

**PART XVII**  
**WELLHEAD PROTECTION REGULATIONS**

**§ 1701            PURPOSE**

This part provides for the establishment of a Wellhead Protection (WHP) Program, pursuant to NNSDWA § 2538, through which the PWSSP will assist Chapter governments and other communities in implementing measures to protect their drinking water supplies. Implementation of a public water systems WHP Plan may result in lowering the costs for communities to provide clean drinking water to the public by reducing the need to drill new wells and reducing the costs for treatment of drinking water. Information collected through a WHP Program may support requests for waivers from sampling requirements for certain chemicals, if there is no evidence of those chemicals in the water supply and the chemicals have not been used in the surrounding areas.

Developing a WHP Plan includes identifying the wellhead protection area and taking the necessary steps to safeguard the area from contaminants, for which the standards are set forth below. In addition to these standards, the PWSSP has developed a Navajo Nation Wellhead Protection Program guidance manual to assist public water system owners / operators and the communities in developing their own Wellhead Protection Programs. Copies are available from the PWSSP office.

**§ 1702            APPLICABILITY**

All public water systems using wells or springs within the jurisdiction of NNEPA as a source of supply of drinking water must complete a NNEPA form identifying all potential pollution sources within a one-mile radius of each well or springs. In addition, community water systems (excluding systems using purchased sources, or interties) that use wells or springs within NNEPA jurisdiction as a source of supply of drinking water must comply with the remainder of this part.

**§ 1703            PRELIMINARY WELLHEAD PROTECTION REQUIREMENTS**

Public water system owners and operators are required to complete a Susceptibility Assessment Form (Appendix H of the Navajo Nation Wellhead Protection Guidance Manual) for each well in the public water system. It is used to develop and implement a wellhead protection plan for the public water system to protect drinking water wells/springs from man-made contamination. It is also required for a Waiver Application.

**§ 1704            WELLHEAD PROTECTION ELEMENTS**

- A.     An effective Wellhead Protection Plan (WHPP) must contain, at a minimum, the following elements:
1.     Specification of the duties of a public water system with respect to the development and implementation of a wellhead protection program;
  2.     Susceptibility Assessment Form(s);
  3.     Wellhead Protection Area (WHPA) delineation for each well, wellfield, or spring with the one, five and ten year time of travel boundaries marked, or boundaries established using alternate criteria approved by the PWSSP in those settings where ground water time of travel is not a reasonable delineation criteria. WHPA delineations shall be done in accordance with recognized methods such as those described in the following sources:
    - a.     Navajo Nation Wellhead Protection Guidance Manual, February 2003;
    - b.     EPA Guidelines for Delineation of Wellhead Protection Areas, EPA 440/6-87-010;
  4.     A list / inventory of all actual and potential ground water contaminant sources located within the delineated WHPA(s). This list must be updated every two years;
  5.     Documentation of the public water system owner's notification to all owners / operators of actual and potential sources of ground water contamination within the WHPA boundaries;
  6.     Documentation of the water system owner's notification to regulatory agencies and local chapter governments of the boundaries of the WHPA(s) and the findings of the WHPA inventory;
  7.     An Emergency Water Supply Plan (EWSP) to ensure consumers have an adequate supply of potable water in the event that contamination results in the temporary or permanent loss of the principal source of supply (major well(s) or wellfield). An EWSP is required pursuant to §2545 of the NNSDWA;
  8.     Before the operation of new water wells and springs, provide the PWSSP the following

documentation:

- a. Susceptibility Assessment Form(s);
  - b. A preliminary WHPA designation using the calculated fixed radius method, with the one, five, and ten year time of travel criteria;
  - c. An initial inventory of potential sources of groundwater contamination located within the WHPA;
  - d. A copy of the water well report including the Navajo Nation Tribal Well Identification number, depth to open interval or top of screened interval, overall depth of well, and location (both plat location and latitude / longitude);
  - e. Well source development data establishing the capacity of the source. Data must include:
    1. Static water level;
    2. Wellhead elevation;
    3. Yield;
    4. The amount of drawdown;
    5. Recovery rate;
    6. Duration of pumping; and
    7. Interference between existing sources and the source being tested.
9. Documentation of coordination with local emergency responders (including police, fire and health departments), including notification of WHPA boundaries, results of susceptibility assessment, inventory findings, and EWSP; and
10. A WHP program that contains, as appropriate, technical assistance, financial assistance, implementation of control measures, education, training, and demonstration projects to protect the water supply within the WHPAs from such contaminants.
- B. Geographic Information Systems (GIS) analysis or assessments consisting of a series of hydrogeologic and cultural overlay maps as given below, if available, shall be used to prioritize and determine aquifer susceptibility to potential contamination.
1. groundwater basin locations, geomorphic type, designated status;
  2. geographic distribution of groundwater quantity data (availability, type of use, type of water supply);
  3. population density and distribution;
  4. land status and land use;
  5. location of wells;
  6. contour map of depth of water table;
  7. contour map of total dissolved solids;
  8. areas of impaired groundwater (natural and human-induced); and
  9. actual and potential point sources of contamination (activities permitted or regulated by the Navajo Nation)

**§1705 SENSITIVITY DETERMINATION**

- A. A sensitivity determination consists of examining the hydrogeologic characteristics of the source, groundwater quality, and the well's physical integrity. Based on the Susceptibility Assessment review, the groundwater source is determined to be either sensitive or non-sensitive based on the criteria discussed within the Navajo Nation Wellhead Protection Guidance Manual and the following:
1. A groundwater source will be determined non-sensitive by the PWSSP in its initial assessment, if all four of the following conditions exist:
    - a. There is a hydrogeologic barrier of a minimum combined total of 50 feet of clay between, the surface and the top of the screened interval or perforated casing interval, or other identified protective layer;
    - b. There is evidence that the 50-foot clay or other protective layer extends throughout the delineated area;
    - c. No man-made contamination has been detected in the past three years; and
    - d. The Susceptibility Assessment Form shows that the well has passed the physical integrity test.

If a PWS well does not meet one of the above-listed conditions, then its WHPA will be considered sensitive.

- B. For those water sources that have been determined Groundwater under the Direct Influence of Surface Water (GWUDI) will be by default sensitive and vulnerable to potential contamination. These GWUDI sources will be delineated as surface water sources and include the delineated area around the well.
- C. PWSSP will coordinate with Arizona, New Mexico, and Utah to share their water assessment results for water sources originating outside the Navajo Nation boundaries.

#### **§1706 CRITERIA, THRESHOLDS AND DELINEATION METHODS**

- A. The delineation of a WHPA must be conservative; it must include the surface and subsurface area contributing water to the well. The goal is to provide protection to drinking water at the well from unexpected contaminant releases.
  - 1. Public water systems with less than 1,000 connections.
    - a. The Calculated Fixed Radius method is the minimum acceptable method of delineation.
  - 2. Public water systems with 1,000 or more connections.
    - a. The initial delineation must be the analytical or other more sophisticated groundwater flow method.
- B. The criterion, threshold and method selected for delineating a WHPA must be appropriate for the hydrogeologic situation and additional consideration must be given if the inventory reveals the presence of high risk potential contaminant sources.
- C. The Hydrologist shall evaluate the extent to which a hydrogeologic setting varies from a circular zone of contribution through the use of the Susceptibility Assessment form. The assessment shall determine if delineation methods other than the Calculated Fixed Radius methods are more appropriate:
  - 1. For public water systems determined to have high susceptibility to contamination or its groundwater source sensitive.
    - a. Initial delineation may be done using a Calculated Fixed Radius method, but must be upgraded using Analytical or other sophisticated, site specific methods, such as the numerical modeling and / or hydrogeologic mapping within two (2) years;
  - 2. For public water systems having low to moderate susceptibility to contamination or its groundwater source non-sensitive:
    - a. Initial delineation may be done using a Calculated Fixed Radius method, but must be upgraded to a more sophisticated delineation method within five (5) years;
- C. All delineations for groundwater sources will be based on the 1, 5, and 10-year Time-of-Travel boundaries for defining the wellhead protection area(s). Inventory results will be presented based on occurrence in the 3 delineated subunits (0-1 yr., 1-5 yr., and 5-10 yr., areas).

#### **§1707 GUIDELINES FOR CONTAMINANT SOURCE INVENTORY**

- A. The PWSSP has developed a Potential Sources of Contamination (PSOC) survey form (Susceptibility Assessment Appendix F). This PSOC form is an aid to identify any potential sources of contaminants that may exist within rural or populous communities. At a minimum, the WHPP should identify, locate and include a map of the past, present, and proposed operations that may represent a future potential source of groundwater contamination. The WHPP must also identify and include a map of the current and proposed land use zoning designations.
- B. Guidelines for conducting an inventory are given in the Navajo Nation Wellhead Protection Guidance Manual (February 2003).
- C. The WHPP inventory list must be updated every two years.

#### **§1708 NEW WELL SITING**

- A. All new water wells and related drilling must obtain drilling permits from the Navajo Nation Water Resources Management (NNWRM). Any construction or substantial modification of a public water system must be approved and permitted by the PWSSP pursuant to Part XVI of the NNPDR.

Before a new or modified public water system well receives approval from the PWSSP:

1. A susceptibility assessment must be completed;
2. A wellhead protection area must be delineated; and
3. Potential sources of contamination of the water bearing zone (aquifer) utilized by the well, spring, or wellfield must be identified.

**§1709 CONTINGENCY PLANNING**

- A. In the event that contamination results in the temporary or permanent loss of the principal source of supply (major well(s) or wellfield) an EWSP required under NNSDWA §2545 shall be developed to ensure consumers have an adequate supply of potable water. Refer to §2545 for requirements.
- B. The water system owner / operator must provide a copy of the wellhead protection area boundaries, results of the susceptibility assessment, inventory findings, and EWSP to local emergency responders (e.g. police, fire departments), the Navajo Nation Department of Emergency Management, and the local health department, and any local emergency planning committee. They can then evaluate whether changes in emergency response measures are needed to better protect groundwater / drinking water quality within the wellhead protection area. Coordination with local emergency responders must be initiated within one (1) year of completing the wellhead protection area delineation.

**§1710 PUBLIC PARTICIPATION**

Public participation is crucial to wellhead protection of drinking water sources within the Navajo Nation. Local public participation is voluntary and may culminate in local zoning or other control programs to protect a drinking water source. The PWSSP functions as the primary contact agency for individuals, organizations, and municipalities seeking information on the Navajo Nation Wellhead Protection Program. A primary objective of the PWSSP is to educate water system owners, interested citizens, agency staff and elected officials on the importance of wellhead protection within the Navajo Nation.

- A. Providing Information to the Public:
  1. The PWSSP has primary responsibility for publicizing the Navajo Nation Environmental Protection Agency Wellhead Protection Program, although all of Navajo Nation's agencies must assume some responsibility for informing potentially affected communities and/or parties. The PWSSP will notify existing public water system owners/operators of the requirements of the wellhead protection program.
  2. The water system owner or community is advised to make the findings of its protection efforts available to the public.
  3. In all cases, copies of the updated wellhead protection reports must be provided to the PWSSP as part of the public record.