Bloomfield Lakes Estates
Groundwater Assessment Summary

Background
Past groundwater samples indicated elevated levels of arsenic in this neighborhood. Due to limited sampling data for this area, an assessment was conducted to determine the levels of arsenic in the groundwater and overall water quality. The Bloomfield Lakes Estates is located in Franklin Township, southeast of I-74 and Acton Rd. Letters requesting well samples were sent to 106 properties with a door-to-door survey following. Samples were taken from July to September 2012, during which there was a drought in this area. One concern was how the lack of rainfall might impact the groundwater levels and sample results. As a control, two of the properties that had been tested in 2011 were re-sampled for this survey. Comparing the previous and current results showed little variation in contaminant levels.

Survey Results
A total of 106 properties were surveyed. Four of the properties were found to be vacant. Of the remaining 102 residences, 55 properties responded to the survey resulting in a 54% response rate.

Sampling Results
Bacteria
No *e.coli* bacteria were found in any of the samples. Coliform bacteria were present in 26 wells, or 47% of samples. This rate is consistent with past well surveys. Chlorination instructions were sent out with the lab reports and follow-up inspections were scheduled.

VOCs
No volatile organic compounds were found above detection limits in any of the samples taken.

Anions
Well samples were tested for the following anions: Chloride, Fluoride, Nitrates, Nitrites, Phosphates, and Sulfates. All anions were below the Maximum Contaminant Levels (MCLs).

Metals
Samples were analyzed for the following metals: Arsenic, Barium, Cadmium, Chromium, Mercury, and Lead. Arsenic was detected in 50 of the samples, or 91% of residences. All other metals were below the MCLs.

Arsenic
Arsenic concentrations ranged from 2.3 parts per billion (ppb) to 15.9 ppb with the mean concentration being 8.5 ppb. Well depth information was available for 36 of the samples either from homeowners or the DNR well logs. Wells were generally shallow, in the 40' to 70' range. **Graph 1** shows the levels of arsenic compared with the well depth. There is a slight trend showing that the shallower wells have higher levels, but these do not appear to be significantly related. **Graph 2** shows the arsenic concentrations and well depth compared to the MCL of 10 ppb.

The attached **Map** shows the distribution of samples taken and the corresponding arsenic levels. There seems to be an area in the center of the neighborhood where the lowest levels are concentrated. Adversely, areas to the north and south seem to have higher levels.

Conclusions
The primary groundwater contaminant in Bloomfield Lakes Estates is arsenic. Elevated arsenic is defined as levels above the MCL of 10 ppb. Sampling results show elevated arsenic in 45% of the samples taken, or in 25 wells. Information on the health effects of arsenic in drinking water and water treatment options was disseminated to properties where arsenic levels exceeded or were just below the MCL. Elevated levels are found in several areas of Marion County where the bedrock is New Albany Shale, which is naturally high in arsenic.