



Public Health

Prevent. Promote. Protect.

Harford County Health Department

Harford County Wells – Arsenic in Groundwater *

Booklet # 03-10

In 2001 the MCL for arsenic was adjusted by EPA from 50 ppb down to 10 ppb for community and non-transient, non-community water systems with a compliance date of January 2006. Therefore, the Maryland Geologic Survey and MDE did a study in Maryland Coastal Plain aquifers for arsenic because of known historic levels up to 40 ppb for arsenic. The Aquia and Piney Point aquifers, found in Southern Maryland over to the Eastern Shore, were found to have widespread arsenic above the new MCL, ranging from <2-131 ppb and <2-33 ppb, respectively. No arsenic above the MCL was found in the Potomac or Talbot groups which are in Harford County's coastal plain area. Only two wells in Harford County were included in this study.

The lack of the presence of arsenic in shallower wells and the age of the water in the Aquia and Piney Point aquifers, indicate that the overall occurrence of arsenic is naturally occurring and not from anthropogenic (manmade) contamination. Arsenic in these aquifers probably come from lithologic (rock) components such as calcitic shell material, calcitic cements, phosphate pellets and iron oxyhydroxide coatings on mineral grains such as hematite and magnetite. Although large-scale chicken farms have been implicated on the Eastern Shore, data from this study did not indicate contamination of shallow aquifers.

Harford County Wells – Arsenic in Groundwater (cont)

Chronic ingestion of water containing elevated levels of arsenic can cause skin, lung, bladder, and kidney cancer, and possibly an increased risk of colon and prostate cancer, also skin discoloration and thickening. Other conditions reported were “black foot disease” due to diseased blood vessels, increased diabetes risk and reduced intellectual function in children. Treating arsenic in water can be done by Reverse Osmosis (R/O) Units on point-of-use fixtures or through Ion Exchange cartridges which can take care of whole house distribution systems.

Recently the Health Department received a complaint call about a homeowner’s wife who had high arsenic levels in her urine. Their doctor recommended sampling the water for arsenic. A sample was taken, which is in the Piedmont area of the county, and the result was non-detect, <2.0 ppb. The Harford County Health Department has only sampled for arsenic in groundwater on a few residential wells in the county, and has not had any issues concerning elevated levels of arsenic.

*Summary of the publication -“Arsenic in Ground Water in the Coastal Plain Aquifers of Maryland – 2010” by Dave Drummond and Dave Bolton- DNR with Maryland Geologic Survey

GMB 10/22/2010