

## APPENDIX D

# GENERIC SCOPE OF WORK: ROLES AND RESPONSIBILITIES OF OWNERS OF PUBLIC WATER SYSTEMS

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This is a generalized scope of work which may be useful to developing a workplan prior to initiating your local wellhead protection program.

If elements are contracted out to consultants, it may be appropriate to include a statement that the contracted element(s) must be completed so as to meet the requirements of the NNSDWA Wellhead Protection Program §308 and NNPDWR §1700.

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### Goal 1

Characterize the hydrogeologic setting of the well, wellfield, or spring is withdrawing water from. This includes the determination of values of hydraulic conductivity, ground water flow gradient, the effective porosity, and pumping rate to use for delineating wellhead protection areas as presented by EPA and NNEPA PWSSP guidance documents. These will be used in more sophisticated analytical methods that the NNEPA PWSSP can assist in. For now the Calculated Fixed Radius method will be used.

**Task1a:** Map hydrogeologic system contributing water to your source water. Utilizing existing well log information as well as existing geologic information and reports, define recharge areas. Present information in report form and also using (multiple) overlays on a map at a scale appropriate to show meaningful details.

**Task1b:** Map water levels to determine regional gradient and direction of flow in the aquifers. Plot location of existing wells on base map. Select a set of test wells that will allow creation of a water level map. Access water level information from test wells obtained ideally from/through the Navajo Nation Water Resources Management, if available (water level data collected locally using staff or local well drillers, including the Navajo Nation Department of Water Resources Management may be sources of information and save considerable \$). Create water level (potentiometric surface) map of the water bearing zone(s) of interest, at a scale appropriate to show meaningful details.

**Task1c:** Aquifer property definition. Estimate (based on pump tests, field tests, or other defined methods) aquifer transmissivity, porosity, flow direction and rate (using all available data). Identify additional data needs and uncertainties in estimates, evaluate trade-offs in data used.

**Task1d:** Delineation. Delineate capture zone of your source water. Identify recharge areas for the same. Use approved method (analytical model, hydrogeologic mapping etc.) to delineate 1 year, 5 year and 10 year time of travel (or equivalent boundaries) for your source(s) of supply. Include model calibration as appropriate.

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### Goal 2

Identify known and potential sources of ground water contamination within the Wellhead Protection Areas that pose threats to your source water.

**Task2a:** Compile and evaluate locally generated inventory data. (By using staff or volunteers to collect the initial inventory data, a considerable amount of \$ may be saved).

**Task2b:** Identify and fill informational gaps in local inventory using the PSOC Form 2 of the Vulnerability Assessment package.

**Task2c:** Plot inventory findings at a scale appropriate to show meaningful details.

**Task2d:** Evaluate/prioritize risks associated with the public water system. If appropriate, determine/estimate carrying capacity or assimilation capacity of systems for septic nitrate loading or other identified contaminants.

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### **Goal 3**

Recommend management procedures to protect water supplies from potential sources of ground water contamination within the Wellhead Protection Areas.

**Task3a:** Prioritize the relative risks of the potential sources of ground water contamination within each wellhead protection area.

**Task3b:** Identify jurisdictional responsibilities for the identified risks in conjunction with the local Wellhead Protection Committee.

**Task3c:** In coordination with local chapter governments, identify existing and proposed management programs (Navajo Nation Community Development, local comprehensive plans, local ordinances, chapter programs, etc.)

**Task3d:** Identify and recommend management alternatives available for pollution prevention and risk reduction measures. These recommendations are to include identification of funding source alternatives for the wellhead protection program.

**Task3e:** Provide specific examples of suggested options, including example ordinances. Ensure that suggested options and sample ordinances are consistent with enabling Navajo Nation legislation. Document that the purpose of the regulation is to advance legitimate government function (public health and safety).

**Task3f:** Propose follow-up procedures to ensure preventative measures are effective.

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### **Goal 4**

Develop contingency plans for the provision of alternative drinking water supplies in the event of contamination of existing water supplies.

**Task4a:** Identify maximum capacities of existing system(s) in relation to source and distribution system. Assume loss of largest well/wellfield and reevaluate.

**Task4b:** Evaluate the expansion options of the existing system(s)' capacities to meet current water availability.

**Task4c:** Identify existing or potential interties with other public water systems.

**Task4d:** Evaluate current procedures and make recommendations on contingency plans for emergency events.

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### **Goal 5**

Identify future potential sources of drinking water and recommend quality assurances and control methods to be applied to ensure protection of water quality prior to utilization as a drinking water supply.

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### **Goal 6**

Define **critical** aquifer recharges areas for the well (wellfield, spring).

**Task 6a:** Provide site specific recommendations on which portions of the recharge areas should be considered "critical" and therefore in need of special protection. (NNEPA-PWSSP will be of assistance in determining critical recharge aquifers).

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**Goal 7**

Develop a spill/incident response plan.

**Task7a:** Meet, brief and coordinate with local emergency responders on the wellhead protection program's findings (e.g., vulnerability assessment, wellhead protection area boundaries, inventory results, contingency plan conclusions). Discuss current response capabilities and resources from a ground water protection prospective.

**Task7b:** Make recommendations on spill/incident response planning, training and resource needs.

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**Goal 8**

Complete draft and final reports discussing research conducted, field investigations, actions and recommendations. This would be great information to include in the Consumer Confidence Reports that are required annually by the NNPDWR.

**Task8a:** Provide rough draft copies for review.

**Task8b:** Participate in a minimum of two (2) public meetings and four (4) Wellhead Protection Advisory Committee meetings.

**Task8c:** Develop a final written report incorporating review comments summarizing consultant activities and data provided by the Wellhead Protection Advisory Committee. Products are to include:

1. One (1) camera ready copy of the final report,
2. Copies of the final report,
3. A copy of the report text on computer disk, and
4. Mylar copies of each base map and overlay.