

Dixie Drive Well Survey
Summer/Fall 2011
Luke Ricke, WQHMM

A well survey was performed during the summer and fall of 2011 on Dixie Drive. Dixie Drive is located in the extreme southern portion of Marion County between SR 135 and US 31. This area was chosen due to it being the only municipally un-serviced street in the general area. It was also chosen due to its relative proximity to the Carriage Estates neighborhood, which was surveyed in 2010 and shown to have abnormally high occurrences of arsenic and bacterial contamination. The main objective of the survey was to assess the arsenic and bacterial contamination of the well water in the households on this street. There were a total of forty-one (41) properties in the study area, and each was initially sent a letter explaining the objective of the sampling project. Each resident was encouraged to call the Marion County Health Department to schedule a sample. Residents who did not initially call and schedule an appointment were hand delivered a door hangar and either had their wells sampled immediately or were encouraged to call the Marion County Health Department to glean more information. Out of the possible forty-one (41) properties, seventeen (17) partook in the survey resulting in 41 % participation. Both bacteriological and chemical parameters were analyzed.

Out of the seventeen (17) properties sampled, only four (4) showed arsenic concentrations that were above the Maximum Contamination Level (MCL). Arsenic is naturally occurring in the bedrock in Marion County and erodes into the ground water from the New Albany shale in the bedrock. Due to the propensity to cause skin and circulatory issues as well as cancer, EPA has set the MCL for arsenic in public water drinking supplies at 10 ug/l. The data shows that there is a range of arsenic concentration in the wells from 1.0 ug/l to 34.0 ug/l. The median concentration is 3.05 ug/l. The mean concentration is 4.29 ug/l with standard deviation being 12.33 ug/l.

Bacterial contamination was determined to be the major issue in this neighborhood with eleven (11) out of the seventeen (17), or 70% of the wells showing a presence of either total coliform (10) or E. coli bacteria (1). The owners were informed of the risks of ingesting both bacterial and chemical contaminated water. Chlorination and reverse osmosis were recommended as treatment options for the bacterial and chemical contamination respectively. Follow-up samples were completed for the households that chose to either chlorinate and/or install reverse osmosis as a way to ensure the efficacy of the treatment.

Dixie Drive Well Survey Area

