



# Wellhead Protection

for safe drinking water in Indiana



## A Shortcut to Wellhead Protection Delineation for Some Systems

Barbara C. Cooper,  
Water Quality Education  
Specialist

Jane R. Frankenberger,  
Extension Agricultural  
Engineer

Fred Whitford,  
Coordinator, Purdue  
Pesticide Programs

Clean, safe drinking water is vital to your community's health, economy, and future well-being. If the ground water your community uses becomes contaminated, it may be lost forever as a water supply, or it may require very expensive treatment to remain usable. The best way to make sure your water supply remains safe now and for the future is to protect the area around your wells (the wellhead protection area) from potential hazards.

This publication describes the fixed radius method to delineate a wellhead protection area, which may be an option for water supply systems that pump, on average, less than 100,000 gallons per day.

### Wellhead Protection Planning Overview

- Local planning team
- Delineation of the wellhead protection area
- Identification of potential sources of contamination
- Management of the wellhead protection area
- Contingency plan
- Public participation, education, and outreach

## Inside

Who Is Allowed to Use the Shortcut Method?	2
How Do You Apply for Permission to Use the Fixed Radius Method?	2
How Do You Get Your Delineation Approved?	3
What's Next?	5
Useful Publications	5
Indiana Information Contacts	6
Sources of Topographic Maps	6

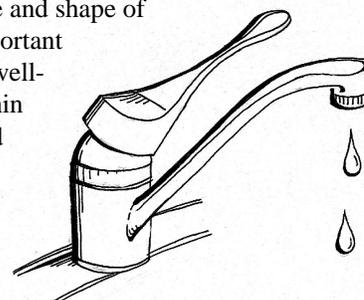
### What Is Wellhead Protection?

Wellhead protection is a way to protect a water supply by managing an area around the community's wells to prevent contamination. A team of concerned community members guides the wellhead protection planning process. The process involves defining and mapping the wellhead protection area, inventorying potential sources of contamination, developing a plan to manage the area, contingency planning for possible contamination, and educating the public.

### How Do You Identify Your Wellhead Protection Area?

The area that is most likely to affect drinking water quality and that therefore requires added protection is known as the "wellhead protection area." Delineation is the process of identifying the size and shape of the wellhead protection area. Delineation is important because it serves to focus the attention of your wellhead protection planning team on activities within the area that are potential contributors to ground water pollution.

*Potential* is the important word here, because Indiana's Wellhead Protection Rule emphasizes



prevention rather than remediation of ground water problems. Once your team identifies potentially harmful activities, it can begin developing voluntary best management programs and outreach efforts to educate those living and working within the wellhead protection area on how to safeguard the water supply.

Indiana's Wellhead Protection Rule (327 IAC 8-4.1) allows some smaller communities to choose between two separate methods for completing a delineation, depending on how much water they pump each day and how accurate they wish their delineation to be. The more scientific and accurate method requires hiring a consultant, a qualified ground water scientist, to determine the area from which the community will draw water over a five-year time period. (See "Useful Publications" for a publication on this topic.)

Some smaller communities are able to apply to IDEM to use a "fixed radius method." Using the fixed radius method provides a shortcut to delineation when compared to the standard modeled delineation process. The community public water supply systems that are eligible to use the fixed radius method may use a circle with a 3000-foot radius around their community drinking water supply well as a wellhead protection area.

### Who Is Allowed to Use the Shortcut Method?

If your water supply system pumps less than 100,000 gallons per day, on average, your wellhead protection planning team may apply to IDEM for approval to use the fixed radius method for delineating your wellhead protection area. While this method will save you time and money in the short term, it is not as accurate as the methods using a computer model. It may define a larger area to inventory and manage or may fail to include some parts of the recharge area. Figure 1 is a topographic map comparing a 3000-foot fixed radius delineation with a modeled delineation of a wellhead protection area.

### How Do You Apply for Permission to Use the Fixed Radius Method?

The first step is to verify whether your water supply system pumps less than 100,000 gallons per day. You may use either pumping records or well capacity data from the well log the driller filed when your well was drilled.

- If your water supply system has long-term pumping records, you can submit copies of the (monthly average) pumping records for the last five years to the Indiana Department of Environmental Management (IDEM). If your system disinfects the drinking water, this data may be found in your monthly reports of operations (MRO's). If your team does not have access to five years of metered data, make sure a meter is installed, and start collecting data as soon as possible.
- If you have well logs and well capacity data for all the wells in your system that indicates that the combined well capacities of

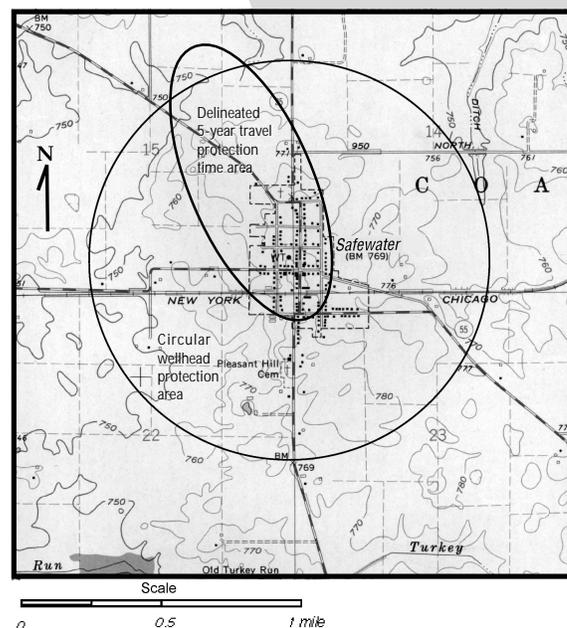


Figure 1. The shortcut, fixed radius, method of delineation may save time and money in the short term, but it is less accurate and often results in delineating a larger wellhead protection area than a modeled delineation.

all the wells is not sufficient to produce 100,000 gallons per day, you can submit this data to IDEM as proof that your system uses less than 100,000 gallons per day.

If you have the pumping data or the well capacity data you can apply to IDEM for approval to use the fixed radius method of delineation. Figure 2 is a sample of a cover letter that you should send to IDEM with a request. Substitute information specific to your particular water supply system where it is appropriate.

If you do not have the well capacity information or the five years of pumping data, but you think that your water supply system pumps less than 100,000 gallons per day, you can contact IDEM directly (at 1-317-308-3321 or 1-800-451-6027 ext. 308-3321) and discuss the options for getting permission to use the fixed radius method.

### How Do You Get Your Delineation Approved?

After you receive approval to use the fixed radius method from IDEM, you need to send an application for delineation approval to IDEM. The application should include a copy of the letter granting approval to use the method, your well logs, and a map of the area. The following steps will help guide your local wellhead protection planning team through the process of sending in the information to get your delineation approved.

#### ***Step 1: If available, obtain well logs of your public water supply wells.***

You can obtain well logs from the Indiana Department of Natural Resources by calling 317-232-1106 or, toll free, 1-877-WATER 55 (1-877-928-3755), or by sending a letter requesting a copy to the Indiana Department of Natural Resources, Division of Water, 402 West Wash-

ington Street, Room W264, Indianapolis, IN 46204. Each written request should include the owner's name, facility name, the street address, and the section, township, and range location. (All available records are filed by section, township, and range, so be sure this information is included.) Water well records are also available on the Web at < <http://www.state.in.us/dnr/water>>.

IDEM Office of Water Management  
Drinking Water Branch/Ground Water Section  
Fixed Radius Delineation Approval  
P.O. Box 6015  
Indianapolis, IN 46206-6015

Re: Safewater Water Works #0000000

October 6, 1999

To Whom It May Concern:

We are requesting Fixed Radius Delineation Approval for our Wellhead Protection Plan here in Safewater, Indiana (Tippecanoe County). You will find listed below the daily pumping averages for five years spanning January 1994 through December 1998.

January-December 1994: 52,177 gpd

January-December 1995: 63,029 gpd

January-December 1996: 53,432 gpd

January-December 1997: 47,495 gpd

January-December 1998: 49,779 gpd

The January 1994 through December 1998 gpd average is 53,182.

The records that we are enclosing are recorded in thousands of gallons. If you have any questions or require any more information, please call the clerk treasurer, Mary Smith at 765-555-1111. She can assist you in obtaining additional information.

Sincerely,

John Brown, Superintendent  
Safewater Water Works

*Figure 2. A sample of a letter to IDEM requesting permission to use the fixed radius method of delineation*

Not all wells were recorded by the well driller when they were installed. Only the well logs that were recorded are available. If the log for your community's well is not available, your team should turn in a statement to that effect with your other documentation.

***Step 2: Obtain topographic maps of your area.***

A listing for several sources of topographic maps is included at the end of this publication. When ordering topographic maps, your team should be prepared to describe your location. Providing section, township, and range information is usually the easiest way to be sure you will receive the correct map(s). If your area falls at the edge or corner of a map sheet, you may need more than one sheet to show your area completely. It is a good idea to order several copies of the maps you need—at least one as a working map to use when you work on the contaminant source inventory (another part of the wellhead protection planning process), one to keep locally with a copy of your wellhead protection plan, and one for the submission package to IDEM.

***Step 3: Draw a 3000-foot radius circle around the well.***

Once your team has the topographic map, you can draw a circle with a radius of 3000 feet (1.5 inches on the map that is scaled at 1:24,000) with the well at the center of the circle. The area inside this circle is your wellhead protection area. Figure 1 includes an example of a circular wellhead protection area.

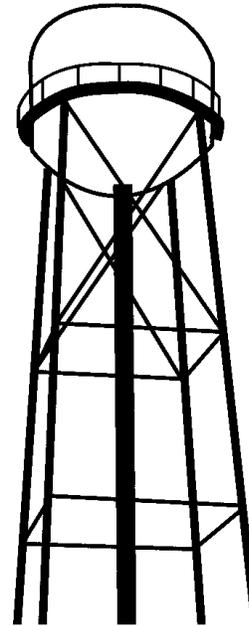
***Step 4: Indicate location of water withdrawal facilities.***

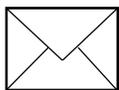
If there are other significant water withdrawal facilities in the area, your team should indicate their locations on the topographic map. Examples of significant water withdrawal facilities may include industries, agricultural processing operations, large-scale irrigation facilities, or another public water supply system. The Indiana Department of Natural Resources (toll-free at 1-877-WATER-55) can provide information about water wells, including any information on significant water users.

***Step 5: Submit application for delineation approval to IDEM.***

The application is available on the Web at IDEM's Web site. (See "Indiana Information Contacts" listed at the end of this publication.) Although the application covers the entire process, IDEM has suggested that you send the delineation section first. Complete the first page and the top of page 4 on the application form for this part of the submission. Three things need to be included in the initial submission to IDEM.

1. A copy of the letter from IDEM granting approval for use of the fixed radius method.
2. The well log information on your public water supply system's pumping wells (Step 1).
3. The topographic map showing:
  - the wellhead protection area boundary (Step 2).
  - the location of the public water supply system's pumping wells (Step 3).
  - the locations of all other significant water withdrawal facilities in the area (Step 4).





Send these three things along with a copy of the wellhead protection plan application to:

Wellhead Protection Program  
IDEM, Drinking Water Branch  
P.O. Box 6015  
Indianapolis, IN 46206-6015

IDEM will respond to your application. However, if the response takes longer than you would prefer, your team should continue working on the remaining parts of your wellhead protection plan. By continuing to work on the plan, initial enthusiasm remains high, and your team makes progress toward the goal of wellhead protection planning.



### What's Next?

Wellhead protection is a multi-step process. Once the delineation is approved, your team can focus on the task of inventorying the wellhead protection area for potential sources of contamination. Other tasks include determining how to manage the wellhead protection area to reduce the risk of contamination, contingency planning in case of future contamination, and educating the public about ground water and wellhead protection. Publications on each of these topics are available now, or will soon be available from your local Purdue Extension county office. (See "Useful Publications.")

### Useful Publications

The following Purdue Extension publications provide information about other aspects of the wellhead protection process.

- WQ-2, "What Is Groundwater?"
- WQ-24, "Wellhead Protection in Indiana"
- WQ-28, "Forming the Wellhead Protection Planning Team"
- WQ-30, "Choosing a Consultant to Delineate the Wellhead Protection Area:"
- WQ-31, "Inventorying Potential Sources of Drinking Water Contamination"
- "Protecting Your Drinking Water: What Every Citizen Should Know About Wellhead Protection" and "Wellhead Protection: What Every Farmer Should Know About Wellhead Protection." *These short brochures may be useful in your outreach efforts.*

All these publications are free. Contact your local county Purdue Extension office, or call 1-888-EXT-INFO to obtain these or other publications.

The USEPA has an informative publication, "Wellhead Protection, A Guide for Small Communities," EPA/625/R-93/002, available free by calling 1-800-490-9198.

## Sources for Topographic Maps

- Purdue University, West Lafayette Campus. If you know the name of your map, you can send a check for \$4 per map, plus \$2 for shipping to LARS, Purdue University, 1202 Potter Engineering Center Room 376, West Lafayette IN 47907-1202 (765-496-3209), or email <esei@ecn.purdue.edu>. Please include your phone number in case more information is needed.
- The Indiana Department of Natural Resources, DNR Map Sales Section, 402 West Washington Street, W-160, Indianapolis, IN 46204-2742, or call 317-232-4180.
- The Indiana Geological Survey Publication Sales Office at Indiana Geological Survey, 611 North Walnut Grove, Bloomington, IN 47405-2208, or by phone at 812- 855-7636. They can determine the proper map to supply if you provide the name of a town, river, or other named landmark nearby. Maps are \$4 each, plus tax, with a \$3 shipping and handling charge.

## Indiana Information Contacts

- The Purdue Extension office in your county can provide you with information and resources on water quality protection. Look in the phone book under "County Government," or call 1-888-EXT-INFO.
- "Safe Water for the Future" is a Purdue Extension program that provides resources on drinking water protection for individuals and communities. Call 765-496-6331, or visit their Web site at <<http://www.ecn.purdue.edu/safewater>>.
- Indiana Department of Environmental Management, Ground Water Section, can provide information on Indiana's Wellhead Protection Program. Call the Groundwater Section at 317-308-3321 or 1-800-451-6027, ext. 308-3321. Information is also available on the Web at <<http://www.ai.org/idem/owm/dwb>> under "Wellhead Protection."
- Indiana Water and Wastewater Association provides training and on-site assistance to water supply operators. They can be reached at 1-888-937-4992 or through the Web at <<http://www.iwwa.com>>.
- The Indiana "Rural" Water Association also provides education and assistance to water supply operators. You can reach them at 812-988-6631 or Fax 812-988-6961.

