



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2003MN29B

Title: Arsenic in Minnesota Groundwater and its Impact on the Drinking Water Supply

Project Type: Research

Focus Categories: Groundwater, Water Use, Toxic Substances

Keywords: arsenic, groundwater, drinking water supply

Start Date: 03/01/2003

End Date: 02/29/2004

Federal Funds: \$18,000

Non-Federal Matching Funds: \$22,691

Congressional Districts: 2 and 7

Principal Investigator:

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Abstract

In 2001 the United States' federal drinking water standard, or Maximum Contaminant Level (MCL), was decreased from 50 µg/L to 10 µg/L. Public water supplies have until January 1, 2006 to comply with the new standard. Nationwide, the change in the MCL will have significant economic impact on public water supplies that exceed the new MCL. In Minnesota alone, 67 (12%) of Minnesota's public water supplies have arsenic in excess of 10 µg/L. A recent western-Minnesota study found that over 50% of the 900 sampled private drinking water wells had arsenic over 10 µg/L. Statewide, almost 15% of wells sampled exceed 10 µg/L arsenic.

The proposed research project's key components involve creating a useful database from existing data; field work, including groundwater and solids sampling; laboratory analyses of groundwater and solids samples; and data analysis/model building to provide the following information:

- Characterization of the sampling and temporal variability of arsenic concentration in wells.
- Determination of how many samples are enough to be confident that the arsenic concentration is actually below the MCL.

- Determination of the relationship between arsenic concentration in geologic material and arsenic concentrations in water.
- Determination of likely mechanisms.
- Characterization of the changes in arsenic concentration in new wells. Specifically, determining how the well's presence changes the arsenic concentration in the water.