ANNUAL WATER QUALITY REPORT

2021 WATER TESTING PERIOD

PWS ID #2290023
MEETING THE CHALLENGE

We are once again proud to present to you our annual water quality report. This edition covers all testing completed from January 1 through December 31, 2021. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal drinking water standards. We continually strive to adopt new and better methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant and meet the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please share with us your thoughts about the information in this report. After all, well-informed customers are our best allies.

LEAD INFORMATIONAL STATEMENT

HEALTH EFFECTS AND WAYS TO REDUCE EXPOSURE

The City of Moscow is in full compliance with lead testing rules, and has never had a sample fail for high lead content. In 2016, the City of Moscow Water Staff took several samples from residences constructed during the period when lead was being used and all samples were below the federal level. In addition, we have no reason to believe that we have elevated levels of lead in the City of Moscow water system based on routine monitoring data.

However, 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 City of Moscow 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 two (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 at 800-426-4791 or at www.epa.gov/safewater/lead.

ADDITIONAL HEALTH INFORMATION

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, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at 800-426-4791.

WHERE DOES MY WATER COME FROM?

Moscow has six wells which draw water from two underground aquifers; the shallow aquifer known as the Wanapum, and a deeper aquifer called the Grand Ronde. Wells #2 and #3 draw water from the Wanapum System, and Wells #6, #8, #9, and #10 draw water from the Grand Ronde System.

To protect these water sources, the City has implemented best management practices designed to protect the wells and the areas that surround them.

SOURCE WATER ASSESSMENT

A Source Water Assessment for the City of Moscow was completed in 2001. The assessment determined that Wells #2 and #3 have overall higher susceptibility risk ratings, compared to Wells #6, #8 and #9. The City of Moscow has never had a sample exceed the Maximum Contaminant Level (MCL) for possible contaminants. A copy of the Source Water Assessment can be obtained from the State of Idaho Department of Environmental Quality (DEQ). For more information regarding the assessment, contact Kyle Steele at 208-883-7133.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call one of the following people:

KYLE STEELE
Environmental Services Manager
208-883-7133

EVAN TIMAR
Public Utility Manager
208-883-7091

TYLER PALMER
Deputy City Supervisor–Public Works and Services
208-883-7096

Photo by Maureen Jorgenson, City of Moscow resident.
SAMPLING RESULTS

During the past year, we have taken hundreds of water samples in order to identify the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. Although all of the substances listed here are under the Maximum Contaminant Level (MCL), we feel it is important that you know exactly what was detected and how much of the substance was present in the water. The state allows us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Unit of Measure</th>
<th>Year Sampled</th>
<th>MCL [MRDL]</th>
<th>MCLG [MRDLG]</th>
<th>Amount Detected</th>
<th>Violations</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined Radium – 226 and 228</td>
<td>pCi/L</td>
<td>2021</td>
<td>5</td>
<td>0</td>
<td>2.34</td>
<td>No</td>
<td>Erosion of natural deposits</td>
</tr>
<tr>
<td>Gross Alpha</td>
<td>pCi/L</td>
<td>2018</td>
<td>15</td>
<td>0</td>
<td>2.1</td>
<td>No</td>
<td>Erosion of natural deposits</td>
</tr>
<tr>
<td>Chlorine</td>
<td>ppm</td>
<td>Monthly</td>
<td>4</td>
<td>4</td>
<td>0.7</td>
<td>0.34</td>
<td>No Water additive used to control microbes</td>
</tr>
<tr>
<td>Barium</td>
<td>ppm</td>
<td>2018</td>
<td>2</td>
<td>2</td>
<td>0.007</td>
<td>0.181</td>
<td>No Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits</td>
</tr>
<tr>
<td>Chromium</td>
<td>ppb</td>
<td>2010</td>
<td>100</td>
<td>100</td>
<td>1.21</td>
<td>1.39</td>
<td>No Discharge from steel and pulp mills; erosion of natural deposits</td>
</tr>
<tr>
<td>Fluoride</td>
<td>ppm</td>
<td>2021</td>
<td>4</td>
<td>4</td>
<td>0.341</td>
<td>1.39</td>
<td>No Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories</td>
</tr>
<tr>
<td>TTHMs (Total Trihalomethanes)</td>
<td>ppb</td>
<td>2014</td>
<td>80</td>
<td>NA</td>
<td>1.07</td>
<td>1.23</td>
<td>No By-product of drinking chlorination</td>
</tr>
</tbody>
</table>

**COPPER AND LEAD** Tap water samples were collected for lead and copper analyses from sample sites throughout the community.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Unit of Measure</th>
<th>Year Sampled</th>
<th>AL</th>
<th>MCLG</th>
<th>Amount Detected (90th Percentile)</th>
<th>Sites Above AL/Total Sites</th>
<th>Violations</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>ppm</td>
<td>2021</td>
<td>1.3</td>
<td>1.3</td>
<td>0.183</td>
<td>0/30</td>
<td>No</td>
<td>Corrosion of household plumbing systems; erosion of natural deposits</td>
</tr>
<tr>
<td>Lead</td>
<td>ppb</td>
<td>2021</td>
<td>15</td>
<td>0</td>
<td>4</td>
<td>0/30</td>
<td>No</td>
<td>Corrosion of household plumbing systems; erosion of natural deposits</td>
</tr>
</tbody>
</table>

The MCL for beta particles is 4 mrem/year. The U.S. EPA considers 50 pCi/L to be the level of concern for beta particles.

**DEFINITIONS**

- **AL** - Action Level - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **MCL** - Maximum Contaminant Level - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- **MCLG** - Maximum Contaminant Level Goal - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **MRDL** - Maximum Residual Disinfectant Level - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **MRDLG** - Maximum Residual Disinfectant Level Goal - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **NA** - Not Applicable
- **pCi/L** - Picocuries per Liter - A measure of radioactivity.
- **ppb** - Parts per Billion - One part substance per billion parts water (or micrograms per liter).
- **ppm** - Parts per Million - One part substance per million parts water (or milligrams per liter).
SUBSTANCES THAT COULD BE IN WATER

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration 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 these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

**MICROBIAL CONTAMINANTS**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife.

**INORGANIC CONTAMINANTS**, ring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or 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 production, and may also come from gas stations, urban stormwater runoff, and septic systems.

**RADIOACTIVE CONTAMINANTS**, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA’s Safe Drinking Water Hotline at **800-426-4791**.
CROSS-CONNECTION CONTROL PROGRAM
BACKFLOW PROTECTION

As you can see in the water quality testing included in this report, the Moscow Water Staff diligently monitor the water that is produced and distributed to the community to ensure that it is safe for all Moscow residents. The internal plumbing for businesses and residents (pipes, sprinklers, fixtures, valves etc.) can be a source of contamination if the system is not protected by a properly-functioning backflow assembly. These devices are required to assure that your plumbing does not contaminate the City’s water system, and therefore, all your neighbor’s water.

A cross-connection is any actual or potential connection to the public water system through which it is possible to introduce anything other than the intended potable water. This includes used water (water that has left the City’s distribution system), biological or chemical contaminants, and water from auxiliary (private) wells. Backflow is the flow of any liquids (including used water), gases, or substances in the wrong direction back into the public water supply. This can happen in two ways: by a drop in pressure in the distribution system that creates backsiphonage, which pulls water backwards; or by an increase in pressure on an external system that creates backpressure, which pushes water backwards.

When it is determined that a cross connection which may endanger your public water supply is present, an approved backflow assembly must be installed. A backflow assembly is a device which is designed to be tested and repaired without having to be removed. All backflow assemblies must be inspected and tested annually by a State of Idaho licensed Backflow Assembly Tester (BAT). Note that an assembly that fails testing must be repaired, replaced, or isolated within ten (10) business days, or water service must be shut off. Over the past five years, an average of 6.0% of backflow assemblies in Moscow failed the initial test.

The protection of Moscow’s water supply is of critical importance to both the City of Moscow and its citizens. If you have any questions about the CCCP or would like to schedule a cross connection assessment, please contact Ty Thompson at tthompson@ci.moscow.id.us or by calling 208-883-7111.
**WISESCAPE®**
**XERISCAPING ON THE PALOUSE**

The Wisescape Program was established in 2008 to promote water-efficient landscaping on the Palouse. Each year, pumping from City Wells nearly triples during the irrigation season, leading to increased pressure on our already declining aquifer. Utilizing the Wisescape principles provides a method to help protect this precious resource.

In 2016, the program received an upgrade to include a rebate program. Any City of Moscow Water Customer who is converting at least 300 square feet of irrigated lawn to a Wisescape is eligible.

For more information about the Wisescape program contact Kelli Cooper at kcooper@ci.moscow.id.us or by calling 208-883-7122.

**PROCESS**

**SITE PLAN** – Taking a look at your proposed area and deciding what you want to do. Take site notes and start sketching! This is the time to call the City if you want to get a rebate!

**IRRIGATED TURF REMOVAL** – Involves getting rid of that thirsty lawn, which can be done using a variety of methods.

**MODIFY SOIL** – Adding amendments, such as compost, to the soil so that new plants can start with a favorable base, healthy soil.

**PIPES UNDERGROUND** – Any necessary underground piping that needs installed or converted should be completed prior to planting.

**LOW-WATER PLANTS** – Selecting plants that are adapted to our area will thrive and require less resources once established.

**EFFICIENT IRRIGATION** – Installing an efficient irrigation system will keep your plants healthy, provides the best use of resources and helps with weed prevention.

**RETAIN MOISTURE** – Reduce weeds and watering needs by choosing a mulch that meets your needs and preferences.

**WHY WISESCAPE?**

Through meticulous data tracking, the City was able to do a side-by-side comparison between a traditional lawn and a Wisescape at City Hall. In addition to a 75% reduction in water use, there was also an 81% reduction in CO₂ emissions, an 84% reduction in labor, and a financial savings associated with reduced need for fertilizers, herbicides, and fuel.

**CO-BENEFITS**

Wisescapes can provide many benefits beyond those associated with the care of the landscape itself.

**WILDLIFE** – Having a variety of different plants in your yard can provide habitat for all kinds of neighborhood animals and insects such as birds, squirrels, ladybugs, worms and more.

**POLLINATORS** – Having a variety of flowering plants, especially those that bloom early or late in the season provide welcoming habitat to this important subgroup of wildlife.

**CARBON SEQUESTRATION** – Any plant that grows sequesters carbon as it grows, even if on short time frames. Many low-water plants have deep roots that pull some of that carbon deeper into the soil than turf grasses.

**DIVERSE LANDSCAPES** – There is no end to the possibilities of colors, textures, shapes, sizes, and layouts that can be accomplished through a Wisescape!

<table>
<thead>
<tr>
<th>WATER QUALITY CHARACTERISTIC</th>
<th>AVERAGE VALUE IN MOSCOW’S WATER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium</td>
<td>27.5 mg/L</td>
</tr>
<tr>
<td>Sodium</td>
<td>30.7 mg/L</td>
</tr>
<tr>
<td>Magnesium</td>
<td>10.1 mg/L</td>
</tr>
<tr>
<td>Hardness (as CaCO₃)</td>
<td>110.4 mg/L</td>
</tr>
<tr>
<td>Hardness (grains per gallon)</td>
<td>6.5</td>
</tr>
<tr>
<td>pH (SU)</td>
<td>7.2</td>
</tr>
<tr>
<td>Sulfate</td>
<td>23.3 mg/L</td>
</tr>
<tr>
<td>Chloride</td>
<td>4.2 mg/L</td>
</tr>
</tbody>
</table>

**BREWER’S INFORMATION**

Brewers have long recognized how important consistent and high-quality water is to the brewing process and creating great beer. Water comprises between 90 to 95 percent of beer by mass, which means you need great water to make great beer!

Beer brewing is both art and science, so it’s critical to understand certain chemical properties of the water used in the brewing process. With this in mind, here are some common water quality characteristics, unique to Moscow’s water sources, which brewers ask us about and evaluate before making a new batch.

For additional information on Moscow’s water characteristics and chemical properties, please contact the Water Department at 208-882-3122.