

**Navajo - Public Water Systems Supervision Program  
pollution prevention - SUSCEPTIBILITY ASSESSMENT SURVEY FORM**

**IMPORTANT!** PLEASE COMPLETE ONE FORM FOR EACH GROUNDWATER SOURCE (WELL, WELLFIELD, SPRING) USED IN YOUR WATER SYSTEM.  
*PHOTOCOPY AS NECESSARY.*

**FORM COMPLETED BY:** \_\_\_\_\_ **DATE completed:** \_\_\_\_\_

**PART I: System Information**

**Address:** \_\_\_\_\_

**Phone No.:** \_\_\_\_\_

**Fax:** \_\_\_\_\_ **E-Mail:** \_\_\_\_\_

Well owner: \_\_\_\_\_

Well operator(s): \_\_\_\_\_

Water system name: \_\_\_\_\_

County: \_\_\_\_\_

**PWS Identification number:** \_\_\_\_\_ **Tribal Well ID No.:** \_\_\_\_\_

IHS Project No. (if available): \_\_\_\_\_

Well depth: \_\_\_\_\_ (ft)

Source:  Groundwater       Surface Water       Groundwater Under the Direct Influence of surface water (GWUDI)

Number of connections: \_\_\_\_\_ Population served: \_\_\_\_\_

Township: \_\_\_\_\_ Range: \_\_\_\_\_

Section: \_\_\_\_\_ 1/4 1/4 Section: \_\_\_\_\_

UTM Eastern/ UTM Northern (if available): \_\_\_\_\_ / \_\_\_\_\_

How was UTM method determined?

global positioning device (gps)       survey       map

other: \_\_\_\_\_

*\*Please refer to Assistance Packet for details and explanations of all question in Parts II to V.*

**PART II: Well Construction Information**

1) Date well originally constructed: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ month/day/year  
 Latest reconstruction: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ month/day/year  
 OR  information unavailable

2) Well driller: \_\_\_\_\_  
 (Include Address, phone, etc.) \_\_\_\_\_

OR  well driller unknown

3) Type of well:  
 Drilled:     Rotary     Bored     Cable (percussion)     Dug:  
 Other:     Spring(s)     Lateral collector (Ranney)     Driven     Jetted

4) Casing Diameter (inches): \_\_\_\_\_  
 Blank Casing Interval (ft/bgs): \_\_\_\_\_  
 First screen/open interval (ft/bgs): \_\_\_\_\_  
 Grouting (ft/bgs): \_\_\_\_\_

5) Well Report available?     yes (attach copy to form)     no  
 If no well log is available, please attach any other records documenting well construction; eg. Boring logs, "as-built" sheets, engineering reports, well construction logs.

6) Average pumping rate: \_\_\_\_\_ (gallons/min - gpm)  
 Source of information: \_\_\_\_\_  
 If not documented, how was pumping rate determined? \_\_\_\_\_

OR  pumping rate unknown

7) Is this source treated? If so, what type of treatment:  
 disinfection     filtration     carbon filter     air stripper     other  
 Purpose of treatment (describe materials to be removed or controlled by treatment): \_\_\_\_\_

8) If source is chlorinated, is a chlorine residual maintained:     yes     no  
 Residual level: \_\_\_\_\_ (At the point closest to the source.)

9) Wellhead construction:  
 wellhead enclosed in a wellhouse  
 controlled access(describe): \_\_\_\_\_  
 other uses for wellhouse (storage for treatment materials, etc.): \_\_\_\_\_  
 no wellhead control    OR     pitless adaptor

**PART III: Hydrogeologic Information**

- 1) Depth to groundwater (static water level- SWL): \_\_\_\_\_ ft OR is it a  flowing well/spring (artesian)
  
- 2) How was water level determined?  
 well log  other: \_\_\_\_\_  
 OR  depth to ground water unknown
  
- 3) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source:  yes  no If yes, give the Location: \_\_\_\_\_  
 \_\_\_\_\_
  
- 4) Wellhead elevation (height above mean sea level): \_\_\_\_\_ (ft)  
 How was elevation determined?  topographic map  drilling/well log  GPS  
 altimeter  other: \_\_\_\_\_  
 OR  information unavailable
  
- 5) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example)  
 evidence of a confining layer in well log  
 no evidence of a confining layer in well log  
  
 If there is evidence of a confining layer, is the depth to groundwater more than 20 feet **above the bottom of the lowest confining layer**?  
 yes  no OR  information unavailable
  
- 6) Sanitary Control Zone: (a zone or area which excludes major potential contaminant sources - fence, building, steel barriers, vault, surface drainage away from well, etc.):  
 <100 ft  100-120 ft  120-200 ft  >200 ft  
 \*Describe the site conditions:  
 \_\_\_\_\_  
 \_\_\_\_\_
  
- 7) Is the Well site prone to flooding?  
 a) Does well casing terminate at least 24-inches above ground level?  yes  no  
 b) Does the well vent terminate at least 18-inches above ground and oriented downward?  yes  no
  
- 8) Is there a concrete pad around the wellhead?  yes  no If yes, Provide dimensions.  
 \_\_\_\_\_ [length(ft) x width(ft) x thickness (inches)]
  
- 9) Annual rainfall:  
 <10 in/yr  10-15 in/yr

**Part IV: Mapping Your Groundwater Resource**

- 1) Annual volume of water pumped: \_\_\_\_\_ (gallons)  
 How was this determined?  meter  
 estimated:     pumping rate ( \_\_\_\_\_ )     pump capacity( \_\_\_\_\_ )  
 other: \_\_\_\_\_  
 Calculated by:  
 \_\_\_\_\_ gal/min x 60 min/hr x \_\_\_\_\_ hr/day x \_\_\_\_\_ day/year = \_\_\_\_\_ gal/year  
 (365)

OR

# of service connections	X gallons per day per connection	X average use days/ year (365 for most)	= Estimated average pumping rate per year

Note: If a system has multiple primary sources, the estimated pumping rate can be divided by the number of sources.

- 2) Once annual pumpage is determined, a “**Calculated Fixed Radius**” (CFR) *estimate of groundwater movement* (see instruction packet) can be selected: (see table in **Appendix E** for radius of a circle around your well representing 1, 5, 10, and 20 year travel time estimates). **Remember you must have screen interval information for the estimate.**

- Length** of screened/open interval: \_\_\_\_\_ (ft)  
 1 -year groundwater travel time: \_\_\_\_\_ (ft)  
 5-year groundwater travel time: \_\_\_\_\_ (ft)  
 10-year groundwater travel time: \_\_\_\_\_ (ft)  
 20-year groundwater travel time: \_\_\_\_\_ (ft)

Information available on length of screened/open interval?

- yes     no

Comments: \_\_\_\_\_

- 3) Is there a river, lake, pond, stream, or other obvious surface water body within the 20 year time of travel boundary?    yes    no (mark and identify on map).
- 4) Is there stormwater drainage and/or wastewater facility, treatment lagoon, or holding pond located within the 20 year time of travel boundary?    (note: stormwater drainages are *not* washes or streams)  
yes    no (mark and identify on map).  
 Comments: \_\_\_\_\_
- 5) Circle one (or more) if applicable: Is there a 1) *livestock well*, 2) *windmill*, and/or 3) *abandoned well* located within the 20 year time of travel boundary?  
 (mark and identify on map all on the map).

**PART V: Assessment of Water Quality**

1) Regional sources of risk to groundwater:  
 Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the 20 year ground water travel time:

	<u>1 yr</u>	<u>5 yr.</u>	<u>10 yr.</u>	<u>20 yr.</u>
abandoned groundwater wells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sheep dip vats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oil or other injection wells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
likely pesticide application	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
landfills, open dumps, disposal areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
known hazardous materials clean-up site	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
water system(s) with known quality problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
population density > 1 house/acre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
residences commonly have septic tanks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sewer lagoons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
USTs/ASTs (gas stations)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sites used for land application of waste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Mark and identify on map any risks listed above which are located within the time of travel boundaries.  
 (Please include a map of the wellhead and time of travel areas with this form. Please locate and mark any of the following.)

If other recorded or potential sources of groundwater contamination exist within any one of the groundwater travel time circular zones around your water supply, please describe: (Please refer to the NNEPA PWSSP Potential Sources of Contamination [PSOC] Form (**Appendix F**) which includes an extended list of sources for you to choose from besides the sources listed above.)

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**PART VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution**

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

- 1) Is there evidence of obvious hydrologic boundaries within the 20 year time of travel zone of the CFR delineation boundary. (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge.)  
 Yes  No      If yes, describe with references to map produced in Part IV.:  


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- 2) Aquifer Material:
  - a) Does the Drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?  
 Yes  No
  
  - b) Does the drilling log, well log, or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?  
 Yes  No
  
- 3) Is the source located in an aquifer with a high horizontal flow rate. (These can include sources located on flood plains of rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)  
 Yes  No
  
- 4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs.
  - a) Presence of groundwater extraction wells removing more than approximately 500 gal/min within. . .
 

	<u>Yes</u>	<u>No</u>	<u>Unknown</u>
1-5 year travel time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5-10 year travel time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10-20 year travel time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
  
  - b) Presence of groundwater recharge wells (dry wells) or heavy irrigation within. . .
 

	<u>Yes</u>	<u>No</u>	<u>Unknown</u>
1-5 year travel time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5-10 year travel time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10-20 year travel time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





PWSID:\_\_\_\_\_ Tribal Well Id:\_\_\_\_\_