



USDA-CSREES 2007 National Water Quality Conference

Using the Master Well Owner Network to Assess Well Water Quality and Management in Pennsylvania

Poorly constructed and unmanaged water wells represent potential risks for vital ground water aquifers and the homeowners and farmers that access them. The widespread use of drinking water that contains pollutants in excess of standards represents an economic and health threat to the rural population. Documenting the impact of polluted drinking water on the health of rural residents is difficult because most pollutants require long-term exposure and mimic effects from other air or food-borne pollutants. Private well owners typically neglect water supply management unless obvious water quality symptoms occur. Unfortunately, most health-based pollutants have no obvious tastes or odors in water. In 2006, the researchers at the Pennsylvania State University received funding to study 450 private wells throughout Pennsylvania. Wells were sampled by volunteers trained through the Master Well Owner Network (MWON) and all samples were analyzed for coliform bacteria, E. coli bacteria, pH, nitrate, arsenic, lead, total dissolved solids, hardness, and triazine pesticides. A detailed survey was also completed for each well documenting the characteristics of each well including management history, nearby sources of contamination, well construction and homeowner opinions. The use of MWON volunteers to collect private well samples has been very successful during the 2006 project. Approximately 129 MWON volunteers have participated in the 2006 project. The use of MWON volunteers provided quality control for water sample collection since each volunteer received training on proper collection procedures. Preliminary water testing results indicate that more than 50% of private water systems fail to meet at least one health-based drinking water standard. Surveys have also shown that very few homeowners with contaminated water systems have appropriate water treatment systems to provide safe drinking water. Final study results will be discussed.

Author: Stephanie S. Clemens

University Affiliation: Penn State University

Co-Author(s): Bryan R. Swistock, and William E. Sharpe