SHARED HISTORY

Change is such a natural part of life. The act of improving, evolving, striving to be better tomorrow than yesterday; this is the essence of what it means to be alive.

The Ames community is celebrating its 150th birthday in 2014. The community has grown, changed, endured, and revitalized itself many times over the past 15 decades. And for more than a century, the Ames Water Utility has been here to meet the needs of the community by supporting the ever-evolving, ever-changing Midwestern way of life.

Sometimes change comes slowly. For example, the Ames Water Utility has evolved over time, starting first by meeting basic fire protection needs, then expanding to provide iron removal, then adding lime softening. The size of the treatment plant started at 2 million gallons per day (MGD), then was expanded to 3 million, then from 6.5 to 9 MGD, and now stands at more than 11 MGD.

The level of public health protection provided by Ames water has likewise grown incrementally over time. Today, the safety of tap water in Ames is as high as any place in the world and comes with a cost so modest that it can be easily taken for granted.

Sometimes change can take a single, large evolutionary step forward. Such a change is happening right now, as years of planning for a new Water Treatment Plant are about to become reality. Groundbreaking will take place for a new 15 MGD facility capable of meeting the needs of the Ames community for generations to come.

The Ames Water Utility is proud of the role it has played in supporting the amazingly high quality of life enjoyed by this community, and we are excited to help play a central role in preparing Ames for the next 150 years.

John R. Dunn, Director
Water & Pollution Control Department

> "Today, the safety of tap water in Ames is as high as any place in the world and comes with a cost so modest that it can be easily taken for granted."

1864
AMES • IOWA
150
SESQUICENTENNIAL
ANNIVERSARY
2014

MOVING FORWARD

Computer rendering of the future Water Treatment Plant

The history of the Ames Water Plant is deeply rooted in the history of our community, which celebrates its sesquicentennial this year. In December 1864, Ames was platted by John Blair and recorded in January 1865. The area included 12 blocks between Duff and Burnett Avenues in what is now Historic Downtown Ames. On December 18, 1869, there was a successful vote to incorporate the town of Ames. The first Mayor and Town Council were elected in 1870.

In the beginning, Ames operated without a water utility. As was common in American cities at the time, many early buildings in Ames were constructed out of wood. This, along with the absence of a water utility, resulted in numerous fires. On January 18, 1886, a fire started in a store on Main Street and spread to adjacent buildings. On October 4, 1887,a fire broke out in a grocery store on Main Street. This fire burned down the Opera Hall, as well as three nearby buildings. After the 1887 fire, Ames successfully petitioned the railroad for a connection to its water tank. Businesses were required to pay a fee for use of water in case of a fire.

Water Utility
On July 9, 1891, the Ames City Council approved a motion to construct a water tower, purchase an engine, and install mains and hydrants along Main Street. Completion of the project included a new well, a pump, pump house, a coal-fired steam boiler, water tower, and a water main on Main Street. The water tower was located on the east side of Kellogg Avenue on the north side of the alley between Main Street and Fifth Street. Fire protection was an immediate benefit, but dust control was a positive side effect. The presence of a water works allowed easier access and ability to sprinkle the streets and keep the dust down.

Improvements to the Ames Water Utility began in the 1920s, eventually resulting in the backbone of the treatment plant we have today. A 1.1 million gallon surface storage reservoir was built in 1924. Shortly after this, chlorination began. Cascade aerators were added between 1924 and 1927. Aeration and settling that occurred in the storage reservoir allowed for iron removal. Aeration and settling was desired then, and continues to be used today, because of the levels of iron that exist in the groundwater aquifer that provides source water to the Ames Water Utility.

In April 1927, the Ames City Council advertised for bids for the construction of a Filtration Plant. The filtration plant was designed to take advantage of the existing infrastructure already at the existing site. The filter building was designed for six filters, with four constructed initially. This resulted in a rated capacity of 2 million gallons per day (MGD). Very early in its history, the Ames Water Utility was becoming known for high quality water. On June 17, 1929, an Iowa Department of Health inspector performed a sanitary survey of the water plant. In the report, it noted, "It is with pleasure that we certify to the safety of a water supply such as this, since we consider it one of the better water plants in the state."

Water Treatment Plant Expansions
In 1930, Ames City Engineer C.C. McCarthy began researching, and eventually making the case for lime softening. On March 2, 1931, City Manager John Ames submitted a detailed report to the Ames City Council. He described the benefits to softening of the entire city water supply. Some of the benefits included laundry soap savings, plumbing costs savings, savings on fuel and fabric life, as well as elimination of the need/desire for home water softeners. At the time, there was skepticism about the cost savings as well as a possible change in the taste of the water. These concerns were ultimately forgotten as no appreciable difference in taste could be noticed, and many of the economic benefits were realized.

In the years since, numerous plant studies have occurred and improvements have been made. The capacity of the treatment plant has increased from 2 MGD to 3 MGD, then from 6.5 MGD to 9 MGD, and now the capacity of the existing plant stands at over 11 MGD. Ground storage and elevated storage tanks have been constructed, additional filters have been built, and new groundwater wells have been drilled. These improvements have all been made to increase capacity of the existing treatment plant. A 2008 study determined the future needs of the Ames community could not be met by the current plant site at 300 E 5th St. A new Water Treatment Plant was needed at a new site.

New Water Treatment Plant
The Water and Pollution Control Department is excited to usher in a new era of drinking water in Ames. Recently, the design was completed for the new Water Treatment Plant, which will be located at 1800 E 13th St., approximately one mile northeast of the existing plant. Construction of the new plant will go out to bid in Summer 2014, will break ground in Fall 2014, and will be operational in 2017. While the treatment will occur in a new building, the process will remain the same. The new plant will continue to use cascade aeration, lime softening, chloramination, filtration, and fluoridation, all of which contribute to the exceptional quality of Ames Water. The existing plant has a capacity of 11.5 MGD, while the new plant will have a capacity of 15 MGD. This will prove important in the future as the community continues to grow.

Focus on Sustainability
Expansion of the raw water supply through new well fields will also improve the ability to meet increasing demand. The selection of the East 13th Street site will allow for future expansions to the new plant that will meet the needs of the community for decades to come.

Also, the new Water Treatment Plant is being designed to meet the requirements for LEED Certification. LEED stands for Leadership in Energy and Environmental Design and is a standard that quantifies the sustainability of buildings.

Not only will LEED Certification improve the environmental performance of the new Water Treatment Plant, but it will promote the health and well-being of its occupants, and will also result in approximately $6 million of the borrowed costs of the new plant being forgiven by the Iowa Department of Natural Resources Drinking Water State Revolving Fund.

Now that's green!

-History provided by former Water and Pollution Control Director Harris Seidel.

KNOW YOUR WATER

City of Ames 2014 Water Quality Report

Substance (units)	Test Date	No. of Samples	Highest Allowed Level (MCL or MRDL)	Ideal Level (MCLG or MRDLG)	Average Value	Range	Typical Source of Substance
DETECTED SUBSTANCES REGULATED PRIOR TO DISTRIBUTION							
Turbidity (NTU)	2013	728	TT	N/A	0.09	0.01 - 0.80	Soil runoff; lime addition.
DETECTED SUBSTANCES REGULATED IN THE DISTRIBUTION SYSTEM							
Nitrate (ppm)	2013	30	10	10	-	ND - ND	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Total Coliform (P/A)	2013	764	Present in <5% of Monthly Samples	Present in No Monthly Samples	Present in No Monthly Samples	Present in No Monthly Samples	Naturally present in the environment.
Total Chlorine (ppm)	2013	765	4	4	-	0.56 - 2.8	Water additive used to control microbes.
Fluoride (ppm)	2013	1105	4	4	-	0.20 - 1.07	Erosion of natural deposits; Water additive which promotes strong teeth.
Total Trihalomethanes - TTHM (ppb)	2013	12	80	-	-	ND - ND	By-product of drinking water disinfection.
Chloroform (ppb) Regulated under Total Trihalomethanes (TTHM)	2013	12	80	-	-	0.8 - 9	By-product of drinking water disinfection.
Total Haloacetic Acids - THAA5 (ppb)	2013	12	60	-	-	ND - ND	By-product of drinking water disinfection.
Chloroacetic Acid (ppb) Regulated under Total Haloacetic Acids (THAA5)	2013	12	60	-	-	ND - 2	By-product of drinking water disinfection.
Dichloroacetic Acid (ppb) Regulated under Total Haloacetic Acids (THAA5)	2013	12	60	0	-	1 - 3	By-product of drinking water disinfection.
DETECTED SUBSTANCES UNREGULATED							
Sodium (ppm)	2012	2	N/A	N/A	25	19 - 31	Erosion of natural deposits.
Nitrite (ppm)	2013	28	1	1	< 0.02	ND - 0.12	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Total Chromium (ppb)	2013	2	100	N/A	1.1	0.2 - 2.0	This sample was collected as part of the requirements for the Unregulated Contaminant Monitoring Rule 3.
Hexavalent Chromium (ppb)	2013	2	N/A	N/A	0.1945	0.17 - 0.219	This sample was collected as part of the requirements for the Unregulated Contaminant Monitoring Rule 3.
Molybdenum (ppb)	2013	2	N/A	N/A	9.1	1.7 - 16.5	This sample was collected as part of the requirements for the Unregulated Contaminant Monitoring Rule 3.
Strontium (ppm)	2013	2	N/A	N/A	0.222	0.217 - 0.227	This sample was collected as part of the requirements for the Unregulated Contaminant Monitoring Rule 3.
Chlorate (ppm)	2013	2	N/A	N/A	0.094	0.078 - 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.

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 This Level	Typical Source of Substance
DETECTED SUBSTANCES REGULATED AT THE CONSUMER'S TAP							
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.

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 **NTU:** nephelometric turbidity units **TT:** treatment technique, value determined by available treatment technology

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

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 is 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).

Source Water Evaluation

Ames' award-winning water originates in groundwater aquifers. The water in Ames' aquifers 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.

Public Notification

The Ames Water Treatment Plant is required by state and federal regulations to collect multiple samples each year for Total Trihalomethanes and Haloacetic Acids. City staff failed to collect the samples for the second quarter of 2013. As soon as the oversight was realized, additional steps were taken to avoid this in the future. The Ames Water Treatment Plant is now back in compliance with its monitoring requirements for Total Trihalomethanes and Haloacetic Acids.

There is no health risk associated with this monitoring violation, and the City has a long history of very low values for Total Trihalomethanes and Haloacetic Acids.

Customers with questions or concerns about Total Trihalomethanes and Haloacetic Acids, or anything else about the City of Ames public water supply should contact Lyle Hammes at 515.239.5150.

Five Basic Analytical Groups for Water Testing

Microbiological contaminants, such as viruses and bacteria, which may come from wastewater treatment plants, septic systems, pets, agricultural livestock operations, and wildlife

Radioactive contaminants, which occur naturally or result from oil and gas production and mining activities

Inorganic contaminants, such as salts and metals, which can occur naturally or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, and farming

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

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum runoff, urban stormwater runoff, and septic systems

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.

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 Quality and Treatment
(515)239-5150
Water Distribution
(515)239-5550
Customer Billing
(515)239-5120

For questions regarding the information in this report, please contact the Ames Water Treatment Plant at (515)239-5150.

COMMITMENT TO CONSERVATION

At the height of the 2010 flooding in Ames, residents found themselves without drinkable water after a series of water main breaks. Although the system was restored four days later, the experience served as a tremendous wake-up call to how much we take safe, great-tasting, easy-to-access water for granted. As flood memories fade and Iowa remains in drought conditions, there are many things we can all do to ensure our community uses water efficiently.

Outdoor water usage can account for more than 50 percent of a home's water usage during the summer. Using water more effectively means increased efficiency and lower water bills.

- Do not over-water. Healthy lawns need no more than one inch of water a week.
- Using "smart" irrigation system that water only when necessary.
- Water only in the early morning and during the evening when evaporation is minimal.
- Make sure only landscaped areas are being watered, not the sidewalk or the driveway.
- Encourage deeper grass roots by watering slowly and less frequently.
- Dormant lawns can survive for over four weeks without water.
- Drip irrigation is the most effective at root penetration for individual plants. A soaker hose is an inexpensive solution.
- Put mulch down to minimize evaporation and increase water retention. It also helps eliminate weeds.

Water is a limited resource, and water conservation is important! Together, we can ensure Ames has plenty of water for the next 150 years!

CITY OF Ames™
WATER & POLLUTION CONTROL

MIX Paper
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Water Treatment Plant Lab (ca. 1954)

Water Treatment Plant Lab (1989)

Water Tower - Main St and Kellogg Ave (ca. 1897)

Water Treatment Plant Filter Room (1989)

Water Main Repair (ca. 1954)