

The Benefits of Wellhead Protection to Your Community

Minnesota Rural Water Association Conference

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Acronyms

- MDH – Minnesota Department of Health
 - MRWA – Minnesota Rural Water Association
 - WHPA – Wellhead Protection Area
 - PWS – Public Water Supply
 - WHPP – Wellhead Protection Plan
 - DWSMA – Drinking Water Supply Management Area
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Wellhead Protection Program

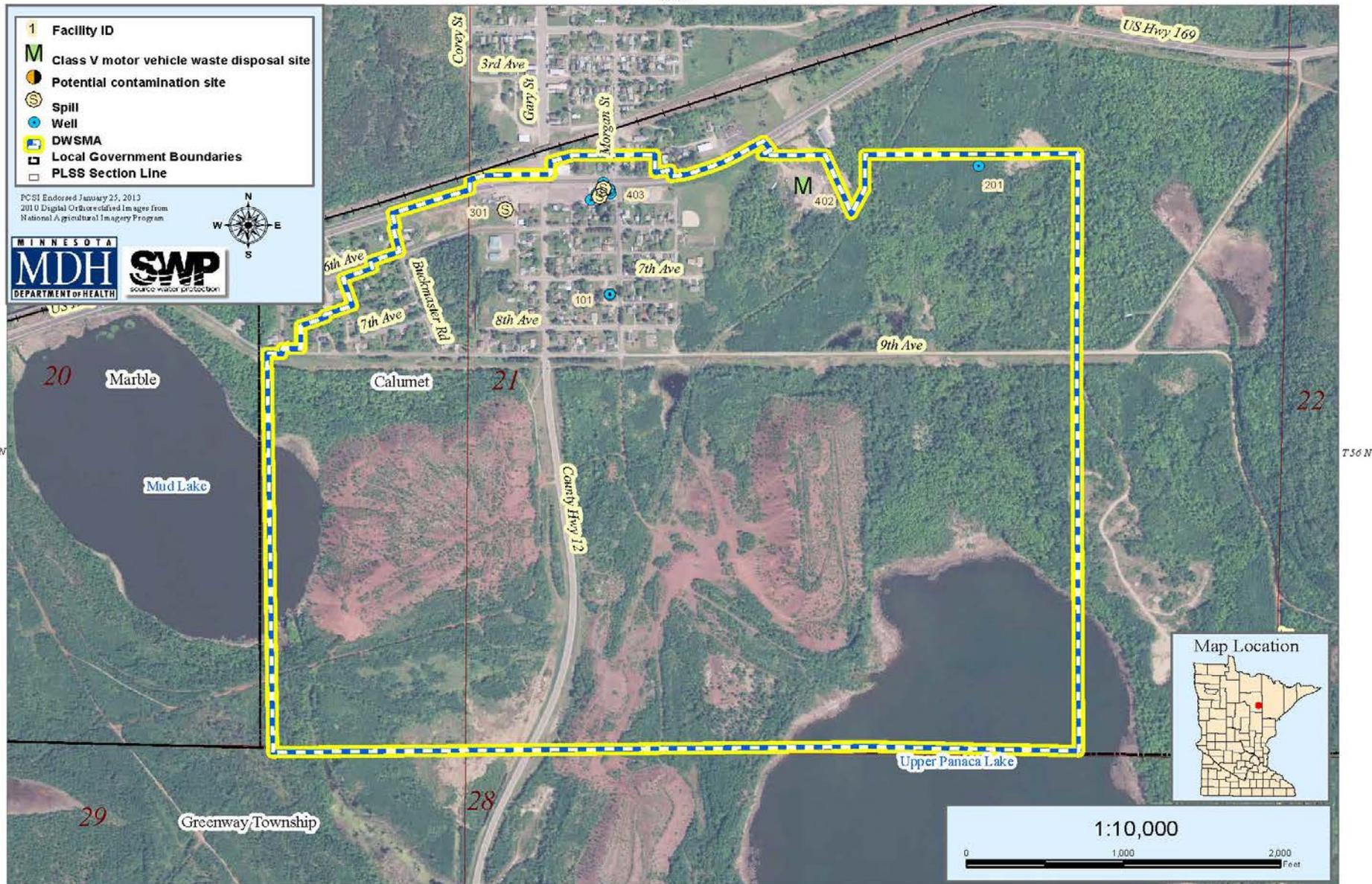
- Authorized by the MN Groundwater Protection Act (M.S. 103I, Section 3, subd.5), passed in 1989.
- Applies to public water supply wells.
- Program is a non-voluntary requirement per MN Rules, Chapter 4720
- Program's intent is to prevent human-caused contaminants from entering PWS wells by implementing wellhead protection.

Wellhead Protection

Wellhead protection is a method of preventing contamination of a public water supply well by effectively managing potential contamination sources in the area that contributes water to a public water supply well.



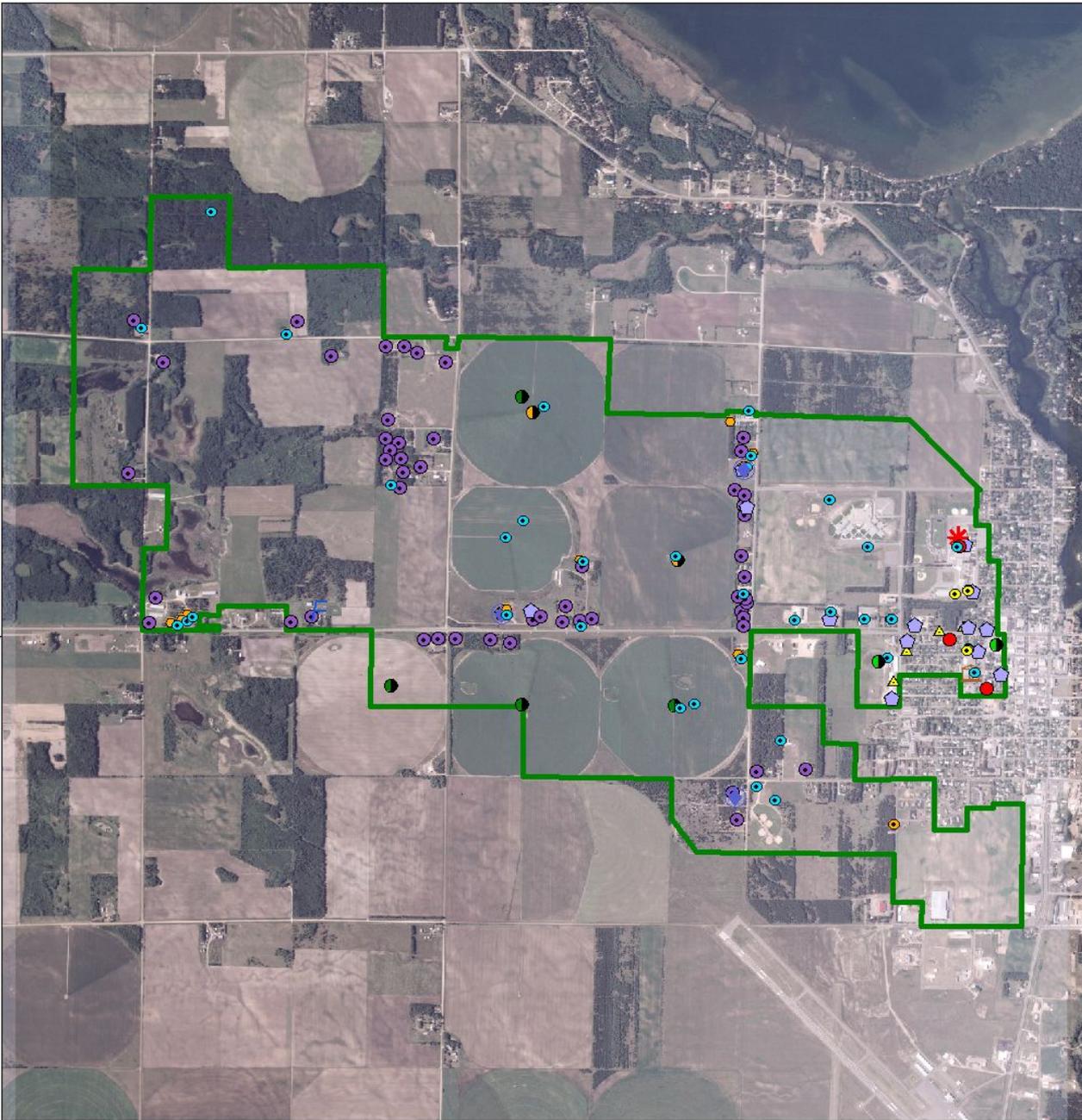
Calumet Drinking Water Supply Management Area (DWSMA) MN-00536 - Potential Contaminant Source Inventory



R 35 W

Park Rapids

Drinking Water Supply Management Area (DWSMA) MN-00172 10 year Time of Travel



T 140 N

T 140 N

R 35 W

- Pipelines
- Public Water Supply Well
 - Primary
 - Seasonal
 - Final Located Wells
- Final PCSI**
 - Animal feedlot
 - Ag Chem
 - Ag Feed
 - Ag Unknown
 - Air Release Point
 - Class V Motor Vehicle Waste Disposal
 - Historical site
 - Hazardous Waste Generator
 - Individual Sewage Treatment System
 - Leaking Underground Storage Tank
 - Registered Storage Tank Permit
 - Well
 - Well & Septic
- DWSMA

0.5 0 0.5 Miles



Approved December 18, 2002

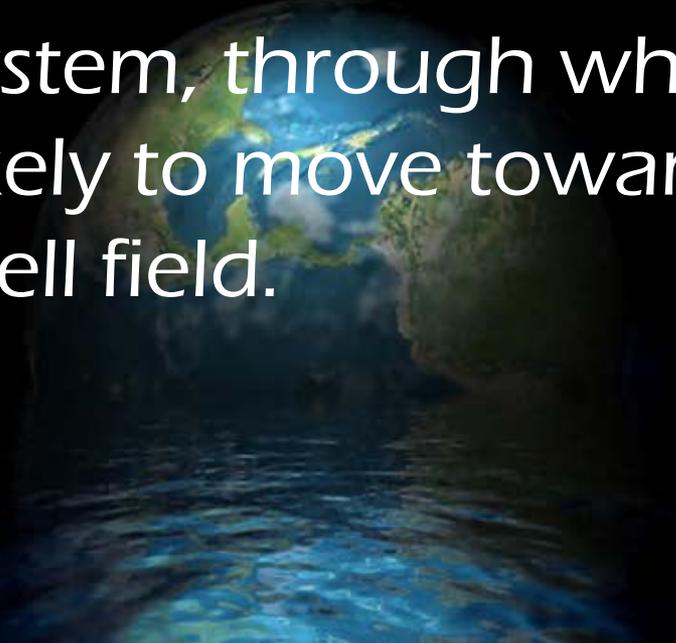
Wellhead Protection Goals

- Protect users of public water wells from short-term (acute) and long-term (chronic) health effects related to disease organisms and chemical contaminants.
- Reduce the reliance of public water supplies on costly treatment facilities.
- Avoid having to drill new wells as the result of contamination of the current well.
- Avoid the need to remediate contaminated groundwater.

2013 MN Statutes 1031.005

Subd. 24. Wellhead protection area:

"Wellhead protection area" means the surface and subsurface area surrounding a well or well field that supplies a public water system, through which contaminants are likely to move toward and reach the well or well field.



Public Water Supply Well

A public water system well provides drinking water for human use to:

- 15 or more service connections, or to
- 25 or more people for at least 60 days per year.



Implementing Wellhead Protection

Wellhead protection activities for public water suppliers usually originate from two sources:

- 1) An Inner Well Management Zone potential contaminant sources inventory
- 2) A Wellhead Protection Plan as defined by MS 4720.5100, Subp.45:

“Wellhead protection plan” or “plan” means a document that provides for the protection of a public water supply, is submitted to the department, is implemented by the public water supplier, and complies with:

- A. The wellhead protection elements specified in the 1986 amendments to the federal Safe Drinking Water Act, U.S. Code, title 42, chapter 6A, subchapter XII, part C, section 300h-7 (1986 and as subsequently amended); and*
- B. Parts 4720.5200 to 4720.5290.*

To achieve these statutory directives, the MDH recognizes that a WHPP is comprised of two integral components:

- Part 1 – Delineating the WHPA, designating the DWSMA, and assessing the vulnerability of the well(s) and aquifer(s).
- Part 2 – Identifying and managing potential contaminant sources in the DWSMA, and preparing a contingency strategy for chemical or mechanical disruptions of the water supply.

Benefits of Wellhead Protection

According to Merriam-Webster, a benefit is a good or helpful result or effect. Wellhead protection produces both monetary and non-monetary benefits:

- Protecting public health.
- Community education and involvement.
- Preparing for the future.
- Inter-jurisdictional cooperation.
- Contamination prevention is less expensive than remediation.
- Protection of the PWS's infrastructural investments.

Quantifying the Benefits

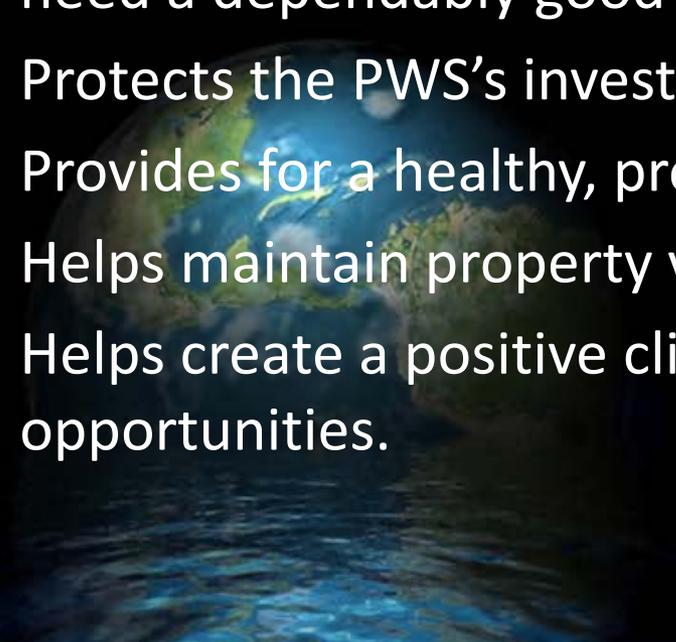
The American Water Works Association Research Foundation:

- is a member-supported, international, nonprofit organization that sponsors research to enable water utilities, public health agencies, and other professionals to provide safe and affordable drinking water to consumers.
- AWWARF's mission is to advance the science of water to improve the quality of life.
- AWWARF works to achieve this mission by sponsoring research, developing knowledge, and promoting collaboration.

In a 2004 study involving six water utilities across the U.S., two AWWARF researchers (Mark B. Williams and Bruce A Fenske) reported in Project # 2278 "*Demonstrating Benefits of Wellhead Protection Programs*" that,

excluding large metropolitan areas, the average 20-year wellhead protection program unit cost is \$0.03 per 1,000 gallons of supplied water.

Monetary Benefits

- 1) Avoids the costs for cleaning up groundwater and/or providing an alternate water supply.
 - 2) Prevents the negative economic impact of contaminated drinking water on community development. Businesses need a dependably good water supply.
 - 3) Protects the PWS's investments in the water supply system.
 - 4) Provides for a healthy, productive work force.
 - 5) Helps maintain property values.
 - 6) Helps create a positive climate for economic growth and job opportunities.
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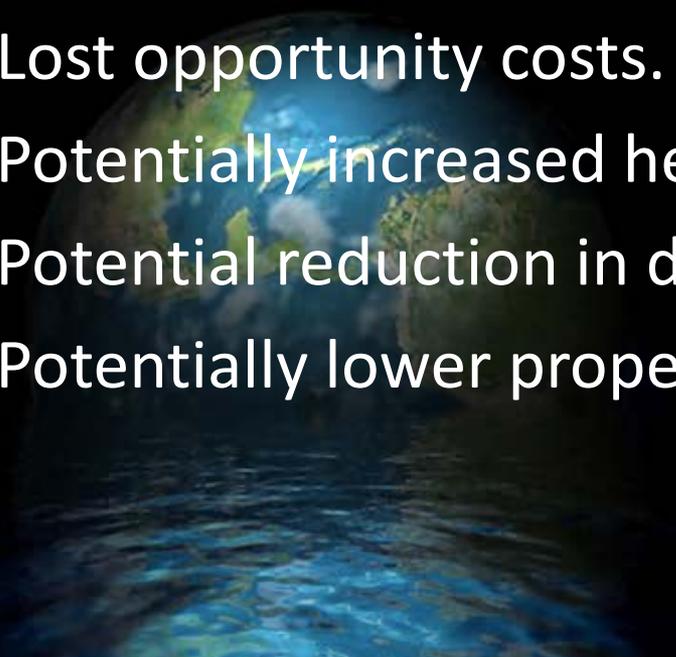
Non-monetary Benefits

- 1) Protect public health.
- 2) Opportunity for drinking water supply education.
- 3) Opportunity to identify and learn of the specific threats to the PWS's water supply, and what actions can be taken to address them.
- 4) Opportunity for public involvement in keeping the PWS's water safe.
- 5) Opportunity to develop a contingency plan.
- 6) Promotes inter-jurisdictional cooperation to protect the groundwater resource.
- 7) Serves the users and improves consumer confidence.

Direct Monetary Costs of Well Contamination

- Administrative costs of responding to contamination.
- Purchase of water while locating an alternate supply.
- Hydrogeologic studies to locate alternate supply.
- Development of the new water source, including engineering and construction costs for new well.
- Treatment of the contaminated groundwater, including legal proceedings against the responsible party.
- Unanticipated acceleration of amortization costs.
- Increased monitoring requirements.

Indirect Non-monetary Costs of Well Contamination

- Loss of peak capacity, and probable water rationing.
 - Loss of developed well field.
 - Reduced consumer confidence.
 - Increased public scrutiny.
 - Lost opportunity costs.
 - Potentially increased health risks.
 - Potential reduction in development opportunities.
 - Potentially lower property values and tax base.
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Conclusions

- 1) Wellhead protection provides both monetary and non-monetary benefits. It protects your investment, ensures healthy drinking water, and improves consumer and community confidence.
- 2) Numerous studies corroborate the presumption that wellhead protection is always less costly than responding to a contaminated water supply.
- 3) Excellent technical assistance is available from MDH and MRWA.
- 4) Financial assistance, in the form of grants, is available from the MDH for wellhead protection activities identified in a wellhead protection plan.

Questions?

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