Susceptibility Analysis, Protective Strategies and Proposed Consumer Confidence Report Language for the Village of Yellow Springs

Susceptibility Analysis:

The aquifer that supplies drinking water to the Village of Yellow Springs wellfield is susceptible to contamination. This determination was made because of the following reasons:

- Samples of untreated water collected at Yellow Springs between 1991 and 1999 contained detectable levels of 1,1-dichloroethane;
- The sand and gravel aquifer has a shallow depth to water, less than 15 feet below the ground surface;
- The soils are primarily loams which allow for rapid infiltration;
- The topography ranges from relatively flat, allowing for most of the recharge to infiltrate into the ground instead of running off to steeply sloping with significant runoff;
- No confining layer exists which could act as a barrier between the ground surface and the aquifer; and
- Potential contaminant sources exist within the protection area.

Water quality data collected to meet public water supply requirements provide a direct measurement for the presence of contamination in drinking water. Water quality data were evaluated using the drinking water compliance database available at the Ohio EPA. The Ohio EPA has a high confidence level in drinking water data collected since 1991. Samples of raw (untreated) water collected at Yellow Springs between 1991 and 1999 contained detectable levels of 1,1-dichloroethane. 1,1-Dichloroethane was detected six times at concentrations between 0.6 and 2.2 micrograms per liter. 1,1-Dichloroethane is an unregulated contaminant, meaning that U.S. EPA has not established a maximum contaminant level for drinking water.

Nineteen (19) potential sources of contamination were identified within the protection area in 1998, including septic systems, a natural gas pipeline, residential heating fuels and lawn chemical use, and an industrial facility with a known contaminant plume.

Consequently the likelihood for contamination of the source water at Yellow Springs is high unless the potential contaminants are handled carefully by implementing appropriate protection strategies.

Protection Strategies:

Based on the potential contaminant sources identified within the five year time-of-travel zone, the Village of Yellow Springs should place a priority on protecting its ground water resources through a combination of public education and other source control strategies. It would be beneficial to provide focused education on the potential impacts from residential sources. The local fire department and county health department may be able to provide information and expertise about heating oil storage and septic system maintenance, respectively. The Village should also maintain contact with the industrial facility regarding the status of its efforts to clean up contamination at their facility. Contingency planning to respond to spills in the drinking water protection area should be developed. Yellow Springs may also want to consider working with Miami, Xenia, and Cedarville Townships to implement a zoning overlay that requires specific standards for chemical storage, handling of waste materials, and other management practices to reduce the risk of ground water contamination in the protection area. Controlling development in the currently undeveloped areas (typically via zoning or purchasing additional of property) is also an effective way to protect the drinking water source from future contamination.