



Department of Public Works
W240 N3065 Pewaukee Road
Pewaukee, WI 53072

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To: Common Council
From: Jane E. Mueller, Utility Superintendent.
Date: Feb. 4, 2016
Re: Water Quality monitoring protocol

Recently the Flint Michigan lead problems have led to inquiries regarding the water testing that takes place in the City of Pewaukee. The water monitoring schedule is established by our State's regulatory agency, the Wisconsin Department of Natural Resources. They are the agency responsible for implementing the Environmental Protection Agency's Safe Drinking Water Act.

First and foremost, the Utility collects representative water system samples weekly to analyze for the presence of coliform **bacteria** (microbial). A total of 14 samples are collected each month at one of the 25 sampling stations that have been installed throughout the water distribution system. (10 samples are required by the DNR.) Well water samples are collected quarterly (4x) at the well head and analyzed for the same bacteria. We have 12 ground water wells in the City. Each well is also monitored annually for **nitrate**s. These samples are analyzed in a laboratory.

As a municipal water supplier, we are required to chlorinate our water. We must monitor the level of **chlorine** in the water. Twice a week we check the chlorine levels in the water system using one of the 25 sampling stations. We have a chlorine analyzer kit that we use to check these levels.

The DNR establishes the monitoring frequency using a variety of indicators including but not limited to well depths, and/or aquifers in which the wells are drilled. They also look at the well head protection area for each well. They look to see what activities/businesses are taking place currently or in the past that may contaminate the aquifer.

Contaminants that may be present in source water include:

Radioactive contaminants can be naturally occurring or be the result of oil and gas production and mining activities. Includes: radium 226 + 228, gross alpha, gross beta, uranium, strontium (Primarily in deep wells)

Volatile Organics & Synthetic Organics: These organic contaminants are by-products of industrial processes and petroleum production and can also come from gas stations, urban stormwater runoff and septic systems. A comprehensive listing of these compounds are available for review. (Well samples)

Pesticides and herbicides may come from a variety of sources such as agriculture, urban stormwater runoff and residential uses.



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Inorganic contaminants such as salts and metals which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming. (Well samples)

Disinfection By-Products: contamination is caused by a chemical reaction with the chlorine that the utility is required to add to the water. This contamination is caused when the chlorine interacts with organics along with warm temperatures and long detention times. This sample is pulled in July or August at one of the sample stations in the more remote areas of the water system.

Lead & Copper: Through the 1940's it was common for lead water services to be installed. In the 1930's copper pipes or galvanized steel pipes replaced lead. However the use of 50/50 tin/lead solder and fluxes were commonly used until lead was banned in 1984.

The City of Pewaukee created their municipal water system in the mid 1970's. Approximately 92% of our water mains are plastic (pvc). In the early 2000's we began specifying the installation poly-water laterals (plastic). While we do not have any lead services that we are aware, there is the potential that homes were constructed using lead solder in their plumbing. The homes constructed during this period of growth were predominantly in Springdale Estates Subdivision. Fifteen homes are used as sampling sites in the Springdale Estates Subdivision. Additionally, five homes on Appletree & Peartree are also collection sites. These are older homes than those in Springdale Estates. We are required to use the same sampling sites every 3 years.

Please realize that the water pumping out of the ground does not contain lead and copper, but is leached from the piping into the water due to corrosive water. It is my understanding that Flint Michigan did not treat their water adequately to deal with the corrosive nature of their river water. As you can see from the efforts mentioned above, we monitor

The Utility is required by the DNR/EPA to send out an annual Consumer Confidence Report (CCR). The CCR informs our customer about the quality of the drinking water that the City delivers to our customers every day. The report communicates to the public the source of the City's water and summarizes the detected compounds from the sampling results for the previous year. We send and/or hand deliver the annual notices to our customers in June. The reports contain information from the previous year's monitoring. Therefore, the 2015 report will be distributed in June 2016. The CCR is annually posted to the city's website also. [Click on this link for the 2014 CCR.](#)