Lake Michigan Water Supply

Special Report

October 2012

VILLAGE OF Antioch

AUTHENTIC by nature

Overview

Our local water supply for many years has been the ground water. Ground water is found below the land surface, and is extracted using wells and pumps. The water is disinfected and pumped to our homes through a network of buried pipes. Our ground water supplies are adequate at this moment, but the forecast is poor. The demands for water are growing, while the supply is fixed. We may be presently close to the capacity of the shallow wells, and we may be over-pumping the deep wells. Declining quality of the ground water supply is also a cause for concern. Lake Michigan, with its high quality water, is only a few miles from our homes. Our community leaders have secured the right to use Lake Michigan water to replace the present ground water system.

Lake Michigan Water

Lake Michigan is the water source for Chicago and over 150 additional Illinois communities, as well as all of the major cities along the lake. Most of DuPage County changed from well water to Lake Michigan water in 1992. In that same year, the CLCJAWA began supplying water to communities in Lake County. Why the popularity of Lake Michigan water?

- Long term sustainable water source
- Highest quality natural water source in the region
- Lower hardness. Most home owners do not use home water softening systems.
- No iron content, eliminating fixture and laundry staining
- No radium or barium contamination, and no landfill leachate contamination

Many years ago the State of Illinois secured the right to use a specific amount of water from Lake Michigan. The State, in turn, makes that water available to local water agencies. Our community leaders have applied for and received an allocation of Lake Michigan water, which must be used by 2016.

Ground Water Issues

The shallow aquifer (aquifer refers to a water bearing soil strata) is composed of sand and gravel deposits from the most recent glaciers. Wells drawing water from the shallow aquifer are typically 100 to 300 feet deep. Water in the aquifer comes from rainfall on the ground surface percolating down to the aquifer. Issues with the shallow aquifer include:

- The water is hard, due to minerals dissolved in the water
- The water often has high levels of dissolved iron
- The aquifer can be contaminated by leachate from landfills
- The aquifer can be contaminated from chemical and gasoline spills
- Salt from winter road ice control can increase in the well water
- Drought periods reduce the amount of water available, and wells can go dry
- Overuse of the aquifer will reduce the level of local inland lakes

The deep sandstone is estimated to be over 400 million years old. Wells to the deep aquifer are typically over 1,000 feet deep. Water enters the deep aquifer in eastern Winnebago and Boone Counties in Illinois, as well as Walworth and Rock Counties in Wisconsin. Issues with the deep aquifer include:

- The water is hard, due to minerals dissolved in the water
- The water is naturally contaminated with radium and barium
- The deep aquifer may be over-pumped, resulting in levels declining.
- Use of the deep aquifer will increase with development in McHenry County to the west as well as Wisconsin to the north, diminishing water available to us

Lake Michigan Water Project

Benefits to Residents

- High Quality Water
- Iron free water – no iron stains
- Reduced hardness – no softeners
- Eliminates ground water issues
- Long term sustainable water supply
- Positive impact on property values
- Future cost savings: Lake Michigan water supply may be the cost effective solution. Staying on ground water may eventually involve spending millions for improvements, but result in a less reliable water supply
- Economic Development – some business and industry will not locate in communities with well water
- The estimated cost to bring in Lake Michigan water is $1.50 per household per day, which is about the price of a bottle of water