



Wellhead Protection 101

Five Steps



Delineation



Contaminant Source Inventory



Contaminant Source Management



Emergency, Contingency, & Long Term Planning



Public Education

The goal of Nebraska's Wellhead Protection Program is to protect the land and groundwater surrounding public drinking water supply wells from contamination. Since approximately 85% of Nebraskans receive their drinking water from groundwater, preventing groundwater contamination is vital.



Developing a Local Wellhead Protection Plan

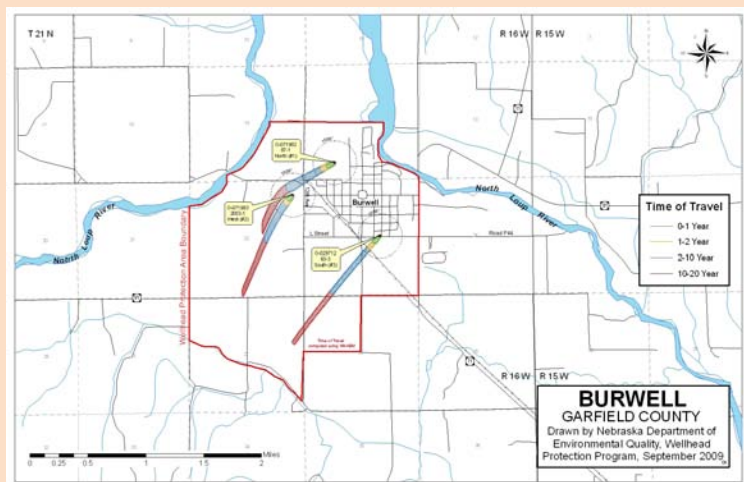
The Wellhead Protection planning process includes identifying the land surrounding the public water supply wells to be protected, identifying potential sources of groundwater contamination within this area, and managing the potential contaminant sources. Emergency, contingency, and long term plans are also developed for the community water supply, all the while educating and involving the public.





Delineating the Wellhead Protection Area

A Wellhead Protection area is calculated from information such as the geologic material the well is drilled into and the annual pumpage of the well. Computer-generated flow lines depict the approximate path groundwater, or a contaminant in groundwater, will take to reach a well. Flow lines are then associated with estimated times-of-travel and a boundary is drawn on property lines enclosing all 20-year-flow lines. The Nebraska Department of Environmental Quality (NDEQ) provides these maps at no charge.



A Wellhead Protection map is just a piece of scrap paper unless you enact local ordinances, county zoning, or voluntary activities within your Wellhead Protection Area.



Potential Contaminant Source Inventory

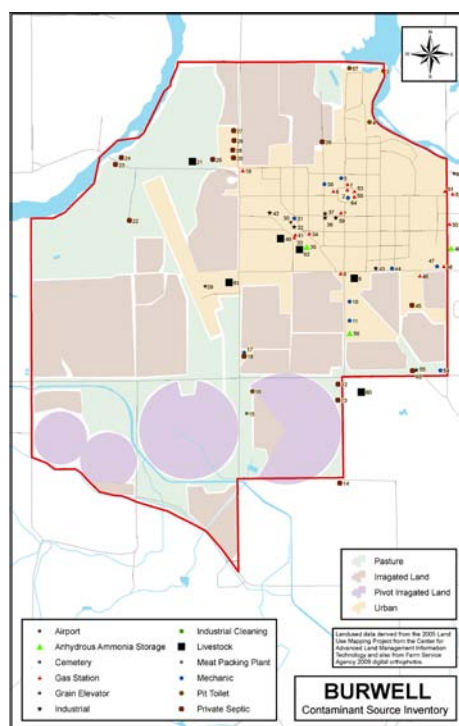
The purpose of a contaminant source inventory is to identify potential contaminants that may pollute drinking water. Inventories should be compiled from existing databases and on-the-ground observations. Contact the NDEQ Wellhead Protection Program for shapefiles/maps and spreadsheets from existing databases.

Main Requirements:

- Inventory completed/updated within the past 3 years
- Contaminants marked on a map (point sources)
- Spreadsheet associated with point source contaminants
- Land use map (non-point sources)

Databases Available:

- NDEQ - regulated facilities
- NDNR - water wells
- State Fire Marshal's Office - flammable & haz waste storage
- NRDs - abandoned wells
- NE Oil & Gas Conservation Commission - oil & gas wells
- NE Dept of Ag - Ag chemical storage/manufacturer



Common Potential Contaminants:

- Agricultural
 - Fuel Storage
 - Grain Storage
 - Water Well
 - Chemigation
 - Livestock
- Commercial / Light Industry
 - Auto Repair
 - Dry Cleaners
 - Fuel Stations
 - Machine Shop
 - Rail Yard
- Industry
 - Manufacturing
 - Gas/Oil Well
 - Junk Yard
 - Landfill
 - Sewage Treatment
- Other
 - Cemetery
 - Golf Course
 - HWY Maintenance Yard
 - Transportation Corridors



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Contaminant Source Management

Management of a groundwater supply by local communities can involve a number of possible steps. These may include the enactment of sanitary and water ordinances, public nuisance laws, and zoning restrictions on specific land uses; the purchase of land or conservation easements; cooperative efforts with local NRDs; or voluntary actions. Best Management Practices should be encouraged throughout the Wellhead Protection area. Some water systems subsidize or even completely fund these practices.



Main Requirements:

- Develop a list of existing controls
- Develop or suggest new controls
- Include copies or descriptions of inter agency agreements (if any)

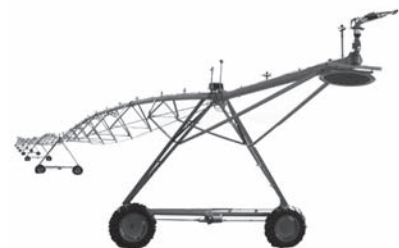


Example Best Management Practices in Urban Settings:

- Alternative Lawn Options
- Improving Soil Structure
- Installing Water Meters
- Low Flow Nozzles
- Mulching Lawn Clippings
- Permeable Pavement
- Rain Barrels / Rain Gardens
- Rain Sensors for Lawn Irrigation

Example Best Management Practices in Ag Settings:

- Alternative Cropping Methods
- Conservation Reserve Program
- No-Till Cultivation
- Nutrient Management Program
- Strip Cropping
- Terracing
- Water Management Program



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Emergency, Contingency, and Long-Term Planning

A plan is developed to provide a replacement source of drinking water in the event of:

- Shut down of well due to contamination
- A natural disaster that impacts wells: flood, tornado, drought, ice storm
- Major mechanical or physical breakdown of pump, water tower, or distribution system
- Vandalism to well, water tower/storage, or supply source

Main Requirements:

- Include or reference a copy of your emergency plan
- Identify a safe short-term, temporary source of drinking water
- Identify options for obtaining a new long-term source of water
 - Possible locations of a new well
 - Other Public Water Systems to purchase water from



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Public Education & Participation

Through state agencies, local groups, and environmental organizations, the public needs to be informed throughout the process and educated about what can be done to protect groundwater and their drinking water.

Main Requirements:

- Make the Wellhead Protection Plan available for public review at least 30 days prior to the meeting where public comment on the Plan will be recorded
- Take public comments at a regularly scheduled meeting of the controlling entity (village board, city council, RWD board, etc.)
- Public Notice both of the above
- Provide proof of public meetings and Public Notices

Approved WHP Plans

The Nebraska Department of Environmental Quality (NDEQ) is the lead agency for Wellhead Protection (WHP) plan approval under the Nebraska Wellhead Protection Area Act (§46-1501 through 46-1509). Numerous guidance documents are available from NDEQ to assist in the development of a local WHP plan.

Funding Options

Numerous funding options are available for everything from paying someone to develop a plan to implementing on-the-ground management practices. Sources of these funds may include:

- 319 grant - Various projects as they relate to the effects of pollution on surface and groundwater - NDEQ
- Source Water grant - Projects that provide long-term benefits to drinking water quality, quantity, education, and/or security - NDEQ
- Nebraska Environmental Trust grant - Actions to preserve, restore, research, design, manage, or conserve water
- Natural Resources Districts - Depends upon the district

Contacts for Assistance

Nebraska Department of Environmental Quality (NDEQ) Wellhead Protection Program (WHP)



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More information is available in other NDEQ WHP publications. Find these newsletters and other WHP information at:
-- www.deq.state.ne.us --
Use the search button and type in WHP

Nebraska Rural Water Association

402-443-5216
www.nerwa.org



The Groundwater Foundation

1-800-858-4844
www.groundwater.org



Natural Resources Districts (NRD)

402-471-7670
www.nrdnet.org

