

## Sunshine Gardens Well Summary, November 2014

The Marion County Public Health Department, Water Quality and Hazardous Materials Management (WQHMM) routinely tests well water throughout Marion County. Over the last 12 months, WQHMM has tested 57 separate wells within Sunshine Gardens. Wells were tested for chemicals (metals, volatile organic compounds and anions) and bacteria. Test results were sent to residents participating in the well survey. Given the vulnerable aquifer underlying Sunshine Gardens, WQHMM has completed several well surveys in Sunshine Gardens over the years, specifically in 1984, 1996, 2003 and 2013.

The geology underlying Sunshine Gardens is largely characterized by fairly deep deposits of sand and gravel. A groundwater aquifer with deep deposits of sand and gravel is both a blessing and a curse. Typically, plenty of groundwater is available from a sand and gravel aquifer, although if a chemical release or spill occurs within the aquifer, the spilled materials could travel quickly through the aquifer. Currently within Sunshine Gardens, wastewater disposal is completed through septic systems. Bacteria and chemicals released through a septic system will generally travel quickly through the sand and gravel aquifer and can be a source of contamination.

Of the 57 wells tested, chemical contamination (elevated Nitrate) was discovered in 1 (2 percent) of the wells. The elevated Nitrate levels may have originated from a poorly performing septic system. Elevated Lead levels were discovered in a separate well (one well, 2 percent of all wells). The elevated Lead levels were believed to have originated with the household plumbing. For the two wells with elevated Nitrate or Lead levels, the contamination was limited to those wells and plumbing systems, the aquifer providing groundwater to Sunshine Gardens was not found to have elevated levels of these chemicals.

Chemicals such as Boron, Thallium, Selenium, Molybdenum, Arsenic and Mercury were also tested. These chemicals have been detected in wells in other communities where coal ash (or coal combustion residuals) is stored. Specific drinking water standards or health advisories have been established by the Environmental Protection Agency (EPA) for these chemicals. For wells tested in Sunshine Gardens, all of the test results were within the EPA drinking water standard or health advisory for each chemical associated with coal ash storage.

Levels of Boron within wells tested in Sunshine Gardens were compared to levels of Boron in wells throughout Marion County. The range of Boron values in wells within Sunshine Gardens was 31.9 to 602 parts per billion or ppb. Thirty percent (13 out of 43 wells) of the wells tested within Sunshine Gardens were found to have Boron levels in excess of 200 parts ppb. As a comparison, wells tested in other areas of Marion County were found to have Boron levels over a range of less than 20 to 297 ppb and 12.5 percent of the time the Boron level was above 200 ppb. Based on this comparison, wells within Sunshine Gardens are more likely to have Boron levels above 200 ppb than wells in other parts of Marion County. Currently, a primary drinking water standard has not been created by the EPA for Boron. Per the 2012 Edition of the EPA Drinking Water Standards and Health Advisories, 3000 ppb of Boron has been established as the one-day health advisory limit for a child weighing 10 kilograms or 22 pounds. None of the wells tested within Sunshine Gardens were found to have Boron levels exceeding 3000 ppb.

Unsatisfactory bacteria levels were the most notable and common problem affecting tested wells within Sunshine Gardens. Unsatisfactory bacteria levels were found in 55 percent of the wells tested in Sunshine Gardens. Residents with unsatisfactory well bacteria results were provided with **Chlorination Guidelines** and a **Well Information Sheet** (see enclosed), to eliminate the bacteria. After a well disinfection was completed, residents were offered additional well tests to verify the bacteria had been eliminated within the well and household plumbing.

The Marion County Public Health Department, WQHMM will continue well testing in Sunshine Gardens. Circumstances and conditions affecting well water quality can and will change over time. If you would like to determine whether or not the well is providing safe water, please contact us (317-221-2266) to schedule a well sample.