DIVISION OF
Environmental Health

Public Health Significance of Unregulated and Untested Private Potable Wells

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ABSTRACT

EXECUTIVE SUMMARY:

•Private potable wells in Florida are generally unregulated and untested. This project attempted to examine the public health significance of the lack of regulation and testing of these wells and the level of concern by private well owners.

•Thirty private potable wells in Hernando County, Florida were sampled for nitrate and fecal coliform bacteria. Global Positioning Satellite (GPS) coordinates were determined for each well. Florida Unique Identification (FLUID) tags were affixed to each well, and sanitary surveys were conducted. The public health significance of any problems revealed by the sanitary surveys was discussed with the well owner/resident. Educational materials specifically designed for private well owners were distributed.

•Two of the thirty wells were positive for fecal coliform bacteria. These wells were not remediated. Three of the thirty wells initially sampled for nitrate were above the Maximum Contaminant Level (MCL). Per the Department of Environmental Protection (DEP) protocol, additional wells were sampled within a quarter mile radius of the chemically contaminated wells. Three of the fifteen additional wells sampled were also above the MCL for nitrate. All five of the nitrate contaminated wells have been remediated by the installation of under the sink reverse osmosis filters.

•The findings of this project suggest the need for additional and ongoing educational efforts directed at private well owners. The existence of both chemical and bacteriological contamination of the private wells sampled indicates a need for monitoring of private wells for contaminants.

BACKGROUND

Problem Statement: There is a risk of water-borne illness from drinking potentially contaminated water from private potable wells. The well owners and public health officials may be unaware of this risk.

OBJECTIVE

Outcome Objective

By October 1, 2007, at least 30 private potable well owners in Hernando County will have their wells sampled and tested at least three times for nitrate and fecal coliform bacteria.

Impact Objective

By September 1, 2007, conduct sanitary surveys on at least 30 private potable wells in Hernando County to determine the existence of sources of contamination or maintenance/operational problems with the well.

Process Objectives

By September 1, 2007, discuss results of initial bacteriological and nitrate testing with 30 private well owners in Hernando County.

By September 1, 2007, discuss results of sanitary surveys with 30 private well owners in Hernando County.

By July 1, 2008, assure that any failed septic tank drainfields discovered during the sanitary surveys have been repaired.

By September 1, 2007, instruct homeowners how to properly apply fertilizers if applicable.

METHODS

Thirty private potable wells in two areas of Hernando County, Florida were sampled three times each for nitrate (EPA Method 353.2) and fecal coliform bacteria (Standard Method 9223B)[2]. Sampling was performed over a 90 day period in the summer of 2007 at no cost to the well owner. Global positioning Satellite (GPS) coordinates were determined and Florida Unique Identification (FLUID) tags were affixed to each well. Sanitary surveys were conducted for each well to assess well construction and maintenance integrity. The public health significance of any problems revealed by the sanitary surveys was discussed with the well owner/resident. Educational materials specifically designed for private well owners were distributed.

RESULTS

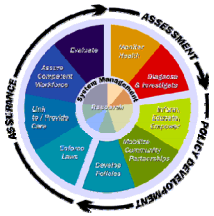
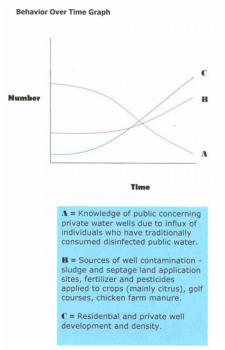


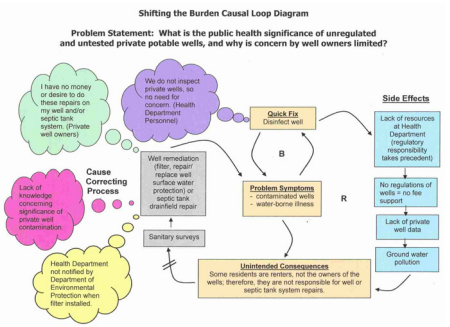
Figure 1: This picture is reprinted from CDC's "National Strategy to Revitalize Environmental Public Health Services"[1]

Essential Environmental Health Services Addressed:

1. **Monitor** environmental and health status to identify community environmental health problems by:
   Sampling of private potable wells for Nitrate and fecal coliform bacteria.
2. **Diagnose and investigate** environmental health problems and health hazards in the community by:
   Performing Sanitary Surveys of private potable wells.
3. **Inform, educate, and empower** people about environmental health issues by:
   Explaining the results and public health significance of monitoring for Nitrate and fecal coliform bacteria and any hazards discovered during the Sanitary Surveys.
4. **Mobilize** community partnerships to identify and solve environmental health problems by:
   Assisting well owners in the remediation of contaminated private wells.
5. **Develop** policies and plans that support individual and community environmental health efforts by:
   Developing local policies regarding the assisting private well owners in determining the cause of well contamination and facilitating remediation of these wells.
6. **Enforce** environmental health laws and regulations by:
   Ensuring that statutory and rule setbacks from private wells are enforced for septic tank systems and other sanitary hazards.
7. **Link** people to needed environmental health services and assure the provision of environmental health services when otherwise unavailable by:
   Providing the public utilizing private potable wells with information concerning the quality of their drinking water supply, and how to properly test and/or remediate their well.
8. **Assure** a competent environmental health workforce by:
   Properly training environmental health staff to instruct private well owners concerning testing, disinfecting and remediating their wells.

RESULTS





CONCLUSIONS

The findings and implications of this project suggest the need for additional and ongoing educational efforts directed at private well owners in Hernando County and statewide. Well owners displayed false assumptions concerning the safety of their drinking water. The existence of both chemical and bacteriological contamination in private wells sampled indicates a need for monitoring of private wells for contaminants, and long-term remediation of those wells found to be contaminated.

For additional information please contact:

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