

6 Step 6: Implementing, Maintaining and Updating Your WHP Plan

Introduction: what this step is about

A wellhead protection plan must include the means and the timetable for putting the Plan into action.

When you submit your wellhead protection (WHP) plan, it must include the means and a timetable for putting it into action. Once your WHP program is in place, continued administration and periodic evaluation and possibly revision of the program will be necessary to continue protection of your drinking water supply. Administration includes the establishment of wellhead protection areas (WHPAs) for new wells, periodic well and well site inspection, regular updating of Potential Contaminant Sources (PCS) inventories, and the review and revision of WHP management strategies.

Your WHP plan cannot be a static document. It must be maintained and revised to respond to changing conditions in your town.

Procedure: what you need to do to complete Step 6 toward your WHP plan

Implementing your plan

You must anticipate and plan for implementation while you are developing your WHP plan. After your plan is approved, implementation can begin. Implementation details will vary by community but will need to address the following items:

Implementation Steps:

- Appoint a WHP Administrator
- Notify property owners
- Initiate management strategy
- Begin community education
- Finalize contingency plans

■ **Appoint a local WHP program administrator**

The assignment of a person to oversee the administration of a WHP plan is critical. Responsibility and appropriate authority must be given to this person for the plan to be implemented successfully. This may or may not be the same person who led the plan preparation and need not be a new hire or new position, but it is important that adequate resources be allocated to the administrator. Examples of local WHP program administrators include town Public Works Director, Town Manager, and town water plant superintendent.

■ **Notify property owners within the WHPA**

Property owners contacted in Step 3 should be contacted again when the plan is implemented. Give high priority to PCSs identified in Step 3. Information sheets regarding their PCS and appropriate management measures, including Material Safety Data Sheets, should be shared at this point. An educational approach, including some of the activities outlined in Steps 3 and 4 should be carried out or revisited at this time.



- **Initiate management strategy**
 Implementation of your WHP plan includes application of the management measures you outlined in Step 4 of the plan. If general public education efforts were proposed, begin developing the educational material (e.g., a brochure) and specific plans for distribution. Site visits to PCSs should be scheduled and carried out. Establish regular contacts with the appropriate State and/or Federal agencies to monitor compliance with discharge permits, underground storage tank (UST) management, and other regulatory programs. If you proposed any local regulatory elements such as zoning overlay districts or building code modifications, begin the political and administrative process of adoption as soon as possible.
- **Community Education**
 Plans for broad-based community education drawn up in Steps 3 and 4 should be put into action. While tangible steps need to be taken at the outset to raise community awareness, remember that education and public involvement is an ongoing effort.
- **Contingency Plan Coordination and Assignments**
 Personnel, equipment, and other resources needed to respond to contingencies (Step 5) should be checked and verified. Any training or additional resource needs identified in Step 5 must be part of the implementation of your plan. If financial resource needs were identified in Step 5, plans to raise necessary revenues should also be included in implementation of your plan. Personnel assignments for short-term (emergency) and long-term problems need to be made immediately. Coordination with other community departments or units such as the fire department and with response agencies outside the town should be established early.

Maintaining your plan

Maintaining your local WHP program is a continuous process of adjusting to the growth and changes that take place in your community. Maintaining and updating your WHP plan includes monitoring chemical use and land use in the WHPA, updating PCS inventories on a regular basis, maintaining public awareness and involvement, and adding any new water supply wells to the existing plan. After your plan is adopted and implemented, you may want to maintain your WHP planning team as a standing town committee to maintain the plan.

Maintain your plan:

- Monitor chemicals used in the WHPA
 - Track changes in land use and development
 - Maintain public awareness
 - Update PCS inventory
 - Review management strategies
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Consider these activities to keep your WHP plan up to date:

- **Monitor chemicals used in the WHPA**
 As new industry comes into the WHPA or land use changes occur, planning team members and city officials should be aware of new chemical sources and practices that could affect ground-water quality. Use the instructions, examples and resources in Step 3 “Potential Contaminant Source Inventory” and Step 4 “Developing Management Strategies” to update PCS inventories and to update management strategies for any new contaminants identified. Ask emergency responders to report additional hazardous materials that are registered with them.
- **Monitor land use within the WHPA**
 Land use changes may affect the WHPA and potentially your ground-water supply. It is important to keep up to date with these changes in order to



update your plan and to protect ground-water resources. Maintain communication with people responsible with planning and zoning in your town; tracking applications for building or zoning permits is a good way to keep up with development in the WHPA. Planning team members may also be a good resource for monitoring land use changes. Simple “windshield surveys” conducted at regular intervals can be helpful. Finally, the public awareness and participation developed during the planning process may encourage residents to watch over activities in their WHPA.

- **Maintain public awareness programs**

Educational programs are crucial in letting residents of the WHPA know how important it is to be careful with any substance that could affect ground-water quality. The educational programs you developed in Step 4 should be implemented as part of your WHP efforts. Information and education programs may need to be revised and/or repeated periodically after the initial effort.

- **Update the PCS inventory**

Even in the absence of new development or major land use change, it is a good idea to update your PCS inventory on a defined schedule. Public records available at facilities identified as PCSs should be reviewed annually to insure program compliance. Every three years, the PCS inventory should be updated using the same procedures used to develop the original PCS inventory. At this time any new PCSs can be added to the inventory; any sites eliminated through business or industry closure or modification can be removed from the active inventory. Additionally any new chemicals registered with the local fire department should be evaluated with respect to their potential effect on the drinking water supply. This also is a good time to review hazard ratings for PCS entries and make necessary changes. Follow procedures outlined in Step 3.

- **Review management strategies**

If new PCSs are identified, management strategies identified in your plan should be reviewed and amended if necessary. If new chemicals or processes are added, you may need to revisit the procedures in Step 4 to make sure that your plan includes the management strategies appropriate to all of the threats to water quality in your WHPA.

- **Include new water supply wells to your plan**

When adding new wells to the existing WHP plan, the local WHP program administrator should work closely with the community’s public works personnel and any consultants involved with planning and constructing the well.

The first step in adding a new well or wells to an existing WHP plan is to delineate the WHPA for the proposed well. Next, a new PCS inventory must be developed for the proposed well.

This preliminary information should be given to the person responsible for the local WHP program (local WHP Program Administrator) for review. At this point, the local WHP Program Administrator may wish to consult with the Public Water Supply (PWS) Section’s WHP Program Manager regarding the delineation of the preliminary WHPA. Any information required by the PWS Section relating to development of new PWS wells must also be submitted. If the person responsible for the local WHP program grants provisional approval of the proposed WHP plan and the PWS Section grants

Addition of new wells to your water system will require an update of your plan.

approval to construct or expand the PWS well or well system, then work may proceed with well construction. Once the well has been constructed, the revised WHP plan can be finalized. This involves finalizing the WHPA delineation and the PCS inventory. It may also be necessary to revise other WHP plan components (e.g., management plan, contingency plan, etc.) to deal with any new PCSs identified in the new well's PCS inventory. The revised WHP plan should then be sent to the PWS Section for review and approval. Once approval is received, implementation of the revised WHP plan can begin.

- **Monitor PCS and drinking water supplies**

Some of the sources you searched to develop your initial PCS inventory in Step 3 should be rechecked periodically to track changes in PCS activity. Consult electronic databases to monitor incidents of known ground-water contamination. Check with the UST Section of the NC Division of Waste Management to track issues related to USTs in your WHPA. You may wish to check with the NC Division of Water Quality to verify that operators of permitted facilities continue to comply with applicable regulatory and permit requirements.

North Carolina Regulations require monitoring of public drinking water supplies. It is a good idea to establish communication with the operator of your water provider so that you may be apprised of any change in water quality. If you anticipate a long-term problem with a PCS, you may want to consider developing a ground-water monitoring program.

- **Measure effectiveness**

Ultimately, the effectiveness of your WHP plan can be judged by the continued quality of your drinking water supply. In addition, some features of your plan can be tracked to see how your plan is working. If your community has used some regulatory tools, public record of zoning and subdivision permits, site plan reviews, and health or building code inspections can provide insight into how these tools are working. State agencies can provide records on monitoring of permitted facilities, USTs, and any documented ground-water contamination incidents. Effectiveness of public information and education can be tracked by documenting public participation in household hazardous waste pick-ups, septic tank maintenance, requests for information, participation in public meetings, etc.

Updating your plan

Even with regular evaluation and maintenance, your WHP plan should be thoroughly re-evaluated on a regular basis, perhaps every three to five years. If you have been careful about maintaining your WHP plan, this job will be relatively easy. A major update of your WHP plan will be necessary if any of the following apply:

- Water supply or pumping volumes changes;
- New potential sources of contamination or new potential contaminants;
- Land use changes within the WHPA;
- New required or proposed management strategies;
- Contingency planning and emergency response procedure changes; or
- Addition of new water supply wells.

If you have been careful about maintaining your WHP plan, updating the plan will be relatively easy.

Updating your WHP plan may not require you to completely repeat each of the steps in the process. Addition of a new well, for example, may require an expanded WHPA and additional PCS inventory, but unless a completely new PCS is added, existing management approaches and contingency plans may be sufficient. Residential growth within the WHPA may stimulate discussion of new management approaches, but may not add new PCSs to manage. It may be wise to maintain your WHP plan development team as a standing town committee to make major plan updates easier.

Plan for the future of your ground-water supply

Forecasting future water demand and water supply will help your community anticipate WHP plan updates. Future demand will depend on population change, the type of development (residential, industrial, etc.), and the safe yield of existing and future water supplies. The average North Carolinian uses between 50 and 75 gallons of water per day for domestic use. Commercial and industrial use may vary from 10 to 75 gallons per person per day, with lower uses associated with small residential communities. Public uses (water used in parks, civic buildings, schools, churches and hospitals, etc.) can range from 15-25 gallons per person per day. Water use varies by season, with the peak daily use typically about 180 percent of the annual average daily use.¹

Forecasting future water supply and demand will help prepare for WHP plan updates.

You should also consider the safe yield of existing wells and of the entire local ground-water supply when anticipating WHP plan updates. North Carolina General Statute G.S. 143-355(l) requires all units of local government that provide or plan to provide public water service to prepare a Local Water Supply Plan (LWSP) and to update that plan at least every five years. A LWSP is an assessment of a water system's current and future water needs and its ability to meet those needs. By looking at current and future needs, local governments are better able to manage water supplies and better prepared to plan for water supply system improvements. Having a LWSP reduces the potential for water conflicts and water shortages. Early identification of these issues allows more time for resolution. Additionally, local governments must have an adopted current LWSP on file with the Division of Water Resources to qualify for certain grants and loans available for water supply systems in North Carolina. Comparing future water demand with safe yield of available ground-water supplies will help in anticipating the need for new wells or well fields that would require major WHP plan updates and revisions. In some areas of North Carolina, ground-water use is becoming regulated in the form of *capacity use areas*. The Central Coastal Plain capacity use area effective August 1, 2002, for example, requires registration of uses above 100,000 gallons per day, and establishes certain reporting requirements, including a water conservation plan for PWS systems. Additionally, users drawing from certain aquifers must reduce usage over a period of time from an established base rate.

Involving the public

The relationships you have developed in the planning process through communicating with your stakeholders need to be maintained throughout the process. If you do it right, and your support is broad enough, then you will

¹Linsley, R.K., J.B. Franzini, D.L. Freyberg, and G. Tchobanoglous. 1992. Water Resources Engineering. McGraw-Hill.

maintain support for the program even when your elected administration changes. The effort to develop a truly representative stakeholder group at the beginning will bring rewards in the long run.

Some examples of how town residents can help in local WHP program implementation and maintenance include:

- **Citizen observations**
Citizens will be more aware of PCSs after education and awareness, and should be encouraged to notify town officials when they see potential contamination events;
- **Voluntary submission of updates**
By emphasizing that the goal of WHP is protecting drinking water, not just complying with regulations, operators of PCS facilities can be encouraged to volunteer information on changes in their facilities, to consider management options for new chemicals, and to approach the WHP committee for management ideas and information.
- **Future surveys**
Future surveys for monitoring WHP plan effectiveness and for plan updates will depend on cooperation of town residents and on volunteers to assist in information collection.
- **Public education**
Planning team members and members of the community at large can be of assistance in public education. Specifically, members and volunteers can help disseminate educational materials by various modes, including mailings, door-to-door delivery and postings at public buildings, schools and churches. Refer to step 4 for other ideas.

RWA and PWS Section contributions

The North Carolina Rural Water Association (NCRWA) can assist in this step just as they assist in the original development and submission of the WHP plan. In particular, they are well suited to help you in the delineation of WHPAs for any new wells.

The PWS Section can assist in administrative and technical matters, especially the requirements for any revisions of the originally submitted plan.

If you had a consultant help you in the development and submittal of your original plan, you may wish to consider retaining the consultant for assistance in updating your plan.

- **North Carolina Rural Water Association**
Phone: (336) 731-6963
Ncrwa@aol.com
<http://www.ncrwa.com/>
- **Public Water Supply Section
Wellhead Protection Program**
1634 Mail Service Center
Raleigh, NC 27699-1634
Phone (919) 715-2853



Resources and References

North Carolina Cooperative Extension

Ground Water in North Carolina Publication Number: RE-6

<http://www5.bae.ncsu.edu/programs/extension/publicat/wqwm/re6.html>

Ground Water in the Coastal Plain of North Carolina Publication Number
WQWM-1\AG-450

<http://www5.bae.ncsu.edu/programs/extension/publicat/wqwm/ag450.html>

Ground Water in the Piedmont and Blue Ridge Provinces of North Carolina
Publication Number WQWM-9\AG-473-6

Focus on Residential Water Conservation Publication Number HE-250

<http://www.bae.ncsu.edu/programs/extension/publicat/wqwm/he250.html>

Division of Water Resources, NC DENR

North Carolina State Water Supply Plan — January 2000 Draft

http://www.dwr.ehnr.state.nc.us/wsas/swsp_jan2000/swsp_j00.htm

Capacity Use Area #1

<http://www.dwr.ehnr.state.nc.us/hms/gwbranch/cua1.htm>

Central Coastal Plain Capacity Use Area

<http://www.dwr.ehnr.state.nc.us/hms/gwbranch/ccpcua.htm>

Central Coastal Plain Capacity Use Area Rules

<http://www.dwr.ehnr.state.nc.us/hms/gwbranch/HOR/HORwebpage.htm>

Central Coastal Plain Capacity Use Area Fact Sheet

<http://www.dwr.ehnr.state.nc.us/hms/gwbranch/ccpcua.htm>

Division of Environmental Health, NC DENR

North Carolina's Rules Governing Public Water Systems

<http://www.deh.enr.state.nc.us/pws/rules/contents.htm>

Public Water System Capacity Development Guidance Document

(This document provides guidance on the capacity development program which contain rules governing expansion or creation of a PWS system.)

<http://www.deh.enr.state.nc.us/pws/CapDev/FINALguid.pdf>

Attachments

Beginning with the next page, you will find an attachment provided to make it easier for you to prepare your plan document.

Remember, the attachments labeled “Example” are only to give you ideas.

- **Attachment 1: Example of a partial plan showing the portions of the plan that results from this step.** Your final plan will be different than that of the fictional town of Clearwater provided as an example.

Attachment 1: Example of plan language related to this step

The following is some sample language related to this step.

Implementation

The Town of Clearwater will implement its local WHP program by taking the following steps:

- **Appointment of a local WHP program administrator**
It is anticipated that the Town Public Works Director will be appointed as local WHP Program Administrator. The person currently in this position has co-chaired the WHP planning team during the development of the WHP plan.
- **Notification of property owners within the WHPA**
Property owners contacted in the course of the PCS inventory will be notified of plan adoption and implementation. Each owner will receive a mailing that will include information related to their PCS and the relevant management measures contained in the plan. The information brochure developed in the planning process will also be included in the mailing.
- **Community education**
A WHP brochure containing information about ground water, wellhead protection, ground-water pollution, and the town's local WHP program will be delivered to each resident, farm, business, and industry within the WHPA. Copies of this brochure will be made available at the Town Hall, Public Library, and other locations.
- **Contingency plan coordination and assignments**
Personnel assignments for responsibilities identified in the Contingency Plan will be made and the emergency contact information list will be completed with current information. Material Safety Data Sheets for all chemicals identified in the PCS inventory will be assembled and filed in the Public Works Office and in the Clearwater Fire Department. Training for Fire Department personnel in spill response will be scheduled as soon as possible.
- **Monitoring of PCS and drinking water supplies**
The local WHP Program Administrator will periodically consult electronic databases to monitor incidents of known ground-water contamination. The Administrator will initiate a program of semiannual checks with the UST Section of the NC Division of Waste Management to track issues regarding USTs and with the NC Division of Water Quality to verify that operators of permitted facilities continue to comply with their permit requirements. Regular consultations between the Administrator and the water system operator will ensure that drinking water quality is routinely tracked.

Implementation of the Town of Clearwater local WHP program will take place according to the schedule listed below. For each implementation step listed on the vertical axis, the beginning of the horizontal bar represents the start-up time in months following approval of the WHP plan. The length of

each bar represents the expected duration of implementation and the end of the bar indicates the expected completion date for the step. Note that the “Monitor PCS” step is a continuous process and does not end at 25 months. Similarly, some educational programs would continue or repeat beyond the 25th month.

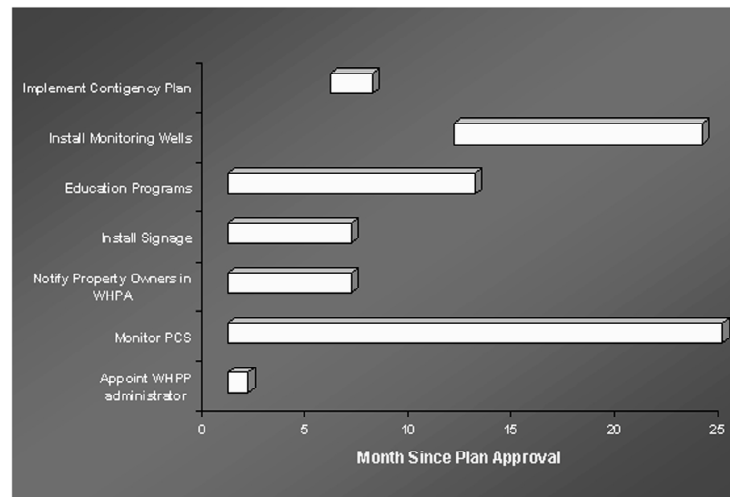


Figure 6-1. WHP plan implementation schedule

Maintaining and updating the plan

The Town of Clearwater is aware that an effective local WHP program is an ongoing process. The Town of Clearwater will review public records available at hazardous waste and waste disposal facilities and other PCS sites located within the WHPAs annually in order to ensure program compliance. Every three years, the PCS inventory will be updated using the same procedures used to develop the original contaminant source inventory. The Town of Clearwater will fully update the plan every five years. Additionally, the plan will be updated at any time a new well is constructed for use with the city’s water supply system, a new PCS is located within the WHPA, or major land use changes occur in the WHPA.

The WHP planning team will be maintained as an advisory committee to the local WHP Program Administrator. This WHP committee will assist in tracking development and land use change in the WHPA, update the PCS inventory and applicable management measures as necessary, and track state agency reports and monitoring programs relevant to ground water and drinking water. An annual review of proposed developments in the WHPA such as shopping centers, industrial parks, and subdivisions will be performed in consultation with planning and zoning staff. The WHP committee will also be responsible for informing town residents and responding to questions concerning the Clearwater WHP program.

The Town of Clearwater will amend its WHP plan to include any new well(s) added to its water system. The WHP team for the Town of Clearwater recommends the following steps:

1. Develop a preliminary WHPA for the proposed well in order to determine the area of vulnerability.
2. Develop a contaminant source inventory for the preliminary WHPA.
3. Submit the information obtained in items 1 and 2 above to the local WHP Program Administrator and the WHP planning team identified in Step 1. Any information required by the PWS Section relating to the development and construction of new PWS wells must also be submitted.
4. If the local WHP Program Administrator grants provisional approval of the proposed WHP plan and the PWS Section grants approval to construct or expand the PWS well or well system, then work may proceed with well construction.
5. Finalize the WHPA delineation for the new well.
6. Finalize the contaminant source inventory for the WHPA.
7. Submit finalized WHPA and contaminant source inventory to the local WHP Program Administrator.
8. Once approval is received, implement any necessary regulatory and or nonregulatory PCS management practices.
9. Submit the amended WHP plan and all necessary supporting information to the PWS Section for review and approval.