MOVING FORWARD

City of Ames Water Quality Report 2015

Plan

Design

Construct

Operate

What's Inside:
Water Treatment Process
Water Quality Data
Source Water Evaluation
Automatic Meter Reading

Good things come to those who wait.

At least that's what we were taught as children. Who remembers being sure you would wither away if you didn't get a snack? Anyone recall launching into a chorus of "are we there yet" on a family trip?

Sometimes, though, the reward comes not only from patience, but also from tenacity and good old-fashioned persistence. That is the case for the Ames community, as we recently broke ground on the first new Water Treatment Plant in more than a century.

The design of the new facility includes a truly unique blending of innovation and cost effectiveness. When completed, it will be certified as meeting the U.S. Green Building Council's "Leadership in Energy and Environmental Design" (LEED) standards, which will make Ames' facility the largest drinking water treatment plant in the state to achieve that designation. Through a partnership with the Iowa Department of Natural Resources, the City of Ames will receive an estimated $6 million in loan forgiveness for meeting that standard!

Customers of the Ames Water Utility should be proud to know that, even after paying for a new, state-of-the-art lime softening facility, water rates in Ames are still below the average in Iowa. Also, those who have enjoyed, and perhaps even bragged about, the great taste of Ames water will be happy to know that all of the innovative and efficient components of the new treatment facility will still provide that same refreshing taste.

I invite you to take a look inside this water quality report to learn more about the consistently high standard of drinking water provided to the Ames community. Also, check out the City's website (www.cityofames.org/water) regularly for construction progress updates on the new treatment facility.

Finally, on behalf of all the employees of the City's Water and Pollution Control Department, I appreciate the trust placed in us by you - the Ames water customer - as we continue our mission of protecting your health and well-being.

John R. Dunn, Director
Water & Pollution Control Department

KNOW YOUR WATER

City of Ames 2015 Water Quality Report

Substance (units)	Test Year	No. of Samples	Highest Allowed Level (MCL or MRDL)	Ideal Level (MCLG or MRDLG)	Average Value	Range	Typical Source of Substance
SUBSTANCES TESTED FOR							
Nitrate (ppm)	2014	29	10	10	ND	ND	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Total Coliform (P/A)	2014	753	Present in <5% of Monthly Samples	Present in No Monthly Samples	ND	ND	Naturally present in the environment.
Total Chlorine (ppm)	2014	757	4	4	2.42	0.94 - 2.80	Water additive used to control microbes.
Flouride (ppm)	2014	1,110	4	4	0.69	0.36 - 1.03	Erosion of natural deposits; Water additive which promotes strong teeth
Sodium (ppm)	2012	2	N/A	N/A	25	19 - 31	Erosion of natural deposits.
Nitrite (ppm)	2014	28	1	1	0.021	ND - 0.078	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Total Chromium (ppb)	2013	4	100	N/A	0.7	0.2 - 2	This sample was collected as part of the requirements for the Unregulated Contaminant Monitoring Rule 3.
Hexavalent Chromium (ppb)	2013	4	N/A	N/A	0.216	0.170 - 0.250	This sample was collected as part of the requirements for the Unregulated Contaminant Monitoring Rule 3.
Molybdenum (ppb)	2013	4	N/A	N/A	5.63	1.70 - 16.5	This sample was collected as part of the requirements for the Unregulated Contaminant Monitoring Rule 3.
Strontium (ppm)	2013	4	N/A	N/A	0.208	0.190 - 0.227	This sample was collected as part of the requirements for the Unregulated Contaminant Monitoring Rule 3.
Chlorate (ppm)	2013	4	N/A	N/A	0.0774	0.0399 - 0.110	By-product of drinking water disinfection.
Chlorite (ppm)	2012	4	1	0.8	<0.04	ND - 0.04	By-product of drinking water disinfection.

SUBSTANCES REGULATED AT THE CONSUMER'S TAP							
Substance (units)	Test Year	No. of Samples	Action Level (AL)	Ideal Level (MCLG or MRDLG)	No. of Samples Above AL	90% of Samples Were Below	Typical Source of Substance
Lead (ppb)	2013	30	15	0	0	ND	Corrosion of household plumbing systems; Erosion of natural deposits.
Copper (ppm)	2013	30	1.3	<1.3	0	ND	Corrosion of household plumbing systems; Erosion of natural deposits.
Total Trihalomethanes - TTHM (ppb)	2014	10	80	N/A	-	ND - 7.9	By-product of drinking water disinfection.

Terms to Know

Regulated substances have Maximum Contaminant Levels (MCLs) set by the EPA. This is the highest level of a contaminant that is allowed in drinking water. Some contaminants have Maximum Contaminant Level Goals (MCLGs). This is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for an additional margin of safety. MCLs are set as close to MCLGs as feasible using the best available water treatment process. Unregulated substances do not have established MCLs but are monitored regularly. If an unacceptable amount of any substance is ever found in our water, the City of Ames will notify residents immediately and take corrective action to eliminate the problem. The MCL for lead and copper is known as the Action Level (AL) which, if exceeded, triggers treatment or other requirements. If 90% of all samples tested are not below the action level concentration, then the water utility is required to implement treatment improvements to lower lead/copper levels. Other actions, such as public education and notices, may also be required.

ND: not detected by test method **ppm**: parts per million, same as milligrams per liter (mg/L) **ppb**: parts per billion, same as micrograms per liter (µg/L) **MRDLG**: maximum residual disinfectant level goal **MRDL**: maximum residual disinfectant level **TT**: treatment technique, value determined by available treatment technology **P/A**: presence/absence **N/A**: Not applicable (no established limit or goal)

Este informe contiene informacion importante acerca de su agua potable. Hage que alguien lo traduzca para usted, o hable con alguien que lo entienda.

Water Treatment Process

The United States has some of the best public water supplies in the world. To make this happen, trained professionals work 24 hours a day to provide you with the best possible water.

From the Well – The Ames Water Treatment Plant provides treatment to ensure a safe, palatable supply of drinking water for its customers. It all begins when well water enters the treatment plant through an aerator. This vents dissolved gases to the atmosphere that would contribute undesirable taste and odor and interfere with subsequent treatment steps. Dissolved iron combines with oxygen in the air to form rust particles that are removed in treatment.

Lime Added to Remove Hardness - The water then flows into mixing tanks where lime is added to raise the pH. The lime forms solid particles by combining with calcium and magnesium, minerals that contribute to hardness. At this point, sodium hypochlorite is added to disinfect the water, and a polymer is added to enhance settling.

Hardness Settles Out – The water then travels to the clarifiers where the insoluble calcium and magnesium particles settle to the bottom. These residuals, commonly known as sludge, flow to a lagoon and are allowed to dry. The residuals are recycled to farm fields as a soil conditioner.

Clean, Filtered Water – After clarification, polyphosphate is added to stabilize the water and reduce scale build-up on the filters. Next, the water enters the recarbonation tanks where carbon dioxide gas is diffused through the water to stop the softening reaction. From the recarbonation tanks, the water is filtered through beds of anthracite coal and sand. These filters remove fine suspended particles.

To Your Home – Finally, in accordance with recommendations from the U.S. Department of Health and Human Services (HHS) and the U.S. Environmental Protection Agency (EPA), fluoride is added to the water for dental protection just prior to distribution to the community.

Source Water Evaluation

Ames' award-winning water originates in groundwater aquifers. The water in Ames' aquifer flows through the remnants of ancient riverbeds of Squaw Creek and the South Skunk River as they existed before the most recent glaciers changed the terrain. The City of Ames uses 22 wells to access the water in the layers of sand and gravel in these ancient riverbeds. In 2003, the Iowa Department of Natural Resources (IDNR) completed a source water evaluation for Ames. The evaluation determined that Ames' groundwater has the potential to be contaminated by leaking underground storage tanks, landfills, or improper hazardous waste disposal. As water travels over the surface or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material. Water can also pick up substances resulting from human and animal activity. The City of Ames works diligently to ensure that contamination does not impact the Ames water supply. Interested citizens can request a copy of the IDNR source water evaluation at the City of Ames Water Treatment Plant.

Lead

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Ames Water Treatment Plant is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure are available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

Drinking Water Regulations

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800.426.4791).

Special Health Concerns

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly people, and infants, can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the EPA's Safe Drinking Water Hotline (800.426.4791).

The Ames City Council is the governing body that oversees the Ames water system. Bring your ideas to the public forums at the City Council meetings which are normally held at 7:00 p.m. on the second and fourth Tuesdays of each month in the City Council Chambers at 515 Clark Avenue.

Contact Information:
Water Distribution
515.239.5550
Customer Billing
515.239.5120
Water Quality and Treatment
515.239.5150

For questions regarding the information in this report, please contact the **Ames Water Treatment Plant** at 515.239.5150.

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ADVANCEMENT
AUTOMATIC METER READING SYSTEM

In 2013, the utility formed a process improvement team to evaluate the benefits of an Automatic Meter Reading (AMR) system. The team was also to recommend a long-term replacement system for reading both water and electric meters, as well as determine a short term solution for reading water meters that aligns with both utilities' long term vision. All must fit within the adopted Capital Improvements Plan and Water Fund rate structure. The short term solution recommended for reading water meters was an AMR system. The recommended long term solution is an Automated Metering Infrastructure (AMI) system that will read both electric and water meters through a centralized data collection system. The AMR system being installed has the ability to be incorporated into an AMI system without replacing water meters, meter registers or radio units.

The team analyzed technical information provided by vendors and interviewed various utilities that are using the current AMR technology available. A survey of internal and external customers was conducted to help determine their needs and wants, which helped the team know what benefits an AMR system can provide.

There is an up-front cost of approximately $167 per meter for the AMR system. Currently, there are more than 19,900 water meters in service in Ames which equates to a project cost of approximately $3.19 million. The city's meter readers read both the water and electric meters at each location, so the meter reading efficiencies are very cost-effective. The four full-time meter readers read approximately 40,500 water and electric meters every 30 days.

The estimated start date to begin installing the AMR system is late Spring 2015.

The City of Ames Water Meter Division is continually looking for ways to meter more accurately in order to keep rate increases as low as possible and to keep tap water the best value for Ames water utility customers.

Questions? Call 515.239.5151 or visit our website at www.cityofames.org/watermeter

The Itron FC300 hand held computer combines a powerful integrated SRead radio and fast mobile processor. Utility personnel can utilize the FC300 to program, service and read water meters efficiently in the field with this unit.

The Itron 100W+ R water end point offers advanced two-way communications that allows for easy data capture. Meter readings are time-synchronized and provide the utility hourly, interval usage data that promotes advanced leak detection.

The Badger Meter Recordall Disc Series Meters are accurate and offer a cost-effective metering solution. These positive displacement meters offer a simple but efficient design for measuring a wide range of flow rates.

Photos courtesy of Itron and Badger Meter

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ames™
WATER & POLLUTION CONTROL