

A GEORGIA COUNTY AGENT'S PERSPECTIVE: DELIVERING AN EFFECTIVE COUNTY PROGRAM TO PRIVATE WELLS OWNERS

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Abstract. Homeowners purchase property not associated with public water and sewer systems. These individuals are unaware of their responsibilities as private well owners and are unfamiliar with proper well construction and maintenance requirements. Most become inspired to take action only after apparent water quality problems arise.

Concepts of an effective Extension education program for private well owners include: an introduction to groundwater and how wells work; basic principals of wellhead protection; water testing and interpretations; common water quality problems in their area; routine well maintenance; and water treatment options. This presentation will demonstrate how to develop a well owner program using the tools and resources available to County Extension Agents.

INTRODUCTION

Homeowners purchase property not associated with public water and sewer systems in Putnam County. Many of these properties have existing wells with unknown histories and are in close association with area hydroelectric impoundments. The properties are typically small, narrow and closely associated, each with their own septic system. Due to greatly varying sub-surface geology, traditional granite water wells (6") and bored surface water wells (24"), may not be established properly and developed to the satisfaction of the homeowner or well drilling contractor. Drinking water problems such as turbidity, odor, off flavor, bio-films, *E. coli* bacteria and surface water intrusion are numerous.

In cases where a new well is needed, a well driller is contracted. Similar problems exist with locating a suitable site for the new well. Since well drilling is not an exact science due to the blind nature of the task, finding a satisfactory solution to provide safe drinking water for the well owner can be a problematic task for the well drilling contractor.

METHODS

The Putnam County Extension Agent working with AESL has developed a field research program to determine the sources of the drinking water problems and provide solutions. Putnam County Extension Coordinator, Mr. Keith Fielder and Dr. Paul Vendrell, Program Coordinator of the UGA Feed and Environmental Water Lab, utilizing a down-well submersible camera, have been able to provide real time video camera documentation of sub-surface geology and construction of problematic drinking water wells. This effort has pinpointed faulty sub-surface geology, well casing failures, surface water intrusion and improperly installed or malfunctioning well equipment. By utilizing the automatic depth-tracking feature of the down-well camera, problematic areas of the well can be precisely located.

Tools and resources including an introductory education video, the Farm*A*Syst self assessment for wells, a set of water quality circulars on topics common to Georgia, water testing services through the Agricultural and Environmental Services Laboratories (AESL), a database of all water testing results done in each county since 1992, and access to specialists on specific topics are made available to the client through one on one interactions and through County programs directed at the target audience. Informational guides notifying property owners of the availability of these resources are distributed by local County Health Departments and Planning & Zoning Departments to individuals when they apply for permits. These tools and resources can be tailored to deliver effective local programs that fit the needs of private well owners throughout Georgia and the Southeastern region.

CONCLUSIONS

Increasing the well owner's knowledge of available resources through County Extension programming efforts has enabled the individual to make informed decisions concerning well water quality and perform the necessary maintenance of the water well and associated equipment correctly and in a timely manner preserving water quality. One to one contacts between the well owner and County Extension Agents and Specialists have allowed specialty equipment, as well as special diagnostic techniques to be brought into play to better satisfy well owner inquiries concerning chronic water quality issues.

The down-well camera allows the Extension Agent and Extension Specialist to collaborate with the well drilling contractor, County Health Department and the property owner to find workable solutions to water quality problems. This real time footage enables the well driller to have precise placement of down well repairs, new well casing or K-packing devices designed to seal out ground water intrusion. The well driller can also view the videotape and observe sub-surface geology and debris in the well; allowing the contractor to place pumping equipment at the optimum depth for peak performance. This has been especially helpful when older water wells of unknown history pre-exist construction efforts.

Use of the down-well camera in Putnam County has resulted in a pre-existing well was filled with debris to such an extent that it was not serviceable. This determination saved the homeowner and building contractor over \$2,500 in repair costs. Use of the camera at another Putnam County site made it possible to identify surface water intrusion into a well under the hydraulic influence of Lake Sinclair which is less than 200 feet away from the well site. This pressurized intrusion was the source of a bio-film; which had become an extreme problem for the homeowner, rendering a \$4,500 drinking water well useless. Using the footage from the camera, the well driller was able to precisely place a K-packing device, sealing off the intrusion. Shock chlorination cleared the well and there has been no sign of redevelopment of the bio-film. The satisfied homeowner reports he now has the quality of safe drinking water he expected. Additionally these down-well videos provide extraordinary educational opportunities and are being used in the production of a regional video to educate private well owners.

Literature Cited

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