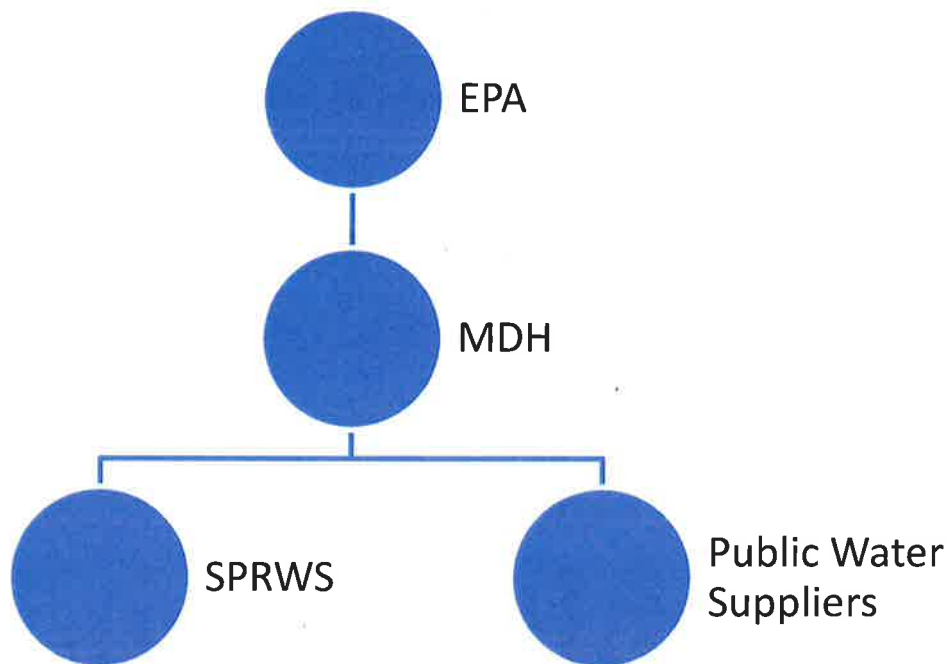


Water Quality Update

June 2015

Regulatory Overview

Drinking water in the US is regulated by the United States Environmental Protection Agency (EPA). EPA drinking water regulations are applied to us locally by the Minnesota Department of Health (MDH). MDH provides direct oversight and assistance to public water suppliers in the state of Minnesota. This regulatory hierarchy helps insure that consumers of public water supplies in our state and across the country are drinking safe water.



Regulatory Status for SPRWS

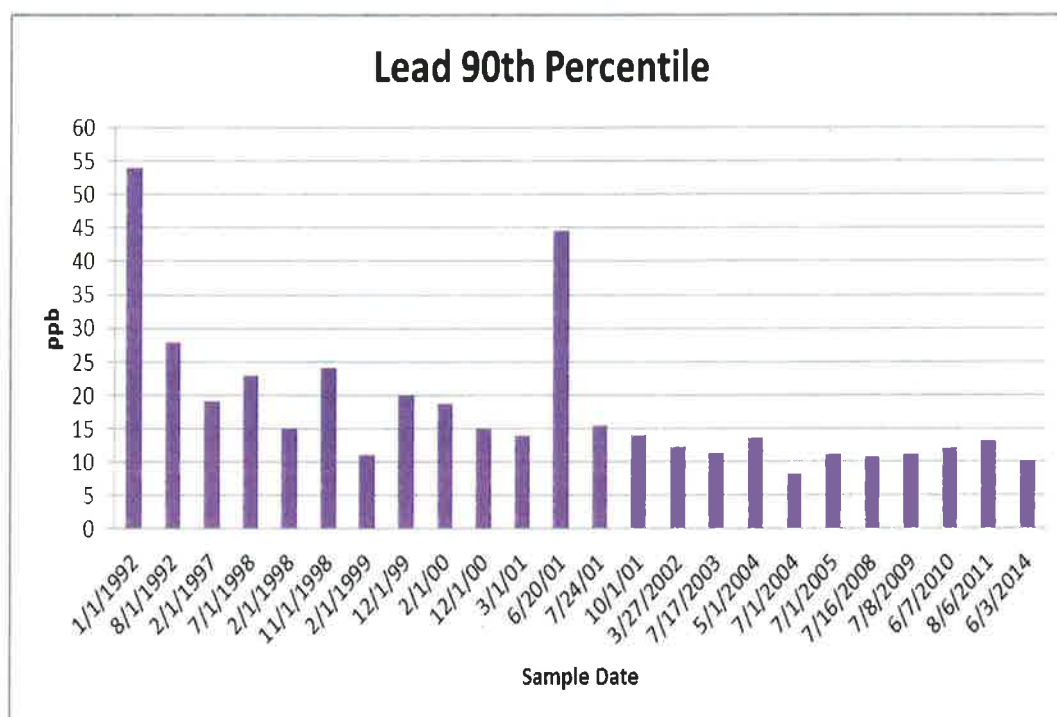
We are in compliance with all EPA regulations at this time. The EPA has two methods of regulating contaminants: the first being a hard limit on the concentration of a given contaminant; the second being a treatment technique, which is an operational evaluation via key numerical parameters of how the treatment process is performing.

There are 81 contaminants on the EPA's list of primary standards. These are comprised of inorganic (think metals or fertilizers), organics (think pesticides), and biological (think bacteria). The analysis of these compounds is a joint effort between MDH and SPRWS.

There are a few EPA rules and/or contaminants that are either currently being studied in detail, or have a history of being problematic for SPRWS. These are addressed below.

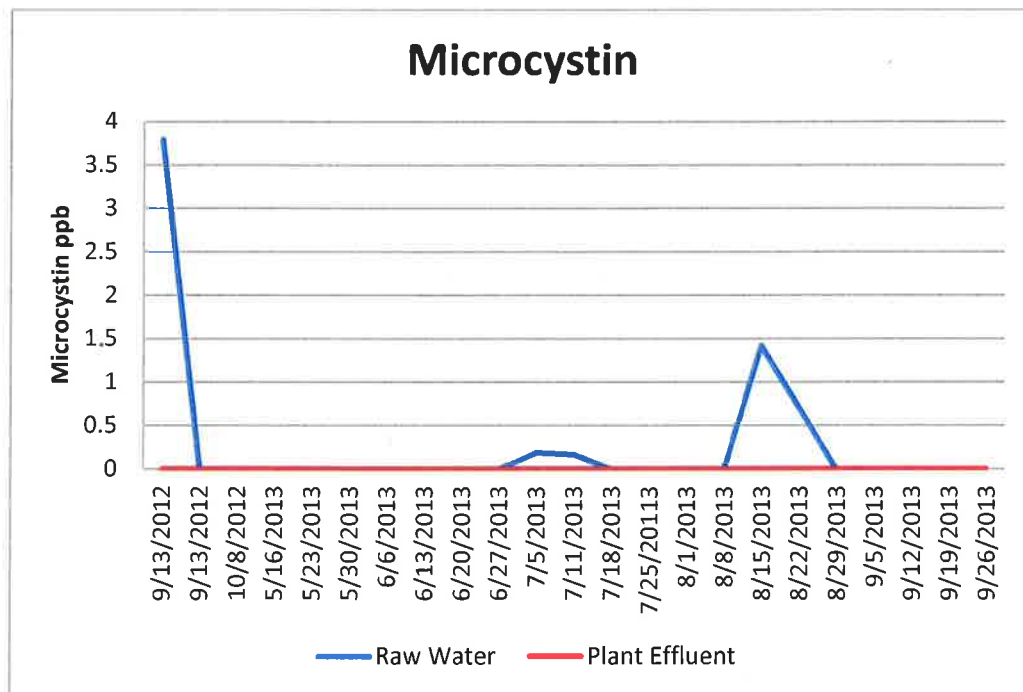
Lead and Copper Rule

This rule was promulgated in 1991, and it took almost a decade for SPRWS to achieve compliance with this rule. The rule is currently up for revision, but EPA is struggling to resolve complex issues regarding the lead service line replacement part of the rule. Our historical performance is shown in the graph below. We have been in compliance since 2001.



Microcystin

Microcystin is a byproduct of excessive algal growth, namely blue green algae. It caused a stir last year in Toledo, OH, when the city issued a *do not drink* advisory due to microcystin in their water. There is no EPA regulation addressing microcystin, but many states have adopted their own health guidances, and MDH has adopted a health based guidance value of .04 ppb. We are not currently sampling for microcystin, though we did participate in a voluntary sampling program in 2012-2013. The results showed we did not have any microcystin in our finished water, but it was detected in our raw (untreated) water. Results are shown below.



Cryptosporidium

Cryptosporidium are parasitic protozoans that infect the gut of warm blooded animals, including humans. They can cause dysentery-like symptoms to the infected host. Surface water supplied systems such as ours are required to meet specific requirements in the treatment, filtration and disinfection of drinking water to prevent cryptosporidium from entering the finished water. This is an ongoing operational program and the reporting of numerous parameters to MDH occurs on a monthly basis to ensure that we are in compliance.

Of note is the emergence of cryptosporidium and how this relates to our participation in the Partnership for Safe Water program. The Partnership program

was developed to help public water supplies meet operational levels that will prevent cryptosporidium from entering the public water supply, and relates back to the outbreak suffered by Milwaukee in 1993. Our participation in the program has put us in a good position to prevent cryptosporidium from being a threat to our customers.

The EPA mandates periodic sampling for cryptosporidium in the plant influent, and we are now in our second sampling period. Results for the current period are shown below. The first period showed no detects of cryptosporidium in our plant influent water.

Date	Sampling Count	Cryptosporidium (oocysts/L)	Giardia (oocysts/L)	Escherichia coli (MPN/100 mL)
1/6/2015	1	<0.095	<0.095	<1.0
1/20/2015	2	<0.100	<0.100	<1.0
2/3/2015	3	<0.100	<0.100	<1.0
2/17/2015	4	<0.098	<0.098	<1.0
3/3/2015	5	<0.100	<0.100	<1.0
3/17/2015	6	<0.100	<0.100	<1.0
4/7/2015	7	<0.098	<0.098	<1.0
4/21/2015	8	<0.100	<0.100	<1.0
5/5/2015	9	<0.098	<0.098	<1.0
5/19/2015	10	<0.100	<0.100	<1.0
6/2/2015	11			

Future Regulations

The EPA is currently reviewing candidate contaminants for future regulation. Some, such as Strontium and Nitrosamine, may eventually have a hard numerical limit. SPRWS does have very low concentrations of those two contaminants, but it is too early to predict how the regulation could affect us.

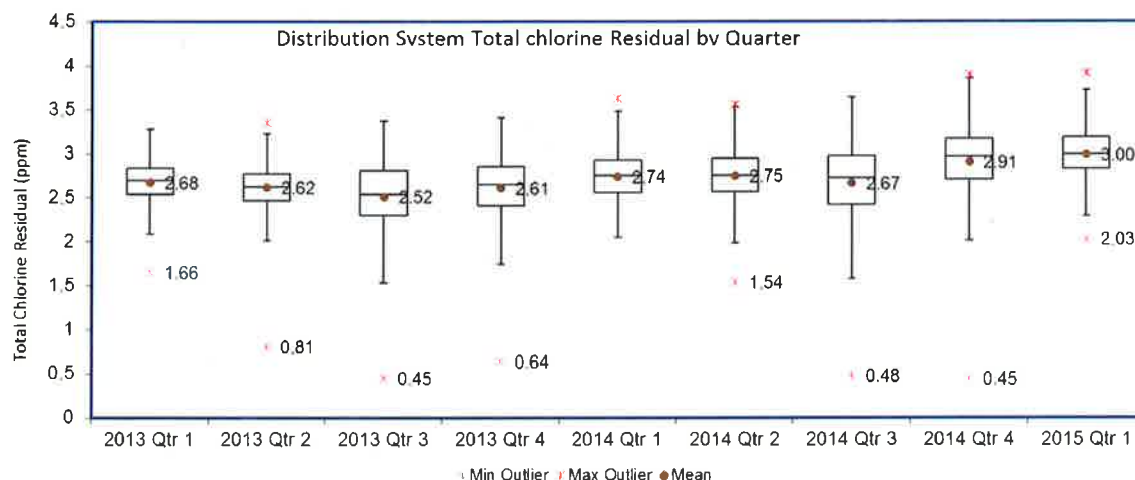
Other Water Quality Topics

Fluoride

The Center for Disease Control announced it has lowered the recommended amount of fluoride that public water suppliers add to the water to .7 mg/L. We are currently required to maintain .9 to 1.5 mg/L of fluoride in our system. The requirement is a State of Minnesota statute, therefore we must wait for permission from MDH before we can adjust our dosage downward.

Distribution System Water Quality

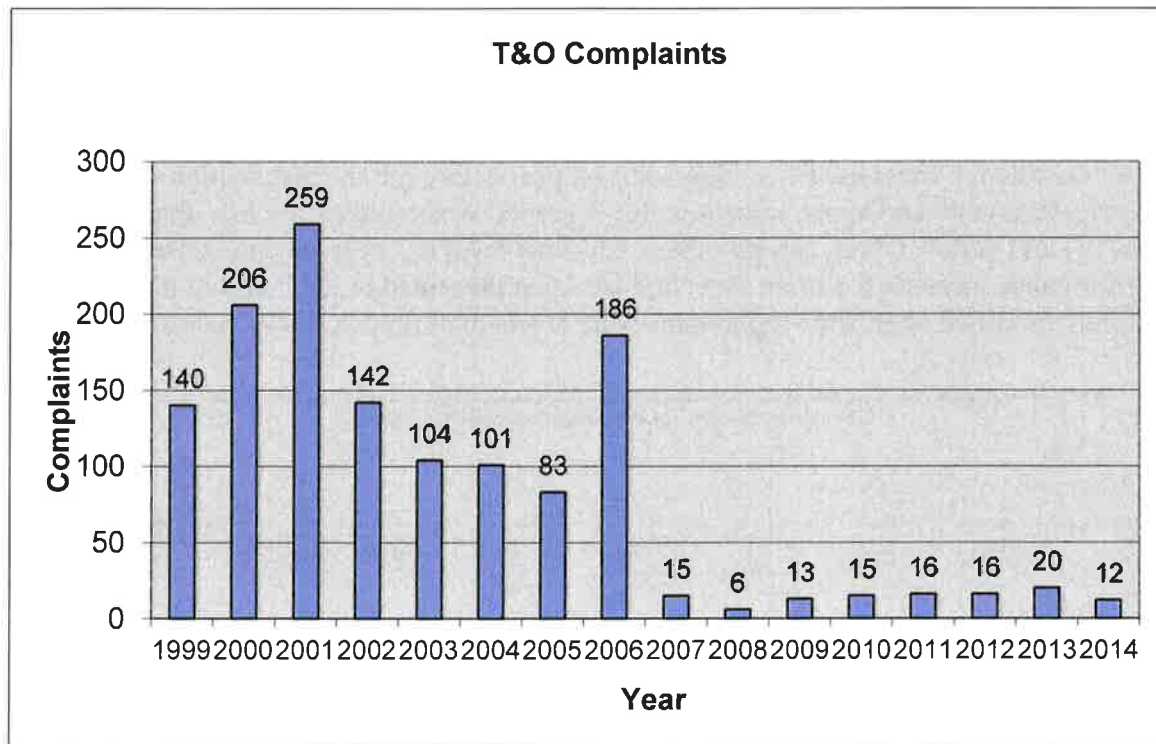
It is possible for water quality to degrade as it passes through the distribution system piping, reservoirs and tanks. Indicators for degraded water quality are low chlorine levels, low pH and yellow water, among others. Chlorine level has been an enterprise level performance measure for some time, and has been presented to the board in the past. A slightly modified chart showing system-wide levels over time is shown below.



We also have limited areas of our distribution system that suffer from chlorine and pH degradation every fall. They are located in the south Maplewood area, the Highland Park area, and occasionally the Mendota Heights area. The problems are related to large, stored volumes of water that do not circulate and become stagnant. This year we have taken one of the two Highland Park underground reservoirs at Snelling Avenue off-line and plan on leaving it off-line. The south Maplewood and the Mendota Heights issues are addressed by flushing and/or taking the tanks off-line temporarily until water temperatures cool and chlorine levels rebound.

Taste and Odor Complaints

Since the implementation of granular activated carbon (GAC) in 2007 our customer complaints for taste and odor have dropped dramatically. GAC is working in concert with our supply system control measures to provide water with minimal negative aesthetics. Taste and odor complaints are shown in the graph below.



Questions on Water Quality?

SPRWS has a Water Quality staff of seven people who perform tests, manage water quality projects, work with operations staff and answer questions from the public. They are led by the Water Quality Supervisor, Ms. Che Fei Chen.

If the board, or any individual, has questions on water quality they can contact Ms. Chen at 651-266-1629, or Jim Bode, Production Division Manager, at 651-266-1651. The laboratory also has a general number at 651-266-1635.