



## USDA-CSREES 2007 National Water Quality Conference

### Natural contaminants in private wells in North Carolina

Drinking water from private wells is currently unregulated in the United States. While the federal Safe Drinking Water Act and North Carolina's drinking water standards protect consumers of public water systems, there are no similar protections for the safety of private wells. Currently over two million residents in NC are served by private wells. In some areas of NC, the levels of natural contaminants in the local ground water exceed the EPA maximum contaminant level (MCL). Here we report on a new USDA project that aims to investigate the mechanisms in which the natural contaminants are leached from the host aquifer rocks into groundwater, the availability, performance, and cost of treatment techniques, the role of information as an environmental health policy tool that examines how households respond to information on inorganic contaminants, and the policy implications for a growing population that relies upon groundwater with contaminant levels exceeding EPA regulations as their main source of drinking water. Our preliminary results show a direct relationship between the geological formations and natural contaminants distribution in the associated groundwater. In the Blue Ridge Mountains, high radon levels that exceed EPA's recommended and alternate MCL of 300 and 4000 pCi/L, respectively, characterize groundwater overlying granitic rocks. In the central part of NC, groundwater with high arsenic concentrations that exceed the EPA's MCL of 10 ppb is associated with volcanic and volcanoclastic rock of the Carolina Zone. In the eastern part of NC, groundwater with both high radon and radium activities (above the EPA's MCL level of 5 pCi/L) is associated with granitic and genesis rocks of the Raleigh Belt. The occurrence of high levels of both radium and radon is a unique phenomena since in most cases radium tends to adsorbed onto the aquifer rocks from which radon is recoiled.

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