DNR’s Role in Managing Limited Groundwater Supplies: Permitting & Planning

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Water Appropriation Permitting

Dan Scollan, Groundwater Protection Hydrologist
Minnesota’s Regulatory Policy
(Statute 103A)

“To conserve and use water resources of the state in the best interests of the people, and to promote the public health, safety, and welfare”
Minnesota State Agency Roles in Groundwater

**Quality**
- **MDH**
  - Public water supply
  - Well construction
  - Health risk assessment
- **MPCA**
  - Chemical releases
  - Industrial pollutants
  - Chemicals from consumer products
- **MDA**
  - Pesticides
  - Fertilizer

**Quantity**
- **DNR**
  - Water supply/availability
  - Natural resource/ecosystem functions
• Dust Bowl

• Drought Conditions Peaked in 1936

• Legislature takes action in 1937

• Water users must request permit from the Department of Conservation
February 11th, 1938

Mr. Herman C. Wenzel
Commissioner of Conservation
State Office Building

Dear Mr. Wenzel:

In behalf of the Village of Robbinsdale, we desire to make application for a permit to construct a well for the purpose of pumping underground water, and for municipal purposes, into Crystal Lake within the village limits of Robbinsdale as is provided for in Chapter 468, Minnesota Laws of 1937.

Yours very truly,

[Signature]

Village Recorder

[Signature]
Water Allocation Priorities

1. Domestic water supply*

2. Other uses that consume less than 10,000 gallons per day

3. Agricultural Irrigation & Processing

4. Power Production**

5. Other uses that consume more than 10,000 gallons per day

6. Non-essential uses

8/29/2019
Groundwater Sustainability Standard

- Maintain supply for future generations
- No harm to ecosystems
- No degradation in water quality
- No interference with public or private domestic water supply wells
Who needs a permit?

- Appropriate or use waters of the state (groundwater or surface water)
- Exceed a daily rate of 10,000 gallons per day
- Exceed an annual total of 1,000,000 gallons per year
- Some exemptions
Evaluating Permit Applications for Groundwater

• Aquifer characteristics & water levels
• Impact on availability of groundwater for other users
• Effect on groundwater-dependent ecosystems
• Efficiency of use & conservation practices
• Comments of local governments, state agencies & interested parties
• Consistency with local water plans
Permit Requirements

Always:

• Measure water use within 10% accuracy
• Submit annual water use report
• Notify DNR of any proposed changes, and apply for permit modification

As needed:

• Pumping tests
• Water level or flow monitoring
• Limited pumping rate, volume or timing
Hennepin County Active Groundwater Permits

Total = 255 permits

- Landscaping/Athletic Field Irrigation (46)
- Golf Course Irrigation (36)
- Municipal/Public Water Supply (35)
- Construction Dewatering (29)
- Other (91)
- Pollution Containment (18)
Hennepin County 2018 Groundwater Use

Total = 30.6 billion gallons

- Municipal/Public Water Supply: 88%
- Groundwater Dewatering: 1%
- Construction Dewatering: 2%
- Metal Processing: 2%
- Other: 5%
- Golf Course Irrigation: 2%
Hennepin County Groundwater Use Over Time

Annual Groundwater Use in Billions of Gallons

Year

Water Supply Planning

Sara Mielke, Groundwater Hydrologist
DNR Water Supply Plans

• Required for water suppliers statewide serving over 1,000 people, and every supplier within the 7 county metro area.

• Updated every ten years

• Process was conceived after the drought of the late 1980s

• First plans were called Emergency and Conservation Plans, due in 1996.

• Renamed Water Supply Plan, the latest round was due 2016-2018
  • Fulfills the demand reduction requirement of MS 103G. (January 2015)
DNR Water Supply Plans: Benefits

• Helps water suppliers:
  • Review the past 10 years of water use
  • Project the next 10 years of water use, including demand for upcoming improvements or new infrastructure
  • Organize emergency information to prepare for droughts and water emergencies
  • Identify conservation strategies that fit their community

• Creates eligibility for various State grants and funding opportunities
DNR Water Supply Plans: Components

Plan must address:

- Projected demands
- Adequacy of the water supply system
- Planned improvements
- Existing and future water sources
- Natural resource impacts
- Emergency preparedness
- Water conservation
- Supply and demand reduction measures
- Allocation priorities
Goals for Minnesota Communities

- Unaccounted water use less than 10%
- Residential per capita water demand less than 75 gallons
- 1.5% reduction in non-residential usage (Institutional, Industrial, Commercial and Agricultural) – total of 15% in ten years
- Reduce peak demand so ratio of max demand to average is less than 2.6
- Implement a conservation billing rate structure and/or a uniform rate structure with a water conservation program
Ratio of maximum day to average day demand

DNR Recommended maximum ratio: 2.6
Residential per capita usage - GPCD

75 GPCD - 2002 average for the metro area
% Increase in **projected** average daily demand from 2015-2025
Stats: Top Ten Water Users

- Out of the top ten users for each of the 35 cities with community water supplies in Hennepin County:
  - Over 100 apartment buildings
  - 20 medical facilities
  - 11 car washes
  - 4 fitness facilities
  - 31 private residences
  - 7 wholesale to other cities

Conservation Measures Being Implemented?

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8/29/2019
Hennepin County Municipal Water Supply Sources

Legend
- Groundwater supply
- Surface water supply
- Partially supplied by surface water
Hennepin County Water Supply Sources Over Time

![Bar chart showing the percentage of water supply sources over time from 1988 to 2018. The chart indicates the percentage of municipal/public water supply source from surface water and groundwater.](chart.png)
Thank You!

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