

# Reducing Exposure to Arsenic in Drinking Water

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# Executive Summary

Approximately 50% of private wells in western Minnesota have arsenic above 10 parts per billion (ppb). The project objective is to reduce exposure to arsenic in drinking water throughout Minnesota. Lack of awareness contributes to the problem, with a project goal of educating all private well owners with arsenic in their drinking water.

# Introduction/Background

## Problem Statement

The project goal is to educate all Minnesota private well owners that have arsenic in their drinking water, thereby reducing exposure. Most assume that homeowners would be concerned about the problem, while in reality many are not. People want the problem solved, but education only teaches people how to solve the problem.

# Introduction/Background

## Behavior Over Time Graph

Education of the problem can be described as a flat line with no growth and occasional spikes (attention by news media), and ongoing, chronic problems often do not receive ongoing media attention or regular public health education.

# Introduction/Background

## Causal Loop Diagrams

The most relevant archetypes to this methodology include limits to growth and success, concerns about overextending existing resources or creating a larger administrative focus, and finding ways to avoid overlap or redundancy. Interventions must be self-sustaining over a long period, by breaking the loop, adding a loop, and or altering delay times.

# Introduction/Background

## Applicable Archetypes

'Limits to growth' include concerns about overextending existing resources (creating a larger administrative issue). 'Tragedy of the commons' concern the allocation of limited resources. 'Accidental adversaries' concerns those regulating private wells (limited resources) and those with more resources who are not involved with private well regulation.

# Project Objectives, Description, Deliverables

## Program Goal

To reduce exposure to arsenic in drinking water

## Health Problem

Approximately 50% of private wells in western Minnesota have arsenic above 10 parts per billion.

## Outcome Objective

By December 2010, 40% of private well owners with arsenic above 10 ppb will have reduced their exposure to arsenic in drinking water via treatment, new well, purchased water, etc.

# Project Objectives, Description, Deliverables

## Determinant

Number of private well owners with reduced exposure to arsenic in their drinking water

## Impact Objective

By December 2009, 50% of private well owners with arsenic above 10 ppb will be made aware of the concentration of arsenic in their water, along with methods to reduce exposure (treatment, new well, purchased water, etc).



# Project Objectives, Description, Deliverables

## Contributing Factors

Lack of awareness, and cost and technical issues associated with alternative sources of drinking water are contributing factors.

## Process Objective

By December 2009, a survey shall indicate that at least 50% of private well owners with arsenic above 10 ppb are aware of arsenic in their drinking water.

# Methodology

Events and activities include local water testing clinics, partnering with existing nitrate clinics, sending out press releases prior to the event, and creating additional reasons to attend clinic (other environmental/health information sessions, community sponsors, music, food, etc).

# Results

It is anticipated that, as a result of this project and ongoing work being done by others in Minnesota, 40% of private well owners with arsenic above 10 ppb will be made aware of the concentration of arsenic in their water, along with methods to reduce exposure by December 2010.

# Conclusions

In conclusion, newer models would balance inquiry and advocacy among sections. Acknowledging limits to growth and success, avoiding overlap and redundancy, and developing interventions that are self-sustaining over a long period are essential in balancing the needs and resources to solving this problem.