WEBSTER CITY

City of Webster City
400 Second Street
PO Box 217
Webster City, IA 50595

p: (515) 832-9141
f: (515) 832-6686

webstercity.com

**October 18, 2021**

**FOR IMMEDIATE RELEASE – Copper Pipe Pinhole Leak Investigation**

The City of Webster City has been investigating copper pinhole leaks that residents and property owners have been experiencing. The City is mindful of the concerns and frustrations residents have expressed and has been working diligently to try to identify possible causes and factors. We recognize that information and answers have not come quickly, a result of how complex and poorly understood this phenomenon is across the country. **We wish to reiterate that the water has been and continues to be safe for drinking. This has been confirmed through testing and has been verified by experts and the Iowa Department of Natural Resources.**

At the November 1st City Council meeting, residents and City Councilmembers had the opportunity to hear directly from consulting engineer Gregory Sindt from Bolton and Menk and corrosion expert Dr. Marc Edwards from Virginia Tech regarding the issue. Dr. Edwards spoke on how on average he works with one to two communities across the country at a time navigating this phenomenon. Several communities have navigated this issue and have had minimal success in identifying the exact cause of the pinhole leaks.

Although there are no clear cause(s) of the copper pipe pinhole leaks that have been identified yet, the City continues to investigate the issue with Dr. Edwards and Bolton and Menk. Dr. Edwards and Bolton and Menk have also provided an initial recommendation for modifying the City's water treatment process by switching from polyphosphate to orthophosphate. While no two water systems are the same, Dr. Edwards noted that some communities who have added orthophosphate to their water treatment process have experienced a reduction in pinhole leaks. The City began adding orthophosphate to the finished treated water on October 25, 2021.

Phosphates are used by many water treatment systems to help maintain water quality including to address inorganic contaminants (iron, manganese, and hardness minerals by inhibiting corrosion and scale, and also as a corrosion inhibitor. The change from polyphosphate have caused new technical challenges at the water treatment plant. Filters at the treatment plant are used to remove sediment and excessive solids from the raw water (groundwater). The change from polyphosphate, which was fed prior to the filters, to orthophosphate being fed after the filters are causing the filters to scale and plug up faster. This is requiring filters to be backwashed approximately every 40 hours compared to 140 hours before. The City is reviewing this issue and working to identify the possible solutions and combination in the treatment process.

The City's water continues to meet all safe drinking water standards. In 1974 the Safe Drinking Water Act was passed by Congress to protect public health by regulating the nation's public drinking water supply. It established national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. The Iowa

Department of Natural Resources (DNR) is responsible for implementing the Safe Drinking Water Act in Iowa and any additional or more stringent regulations it chooses to enact.

In addition to regular water monitoring and testing required by the DNR, the City recently had water samples sent to a certified laboratory for lead and copper testing. The test results indicate the water is safe to drink. All water utilities are required to perform periodic lead and copper testing every few years in accordance with the EPA's Lead and Copper Rule. The Lead and Copper Rule is also implemented by the DNR and establishes specific testing protocols and sampling plan. The sampling plan includes specific locations identified by DNR to be tested and the specific time period in the year it must be conducted by or permit special lead and copper testing to be performed outside of the sampling plan period. The City will continue to perform periodic lead and copper testing in addition to its regular lead and copper testing period coming up next year.

The investigation and information being reviewed is not limited to the last 12-24 months, but looking at three or more years in an attempt to identify the cause(s). One recent change that has been identified is a switch in coagulant used int the water treatment process. Coagulants are used in water treatment systems to remove suspended solids, some metals and dissolved silica. This change occurred in June of 2021; however, reports from local plumbers indicate pinhole leaks began to occur prior to this change. Another change that was mentioned during the November 1st City Council meeting was in regards to the disinfection process. This change occurred over three years ago. In September/October 2018 the City changed from a chloramine disinfection process to break-point chlorination process.

Dr. Edwards and Bolton and Menk have not determined whether any of these changes in the City's water treatment process may have been factors attributed to the pinhole leaks. Information regarding the change was provided in the July 2018 edition of the Webster City City Scene, copy included on the next page:

City Scene
Webster City

# A WAVE OF GRATITUDE

Logan Welch

It's not often someone gets the opportunity to address the community they work and live in on a stage such as this article. I usually take this platform to tell you how to get involved in the community or to relay city information, but I'd like to switch it up a bit. I have a strong need to dedicate this page to showing my appreciation for those who drive me each day not only in my role as a City Council member but also as a person. I do not know exactly where to start, it's quite emotional and humbling thinking about how grateful I am for my support system. How about we start with you?

When I ran for City Council 5 years ago, I set out to truly and candidly represent the people of Webster City. Since I have lived in Webster City my entire life I knew quite a few people from the start, but I'm so thankful to have met so many more wonderful community members since. My favorite part of running for, and serving as a council member is getting to know you and what your needs are from our community. I want to thank everyone who has reached out to me with an issue, challenged me on a matter you didn't agree with me on, or taken an interest in our community by asking questions and weighing in on topics with me. This motivates me and keeps me on my toes. Thank you!

How about a look behind the scenes? I doubt my 11-year-old son William will be reading this article, but I don't mind. I want you the reader to know that he has a huge impact on what I do for myself and the city. You see, he has been my biggest cheerleader, advisor, and "assistant council member" since the beginning. I have experienced times of frustration and despair within my council role that he has the uncanny ability to erase by just a few words or even a look. His unjaded view of the world helps me put things in perspective. I strive to make William, my 2-year-old son Kilian, and baby number three on the way (yet to be named) proud of me as a father, friend, and community member. Bettering our community for the future is always in the front of my mind because of these three. My choices on the council are all about the next generation and giving them the same (if not better) opportunities I have experienced here in Webster City.

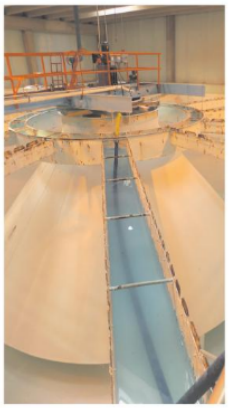
I couldn't break the fourth wall without sharing about my wife Lindsay. The first thing I want everyone to know is that she could without a doubt do a much better job than I do as a Council Member. Lindsay is a wonderful listener, has an empathetic heart, and can dedicate herself to any task with undivided attention. Not to mention, she is a wonderful mother. I benefit greatly from these traits and so much more. When you see me at a community event or in a council meeting, that means Lindsay is taking care of the kids so that I can be there, we are a team. She cares about the community just as much as I do, so next time you see her out and about, tell her thank you for me! She deserves it.

There are so many more family members, friends, and city staff that deserve a huge thank you for their patience and help with what I am trying to achieve with my time on the council. Thank you to all of those out there that have helped me. Now that you have read all about what drives me, I would like to know more about you. Please stop me sometime or email me at lwelch@webstercity.com and tell me your story. I want to know what drives you and what my family and I can help you with. We are so grateful to be a part of this community, especially with you in it.

*Logan Welch, Councilman*



# WATER NOTICE



Each year the water plant puts a notice in the paper stating that they will be shutting down for clarifier maintenance. Exactly what does this mean and what is done during that time. The clarifier or you might call it the water softener for the City of Webster City is drained. The clarifier holds just under one half million gallons of water so this takes some time. When completely drained the water plant employees go to work cleaning it and inspecting everything in it to make sure it is in good running condition. To clean the clarifier, fire hoses are used to blast the lime sludge on the floor of the clarifier into a slurry so it can be pumped out. A fire hose is the easiest and cheapest way to do this. It too takes some time.

While cleaning the clarifier is the main thing that happens, it's not the only thing. All the machinery that is involved with making soft water also needs to be cleaned and inspected. Gear boxes with oil in them are drained and replaced with new oil. Any repairs that are needed are completed. This year the cleaning of the clarifier will be the beginning of a team effort to make the water in town better for everyone. When the clarifier is down for maintenance and we are not softening, the water is still very safe to drink but you will notice a well water taste to it. This is because the only processes being done to the water are aeration, filtration and chlorination. The aeration begins the process of removing iron and manganese from the water. When we are softening the bulk of the iron and manganese drops out in the clarifier. But since we are not softening more of it gets through. The filters remove some of it but still some gets through. That is why shortly after the water plant employees get done with maintenance of the clarifier, the Webster City Street Department starts the flushing of the distribution system with the fire hydrants. This helps remove the high iron content water from the distribution system and lets the softened water start taking its place again.

This year while flushing the distribution system the water plant will be raising the amount of chlorine that is used to disinfect the water. The distribution system as a whole has a high level of ammonia in it and the increase in Chlorine will help alleviate it. Then starting next year the Street department will start flushing the distribution system in both the spring and fall to help keep that ammonia level down where it should be. Right now the water plant is doing chloramination for disinfection but we should be doing break point disinfection. Chloramination means you are not reaching break point chlorination and break point is where we want to be. During chloramination disinfection you may smell chlorine or a bleach odor coming from the water when you run it in from your faucet. The reason for this is the amount of ammonia in the water. It can take up to ten parts of chlorine to kill one part of ammonia. By raising the amount of chlorine slowly to get to break point we will go through times when the water will smell like chlorine but once we hit break point you shouldn't smell it at all. As always the water is still very safe to drink and use for everything you use water for. The water plant just asks for your patience during this time of adjustment. As we get closer to our scheduled annual maintenance break, notices will appear on the city website as well as in the local newspaper. Mention will also be made on the radio.

*George Johnston,*
*PW Tech/Water Plant*

*Tim Danielson,*
*Water & Wastewater Plant Supervisor*

The City also referenced this change in the 2018 and 2019 routine maintenance notices/press releases released to the public:

**NEWS RELEASE**

September 5, 2018

On September 12, 2018 the City of Webster City Water Treatment Plant will begin its annual maintenance of the clarifier which is its water softening equipment. Softening of the water will be stopped until September 21, 2018.

On September 24, 2018, the City of Webster City Water Treatment Plant will be changing the disinfectant that we use from chloramines to free chlorine as part of our maintenance program to assure the highest quality of drinking water is delivered to your home and business. **As always the water is still very safe to drink**. It is suggested to discontinue dishwasher use during this time.

Flushing of the distribution system will also occur during this maintenance work. Flushing of the distribution system is expected to last until September 28, 2018.

During this time you may notice a chlorine odor in your drinking water. You may also experience periods of discolored water as a result of the flushing. You can help alleviate this discoloration by turning on your faucets and running the water until it clears.

Kidney dialysis patients should follow your doctor's recommendations. Medical centers that perform dialysis commonly remove the chloramines or chlorine that enters the dialysis machines. You should consult your physician if you have any questions or concerns regarding the use of water for dialysis.

**Please contact Tim Danielson at 515 832-9146 for further information or with any questions**. You will be notified prior to the change back to chloramines.

**NEWS RELEASE**

September 20, 2019

On September 23, 2019 the City of Webster City Water Treatment Plant will begin its annual maintenance of the clarifier which is its water softening equipment. Softening of the water will be stopped until October 3, 2019

The City of Webster City Water Treatment Plant will be changing the disinfectant that we use from chloramines to free chlorine as part of our maintenance program to assure the highest quality of drinking water is delivered to your home and business. **As always the water is still very safe to drink**. It is suggested to discontinue dishwasher use during this time.

Flushing of the distribution system will also occur during this maintenance work. Flushing of the distribution system is expected to last until October 4, 2019.

During this time you may notice a chlorine odor in your drinking water. You may also experience periods of discolored water as a result of the flushing. You can help alleviate this discoloration by turning on your faucets and running the water until it clears.

Kidney dialysis patients should follow your doctor's recommendations. Medical centers that perform dialysis commonly remove the chloramines or chlorine that enters the dialysis machines. You should consult your physician if you have any questions or concerns regarding the use of water for dialysis.

**Please contact the Water Plant at 515 832-9146 for further information or with any questions**. You will be notified prior to the change back to chloramines.

In order to meet the Safe Drinking Water Act standards a majority of cities treat their water with chemical disinfectants. Disinfection is a major factor in preventing epidemics caused by microbial pathogens. Chlorine, chloramine and chlorine dioxide are three chemical disinfectants the EPA permits to be used. These disinfectants prevent water contamination by killing disease-causing bacteria and germs such as Salmonella, Campylobacter, and norovirus and strengthen protection against other microbial contaminants, especially Cryptosporidium, which may be resistant to disinfection practices.

**Under Iowa law, the City is required to add chlorine to its drinking water**. According to the Center for Disease Control (CDC), Chlorination is the process of adding chlorine to drinking water to kill parasites, bacteria, and viruses. Different processes can be used to achieve safe levels of chlorine in drinking water. Using or drinking water with small amounts of chlorine does not cause harmful health effects and provides protection against waterborne disease outbreaks.

Chloramination is the process of adding chloramine to drinking water to disinfect it and kill parasites, bacteria, and viruses. Chloramines are a group of chemical compounds that contain chlorine and ammonia. The particular type of chloramine used in drinking water disinfection is called monochloramine which is mixed into water at levels that kill germs but are still safe to drink. Most water utilities use either chlorine or chloramines. Some communities switch back and forth between chlorine and chloramines at different times of the year or for other operational reasons. Additional information can be found from the CDC:
(https://www.cdc.gov/healthywater/drinking/public/water_disinfection.html).

The EPA has established maximum residual disinfectant level goals (MRDLGs) and maximum residual disinfectant levels (MRDLs) for the use of chemical disinfectants in the treatment of drinking water:

| Disinfectant residual | MRDL (mg/L) | MRDLG3 (mg/L) |
|---|---|---|
| **Chlorine** | 4.0 (as $Cl^2$). | 4 |
| **Chloramines** | 4.0 (as $Cl^2$). | 4 |
| **Chlorine dioxide** | 0.8 (as $Cl^2$). | 0.8 |

*https://www.epa.gov/dwreginfo/stage-1-and-stage-2-disinfectants-and-disinfection-byproducts-rules*

The Iowa DNR requires a minimum amount of disinfection residual in water distribution systems. The minimum chlorine levels are 0.3 mg/L free chlorine or 1.5 mg/L total chlorine. The level depends on if you are using free chlorine or chloramines as the disinfectant. The City has maintained chlorine residual within the required limits. The average chlorine residual in the City's water distribution system for the past three years is:

| Year | Disinfectant residual - MRDL (mg/L) |
|---|---|
| **2018** | 1.4 |
| **2019** | 1.4 |
| **2020** | 0.6 |
| **2021*** | 1.8* |

** Year-to-date October 2021*

We understand the frustration many citizens are experiencing. Below is a timeline of events that provides information on steps taken by the City to investigate the issue.

**TIMELINE OF EVENTS**

**June 2021 –** A local plumber reported to water treatment plant staff that he had seen a rise in pinhole leaks and believed it to be out of the ordinary. He provided pipe samples to water treatment plant staff. Water treatment plant staff began researching copper pinhole leaks.

**July 2021 –** Water treatment plant staff received another notice of pinhole leak concerns in the community. Staff began reaching out to neighboring communities to identify if others had experienced this issue or had recommendations on what could be causing pinhole leaks. Water treatment staff spoke with the Department of Natural Resources about the situation and it was recommended that staff begin utilizing the Langelier Saturation Index (LSI) to identify if the City's water is corrosive. The LSI is a measurement of water balance and determines if water is aggressive or corrosive, balanced, or scale-forming.

**August 2021** – City Water treatment staff consulted with consulting engineer on the copper pipe pinhole concern. It was recommended the City perform a water well analysis. Staff completed sampling and delivered samples to the lab for the recommended analysis on August 31, 2021.

**September 2021** – Analytical report of water well analysis received by City staff on September 14, 2021. Langelier Saturation Index reflected the City's water is not aggressive or corrosive.

**October 2021** – Reports of residents experiencing pinhole leaks in copper pipes increased in early October. The Water Treatment Plant was shut down for routine annual maintenance on October 9th. On October 13th, Iowa Rural Water Association technical support representative came to the water treatment plant to analyze the copper pipe samples provided by plumbers. He noted he would be consulting with cities across the nation requesting support and would get back to the City. After he performed some research, he believed there is some sort of electrolysis occurring but could not be certain of the cause.

While Iowa Rural Water Association representative was onsite, the City also contacted consultant engineer Bolton and Menk to report the significant increase in frequency. Bolton and Menk assisted the City in securing nationally recognized corrosion expert Dr. Marc Edwards to assist the City with investigation. The City's water treatment plant began softening on October 19th. Dr. Marc Edwards recommended switching from a polyphosphate to an orthophosphate corrosion inhibitor. This switch was made on October 25th. Prior to making this switch, the City consulted with the Department of Natural Resources (DNR) to confirm this was acceptable. Orthophosphate is a safe chemical that acts as a corrosion inhibitor and is commonly used by water utilities. Therefore, the DNR was in agreement with utilization of orthophosphate as a corrosion inhibitor.

Once the City began utilizing orthophosphate, Dr. Marc Edwards and Bolton and Menk met with City administrative and water staff to review targets for the water treatment plant. Dr. Marc Edwards

requested the City send him 5 gallons of water and pipe samples for analysis. This is a service that normally costs $15,000; however, Dr. Marc Edwards waived this fee as he will utilize the information to further pursue his ongoing investigation of copper pitting.

Lead and Copper samples were taken at 12 homes throughout the City on October 26th. Lab results came back with lead and copper levels falling below action levels. These results further confirm that the water is safe to drink.

**November 2021** – On November 1, 2021 corrosion expert Dr. Marc Edwards provided information of his experience with copper pitting at the City Council meeting.

The City has seen a significant reduction in copper pinhole leak reports since the spike in reports in the first half of October.

If you have further questions on these issues, you can find more information on the City's Water System at Drinking Water Watch (http://programs.iowadnr.gov/drinkingwaterwatch/). Drinking Water Watch provides information on the quality of water produced by public water supply systems in Iowa.

Water System No. : IA4063094
Water System Name: WEBSTER CITY WATER SUPPLY

Click on a county map or enter the name of a system and find the past two years of compliance monitoring data for the system and information on any violations, as well as contact information for the system. *Disclaimer - The Iowa DNR database query and Drinking Water Watch, an EPA product, utilize different sample location fields. The data displayed in Drinking Water Watch may not display the correct sample location.

If you would like to report a pinhole leak, please call 515-832-9151 or email:pinholeleaks@webstercity.com.