paul, MN.

Environmental Quality Board. 1988. Minnesota Environmental Directory/1988.

University of Minnesota 1989-90 Student/ Staff Directory. 1989. University Relations,  
University of Minnesota, Minneapolis, MN.

**ADDRESSES AND PHONE NUMBERS****Federal Offices**

USDA 1-800-366-2998

Suite 100

202 S. 2nd Street

Minneapolis, MN 55401

Soil Conservation Service..... (612) 290-3670

600 Farm Credit Building

375 N. Jackson St.

St. Paul, MN 55101

National Weather Service ..... (612) 725-6090

Minneapolis-St. Paul International Airport

Minneapolis, MN 55450

U.S. Army Corps of Engineers..... (612) 222-0201

1421 U.S. Post Office & Custom House

180 E. Kellogg Boulevard

St. Paul, MN 55101-9808

Environmental Protection Agency ..... 1-800-621-8431

Region V Office

230 S. Dearborn Street

Chicago, IL 60604

U.S. Geological Survey..... (612) 229-2600

Minnesota District Office

180 E. Kellogg Boulevard

St. Paul, MN 55101

U.S. Bureau of Mines..... (612) 725-4500

5629 Minnehaha Avenue S.

Minneapolis, MN 55417

**Mailing Address for all USGS Publications**

USGS  
 Books and Open File Reports Section  
 Federal Center  
 Box 25425  
 Denver, Colorado 80225

**State Offices**

Department of Agriculture ..... (612) 296-6121  
 90 West Plato Boulevard  
 St. Paul, MN 55107

MN Environmental Education Board ..... (612) 296-2368  
 Box #5  
 DNR Building  
 500 Lafayette Road  
 St. Paul, MN 55155

Environmental Quality Board ..... (612) 296-2603  
 300 Centennial Building  
 658 Cedar Street  
 St. Paul, MN 55155

Minnesota Geological Survey ..... (612) 627-4780  
 2642 University Avenue W.  
 St. Paul, MN 55114-1057

Department of Health ..... (612) 623-5100  
 717 Delaware Street S.E.  
 Minneapolis, MN 55414

Metropolitan Council ..... (612) 291-6359  
 230 E. 5th St.  
 St. Paul, MN 55101

Minnesota Department of Natural Resources ..... (612) 296-4800  
 DNR-Division of Waters  
 500 Lafayette Road  
 St. Paul, MN 55155-4032

MN Pollution Control Agency ..... (612) 296-6300  
 520 Lafayette Road  
 St. Paul, MN 55155

ADDRESSES AND PHONE NUMBERS

- State Planning Agency..... (612) 296-2233  
310 Centennial Building  
658 Cedar Street  
St. Paul, MN 55155
- Department of Transportation ..... (612) 296-3131  
Transportation Building  
St. Paul, MN 55155
- Waste Management Board ..... (612) 649-5750  
1350 Energy Lane  
St. Paul, MN 55108
- Water and Soil Resources, Board of..... (612) 296-3767  
Suite 104  
155 S. Wabasha St.  
St. Paul, MN 55107

**State Agency Regional Offices**

**Health. Department of**

- Northwestern District, Bemidji..... (218) 755-3820  
1819 Bemidji Avenue  
Bemidji, MN 56601
- Northeastern District, Duluth..... (218) 723-4642  
Rm. 703 Government Service Center  
320 West Second Street  
Duluth, MN 55802
- West Central District, Fergus Falls ..... (218) 739-7585  
Box 675  
Hospital Building  
Fergus Falls, MN 56537
- South Central District, Mankato ..... (507) 389-2501  
Suite 150, 410 Jackson St.  
Mankato, MN 56001
- Southwestern District, Marshall ..... (507) 537-7151  
Box A-50  
Marshall, MN 56258

ADDRESSES AND PHONE NUMBERS

Southeastern District, Rochester ..... (507) 285-7289  
Campus Center Building, Suite 10  
2116 Campus Drive Southeast  
Rochester, MN 55904

Central District Office, Sauk Rapids..... (612) 255-4216  
Box 426  
215 North Benton Drive  
Sauk Rapids, MN 56379

**Natural Resources, Department of**

Region I..... (218) 755-3955  
2115 Birchmont Beach Road N.E.  
Bemidji, MN 56601

Region II..... (218) 327-4455  
1201 East Highway 2  
Grand Rapids, MN 55744

Region III..... (218) 828-2560  
1601 Minnesota Drive  
Box 648  
Brainerd, MN 56401

Region IV ..... (507) 354-2196  
Box 756  
Highway 15 South  
New Ulm, MN 56073

Region V ..... (507) 285-7420  
P.O. Box 6247  
Rochester, MN 55903

Region VI ..... (612) 296-3572  
1200 Warner Road  
St. Paul, MN 55106

**Pollution Control Agency**

Region I.....(218) 723-4660  
Room 704  
Duluth Government Services Center  
320 West 2nd Street  
Duluth, MN 55802

ADDRESSES AND PHONE NUMBERS

- Region II.....(218) 828-2492  
1601 Minnesota Dr.  
Brainerd, MN 56401
- Region III.....(218) 847-1519  
714 Lake Ave. Plaza  
Detroit Lakes, MN 56501
- Region IV .....(507) 537-7146  
109 South 5th Street  
Marshall, MN 56258-1268
- Region V.. .....(507) 285-7343  
2116 Campus Drive S.E.  
Rochester, MN 55904

**Regional Environmental Education Councils (REEC)**

- REECs 6E, 7E, 9, 10 and 11 .....(612) 296-2368  
Box #5  
DNR Building  
500 Lafayette Road  
St. Paul, MN 55155-4005
- REECs 5 and 7W .....(218) 828-2663  
1601 Minnesota Drive  
Brainerd, MN 56401
- REECs 4, 6W, and 8.....(612) 589-1330  
701 Iowa Avenue  
Morris, MN 56267
- REECs 1, 2, and 3 .....(218) 327-4445  
1201 East Highway 2  
Grand Rapids, MN 55744

**University of Minnesota**

- Gray Freshwater Biological Institute.. .....(612) 471-8476  
P.O. Box 100  
Co. Rds 15 & 19  
Navarre, MN 55392

ADDRESSES AND PHONE NUMBERS

- Limnological Research Center..... (612) 624-7005  
220 Pillsbury Hall  
University of Minnesota  
Minneapolis, MN 55455
- Minnesota Extension Service..... (612) 625-1915  
University of Minnesota  
St. Paul, MN 55180
- St. Anthony Falls Hydraulic Laboratory..... (612) 627-4010  
Mississippi River at 3rd Avenue S.E.  
Minneapolis, MN 55414
- Water Resources Research Center ..... (612) 624-9282  
866 Biological Science Center  
1445 Gortner Ave.  
St. Paul, MN 55108
- University of Minnesota (General) ..... (612) 625-5000  
Agricultural Engineering ..... (612) 625-7733  
Civil and Mineral Engineering ..... (612) 625-5522  
Forest Resources..... (612) 624-3400  
Geology and Geophysics ..... (612) 624-1333  
Public Health ..... (612) 624-6669  
Soil Science ..... (612) 625-1244

**Citizens Organizations**

- American Water Resources Association..... (612) 831-1344  
7110 Ohms Lane  
Edina, MN 55435
- American Water Works Association..... (612) 887-9613  
North Central Section  
2215 West Old Shakopee Road  
Bloomington, MN 55431
- Freshwater Foundation/Freshwater Society ..... (612) 471-8407  
P.O. Box 90  
2500 Shadywood Road  
Navaree, MN 55392-0090
- Geological Society of Minnesota..... (612) 644-6429  
1711 Marshall Avenue  
St. Paul, MN 55104



- MN Association of Soil and Water Conservation  
 Districts .....(612) 454-8994  
 2085 Delaware Ave.  
 Mendota Heights, MN 55118
- MN Farm Bureau Federation .....(612) 739-7200  
 1976 Wooddale Dr.  
 St. Paul, MN 55125
- MN Public Interest Research Group (MPIRG) .....(612) 627-4035  
 2512 Delaware St. SE  
 Minneapolis, MN 55414

**Watershed Districts**

- Water and Soil Resources. Board of .....(612) 296-3767  
 Suite 104, 155 S. Wabasha St.  
 St. Paul, MN 55107
- Bear Valley Watershed District  
 Belle Creek Watershed District  
 Buffalo Creek Watershed District  
 Buffalo-Red River Watershed District  
 Carnelian-Marine Watershed District  
 Clearwater River Watershed District  
 Cooks Valley Watershed District  
 Coon Creek Watershed District  
 Cormorant Lakes Watershed District
- Crooked Creek Watershed District .....(507) 724-2136  
 Agricultural Service Center  
 P.O. Box 72  
 Caledonia, MN 55921
- High Island Watershed District  
 Joe River Watershed District  
 Kanaranzi-Little Rock Watershed District  
 Lac Qui Parle-Yellow Bank Watershed District  
 Lower Minnesota River Watershed District  
 Middle Des Moines Watershed District  
 Middle River-Snake River Watershed District  
 Minnehaha Creek Watershed District  
 Nine Mile Watershed District  
 Okabena-Ocheda Watershed District  
 Pelican River Watershed District

ADDRESSES AND PHONE NUMBERS

Prior Lake-Spring Lake Watershed District (612) 447-4166  
Scott-Rice Telephone Building  
4690 Colorado Street  
Prior Lake, MN 55372

Ramsey-Washington Metro Watershed District .....(612) 779-2207  
2785 White Bear Avenue  
Suite 210  
Maplewood, MN 55109

Red Lake Watershed District

Rice Creek Watershed District.....(612) 483-0634  
Suite 117  
3585 Lexington Avenue North  
Arden Hills, MN 55126

Riley-Purgatory Creek Watershed District .....(612) 474-6091  
Eden Prairie City Hall  
8950 Eden Prairie Road  
Eden Prairie, MN 55344

Roseau River Watershed District.....(218) 463-2730  
City Hall  
Roseau, MN 56751

Sand Hill River Watershed District  
Stockton-Rollington-Minnesota City Watershed District  
Thirty Lakes Watershed District  
Turtle Creek Watershed District  
Two Rivers Watershed District  
Upper Minnesota River Watershed District  
Valley Branch Watershed District  
Warroad Watershed District  
Wild Rice Watershed District  
Yellow Medicine Watershed District

**Libraries**

DNR Library .....(612) 297-4929  
500 Lafayette Road  
St. Paul, MN 55155

Environmental Conservation Library (ECOL).....(612) 372-6570  
Minneapolis Public Library  
300 Nicollet Mall  
Minneapolis, MN 55410

ADDRESSES AND PHONE NUMBERS

- Environmental Research Laboratory Library .....(218) 720-5538  
 U.S. Environmental Protection Agency  
 6102 Congdon Boulevard  
 Duluth, MN 55804
- Forestry Library .....(612) 624-3222  
 B-50 NRAB  
 2003 Upper Buford Circle  
 St. Paul, MN 55108
- Gray Freshwater Biological Institute Library .....(612) 471-7755  
 Co. Rd. 15 & 19  
 Navarre, MN 55392
- Health Library.....(612) 623-5090  
 P.O. Box 9441  
 Minnesota Department of Health  
 717 Delaware Street Southeast  
 Minneapolis, MN 55440
- Lorenz G. Straub Memorial Library .....(612) 627-4010  
 St. Anthony Falls Hydraulic Laboratory  
 Mississippi River at 3rd Avenue Southeast  
 Minneapolis, MN 55414
- Map Library .....(612) 624-4549  
 S-76 Wilston library  
 309 - 19th Avenue South  
 University of Minnesota  
 Minneapolis, MN 55455
- Metropolitan Council Library .....(612) 291-6310  
 230 E. 5th St.  
 Mears Park Center  
 St. Paul, MN 55101
- Pollution Control Agency Library.....(612) 296-7719  
 520 Lafayette Road  
 St. Paul, MN 55155
- Science and Engineering Libraries .....(612) 624-0224  
 Second Floor  
 Walter library  
 117 Pleasant Avenue Southeast  
 Minneapolis, MN 55455  
 (Mines, Chemistry, Engineering, Geology, Physics and  
 T-Collection Libraries)

Soil Survey Library.....(612) 625-6725  
439 Borlaug Hall  
1991 Upper Buford Circle  
St. Paul, MN 55108

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