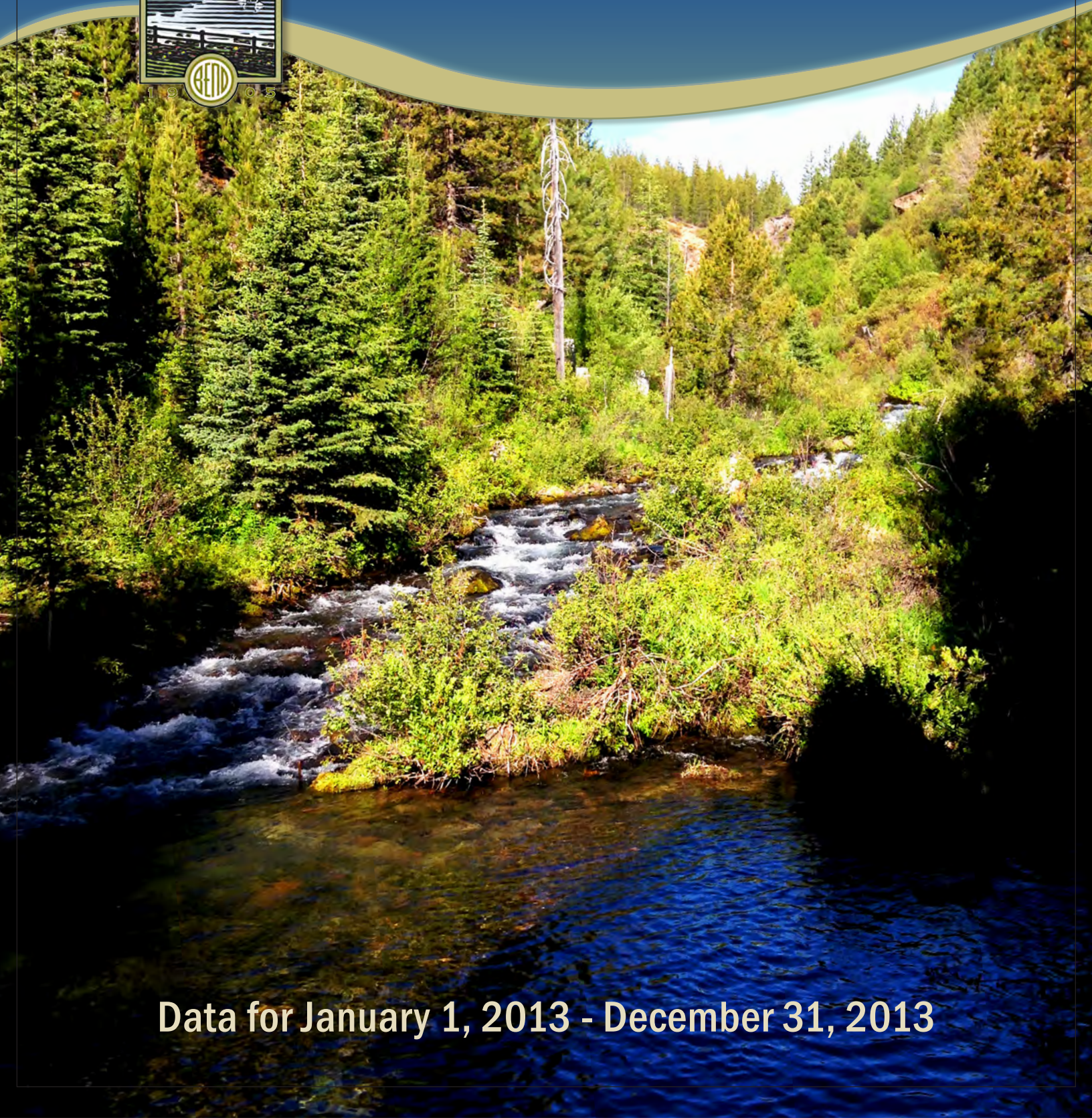
City of Bend
Water Quality Report



Data for January 1, 2013 - December 31, 2013

Bridge Creek
Bend's Pure Water Source
- Since 1926 -

This report includes information on how City of Bend drinking water meets or exceeds state and federal water quality standards, tips on how to interpret the data and an explanation of where your water comes from. The data presented is for January 1 through December 31, 2013. We are proud to share our results with you.

If you are a manager or owner of a business or multifamily dwelling, please share this report with your employees or residents. If you would like printed copies, please call Customer Service at 541-317-3000.

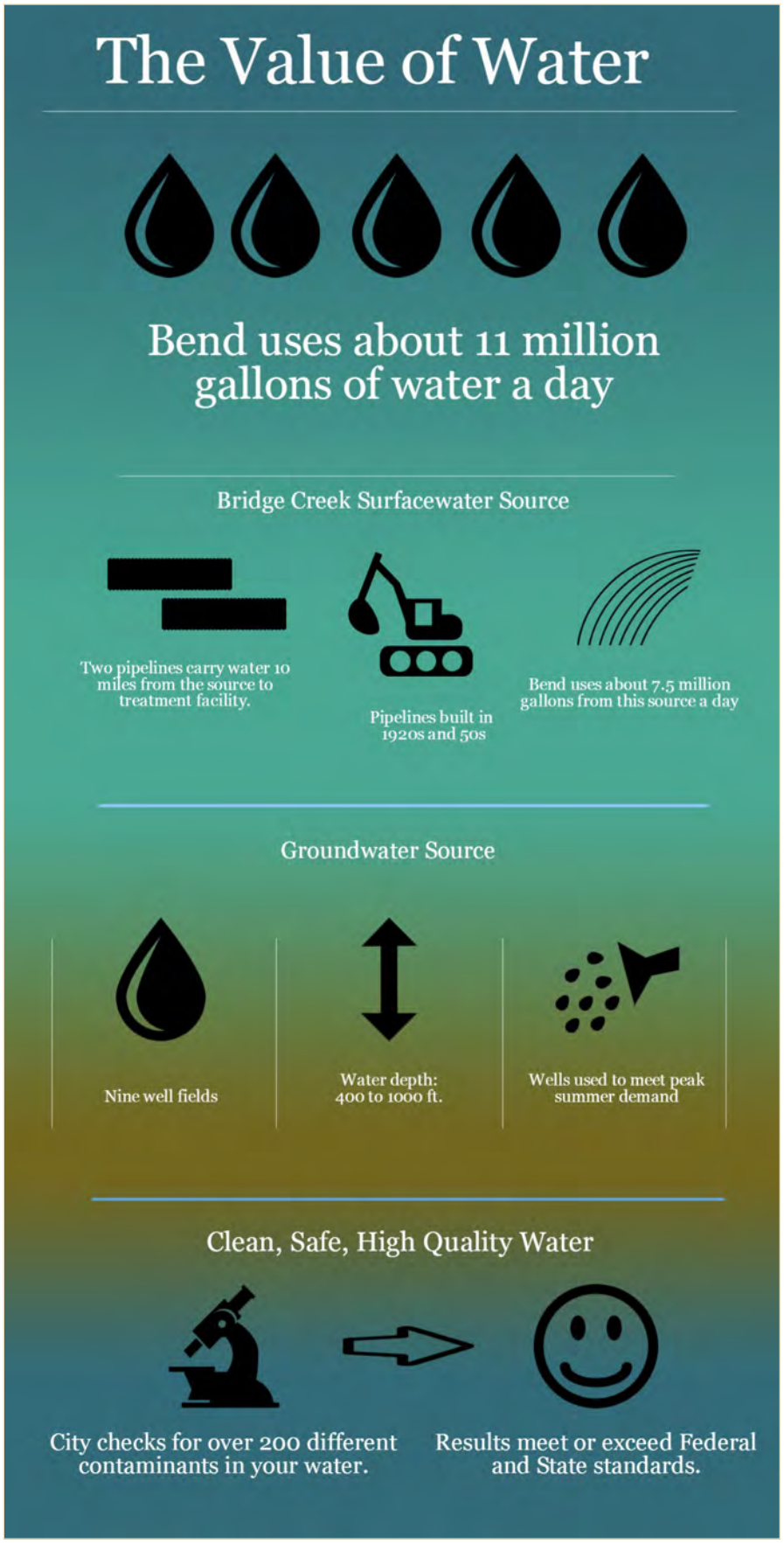
Water Quality Manager: Steve Prazak
Water Utility Manager: Shannon Ostendorff
Water Billing: Finance Dept 541-388-5515

City of Bend Public Works Department
PO Box 431, Bend, OR 97709

Cover Photo: Bridge Creek
Photo Credit: Robyn Somers

"This is one of the finest water supplies in the US, and our water rights to this source are probably the most valuable asset the city owns."

- Councilor Victor Chudowsky



Dual Water Source System

Bridge Creek watershed is the City of Bend's primary drinking water source. This surface water comes from a protected and isolated watershed deep in the Deschutes National Forest. Our ground water supply is from the Deschutes regional aquifer. Pumps pull ground water from the deep aquifer at nine well fields. The well fields have 21 available wells that provide a supplemental water source used to meet peak summer demand and a back up water source when quality is not acceptable due to turbidity from snow melt or heavy precipitation.

The water quality of our wells is very similar to our surface source. Annual snowmelt and precipitation supplies the aquifer with an average recharge of 3800 cubic feet per second (cfs) annually. Averaged over the year that is about 2.4 billion gallons per day of recharge to the aquifer.

Bend is fortunate to have well protected water supplies. Both our surface and groundwater sources are managed in accordance with Oregon State Health Authority requirements, Federal Environmental Protection Agency (EPA) regulations, and best management practices for water supply systems.

The City works closely with the U.S. Forest Service to protect the pristine Bridge Creek watershed. Groundwater wells are also safeguarded through ongoing efforts to protect critical areas around wellheads and water facilities.

Our Stormwater Program is focused on protecting our groundwater supply from contamination.

Source Water Assessments

A Source Water Assessment of all City of Bend groundwater wells was completed in 2013. A Source Water Assessment for the City of Bend's surface water was completed in 2003. Assessments consist of the following:

1. Identification of the Drinking Water Protection area,
2. Identification of potential sources of pollution within the Drinking Water Protection area,
3. Determination of the susceptibility or relative risk to the surface water from those sources.

Request a copy of these reports by contacting the City of Bend at 541-317-3000. The 2013 report executive summary is available online at bendoregon.gov/waterquality.

Stormwater Program

The City's Stormwater Program covers both water quantity issues aimed to prevent localized flooding and water quality issues focusing on protecting local surface water and groundwater resources. Visit bendoregon.gov/stormwater for more information.

Cross Connection Protection

One of the measures the City of Bend takes to ensure the safety of your drinking water is the implementation of a Cross Connection Control Program. This program is designed to prevent used water or other substances from returning back into the water supply. Connections between the drinking water piping and any plumbing fixture, tank, receptor, equipment or device through which it may be possible for used water or other substances to enter back into the water supply are called cross connections. Certain hydraulic conditions can cause water to flow in the opposite of its intended direction; this is called backflow.

Some examples of cross connection are lawn irrigation systems and fertilizer spray attachment, but even a garden hose used to fill a hot tub is a potentially dangerous cross connection. These cross connections require mechanical units, called backflow prevention assemblies, to be installed to prevent water from flowing backwards.

As a water customer, you are responsible to maintain your own plumbing system according to the plumbing code (UPC 603.0), City of Bend Code (14.3) and other state regulations (OAR 333-061-0070). Plumbing permits are required when working on a plumbing system, including landscape irrigation systems. These systems include the installation of a backflow prevention assembly. Obtaining the proper permits minimizes your liability in the event of a backflow incident. The permit process ensures that work done on a plumbing system is carried out in a safe, correct manner. This protects you, your loved ones, your investments and your community.

If you have any questions about our Cross Connection Control Program, please contact us at 541-317-3010.

Water Testing

The City of Bend Utilities Department monitors for over 200 regulated and unregulated contaminants, including pesticides and radioactive material. The data in the following tables are from January 1, 2013 to December 31, 2013, unless otherwise noted. Although Bend's water supplies are tested for all regulated and many unregulated contaminants, only contaminants that have been detected in the water are included in this report. Through our monitoring and testing, some contaminants have been detected. The results, however, continue to meet or surpass all State and Federal drinking water standards.

Irrigation Hours for Bend Residents

Even and odd irrigation day rules apply. Watering is allowed at night.

Best time to Irrigate	Avoid Irrigation if possible	No Irrigation Allowed	Avoid Irrigation if possible	Best time to Irrigate
Midnight - 6AM Low System Demand	6AM - 9AM Peak Morning Demand	9AM - 5PM Hot, windy, high evap rate Rule variance given for new sod, seed, plantings	5PM - 7PM Peak Evening Demand	7PM - Midnight Low System Demand
Midnight 6AM	9AM	NOON	5PM	7PM Midnight

WaterWise... Water Isn't All You Save.

Conservation is a critical component of Bend's total water management plan. In fact, water conservation is one of our four water supplies along with surface, well, and reclaimed water. When you conserve water you're actually leaving water in the river or aquifer, reducing your carbon footprint by saving energy, helping to delay future well infrastructure cost, and cutting down on potential stormwater runoff. It's easy to do your part – be WaterWise!

WATERWISETIPS.org

Important Health Information

Some individuals may be more vulnerable to contaminants in drinking water than the general population. People that are immuno-compromised such as a person with cancer undergoing chemotherapy, a person who has undergone an organ transplant, people with HIV/AIDS or other immune system disorders, some elderly, and some infants can be particularly at risk from infection. These individuals should seek advice from their healthcare providers.

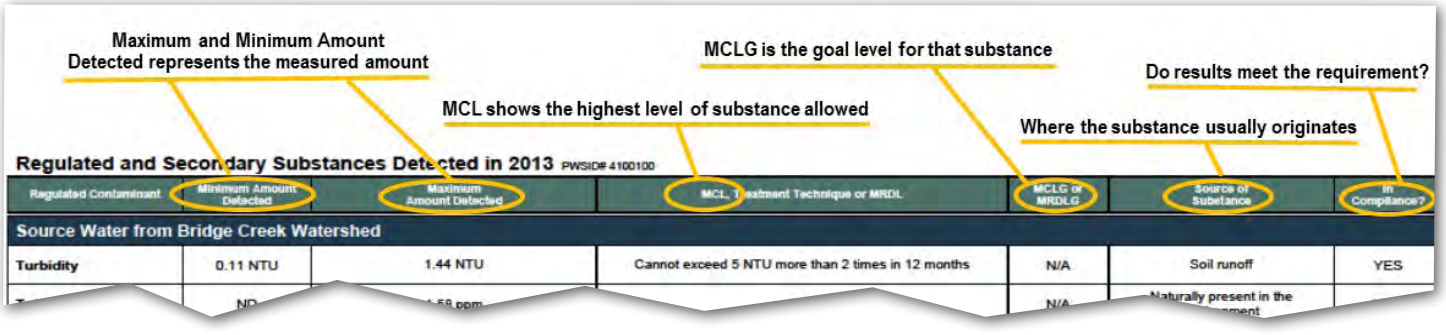
Guidelines from the U.S. Environmental Protection Agency and Centers for Disease Control about appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Tips for Reading Report Tables

Starting on the far left, read across. Collection Date is usually in 2013 or years prior.

Maximum and Minimum Amount Detected represents the measured amount. Range of Levels Detected tells the highest and the lowest amounts measured. MCLG is the goal level for that substance.

MCL shows the highest level of substance allowed. Units is the means of measurement. In Compliance means the amount of the substance did not exceed government requirements. Typical Source of Substance tells where the substance usually originates.



Regulated and Secondary Substances Detected in 2013 PWSID# 4100100

Regulated Contaminant	Minimum Amount Detected	Maximum Amount Detected	MCL, Treatment Technique or MRDL	MCLG or MRDLG	Source of Substance	In Compliance?
Source Water from Bridge Creek Watershed						
Turbidity	0.11 NTU	1.44 NTU	Cannot exceed 5 NTU more than 2 times in 12 months	N/A	Soil runoff	YES
Total Organic Carbon	ND	1.58 ppm	N/A	N/A	Naturally present in the environment	YES
Giardia lamblia	ND	3 samples collected in 2013 had *Giardia* cysts present	Treatment technique required: Disinfection to kill 99.9% of cysts	N/A	Human or animal fecal waste	YES
Fecal Coliform	ND	1 sample tested greater than 20 colonies per 100 mL of water *	At least 90% of samples during the previous 6 months must have 20 or fewer colonies per 100 mL of water	0		YES
Entry Points to Distribution System – from Bridge Creek Watershed and Groundwater Well Fields						
NUTRIENTS, METALS, AND MINERALS						
Nitrate-Nitrogen	ND	0.54 ppm	10 ppm	10 ppm	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits	YES
Fluoride	0.16 ppm	0.27 ppm	4 ppm	4 ppm	Erosion of natural deposits	YES
Sodium (Secondary)	9.84 ppm	11.5 ppm	N/A	20 ppm		YES
Combined Radium	ND	2.46 pCi/L	5 pCi/L	0 pCi/L	Erosion of natural deposits	YES
Gross Alpha	ND	3.87 pCi/L	15 pCi/L	0 pCi/L	Erosion of natural deposits	YES
Distribution System of Reservoirs and Mains						
MICROBIOLOGICAL CONTAMINANTS						
Total Coliform	ND	1 sample out of 89 in May (1.1%) tested positive †	No more than 5% samples test positive in any month	Zero positive tests	Naturally present in the environment	YES
DISINFECTION BYPRODUCTS						
Haloacetic Acids	ND	36.1 ppb	60 ppb	N/A	Byproduct of drinking water disinfection	YES
Total Trihalomethanes	ND	41.5 ppb	80 ppb			YES
DISINFECTION RESIDUAL						
Free Residual Chlorine	0.14 ppm	1.55 ppm	4 ppm	4 ppm	Remaining chlorine from disinfection process	YES

Lead and Copper Samplings at High-Risk Residential / Commercial Water Taps – Sampled in 2012						
Regulated Contaminant	**90th Percentile Value**	**Number of Sites Exceeding Action Level**	**Lead and Copper Rule Exceedance**	**MCLG**	**Source of Substance**	**In Compliance?**
Copper	0.19 ppm	0 of 30 samples (0%) exceeded the Action Levels for both Copper and Lead	More than 10% of homes / commercial buildings have levels greater than 1.3 ppm for Copper and 15 ppb for Lead	1.3 ppm	Corrosion of household and commercial plumbing systems	YES
Lead	3.0 ppb			0 ppb		

*99.6% of samples had fewer than 20 colonies per 100 mL of water. † Only 1 sample out of 1071 collected in 2013 had detectable coliform bacteria

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 at 800-426-4791 or online at epa.gov/safewater.

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, and in some cases radioactive material and can pick up substances resulting from the presence of animals or human activity. Contaminates in drinking water sources may include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agriculture livestock operations and wildlife.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, stormwater runoff and residential uses.
- Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, or farming.
- Organic chemical contaminants, including synthetic and volatile organics, which are byproducts of industrial processes, and can also come from gas stations, urban stormwater runoff and septic systems.
- Radioactive contaminants which can be naturally occurring.

To ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Spanish (Espanol)

Este informe contiene informacion muy importante sobre la calidad de su agua potable. Por favor lea este informe o comuniquese con alguien que pueda traducir la informacion.

This report contains important information about the quality of your drinking water. Please read this report or contact someone who can translate the information.

Lead and Copper

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 Bend Utilities Department 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 1-800-426-4791 or online at epa.gov/safewater/lead.

Cryptosporidium

Cryptosporidium is a microbial pathogen found in surface water throughout the world. Surface water supplies are particularly vulnerable if they receive runoff or are exposed to human or animal wastes. Since wildlife inhabits the Bridge Creek watershed, the City regularly monitors for Cryptosporidium and has done so since 2005. Our monitoring indicates it's presence at low levels in our source water. Cryptosporidium was not detected in the twelve samples collected during 2013 at our CT Basin intake plant. Ingestion of Cryptosporidium may cause Cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. We encourage immunocompromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection.

Unregulated Contaminants Monitoring Rule (UCMR3)

Beginning In 2013, large public water systems within the State of Oregon participated in the third phase of the Unregulated Contaminant Monitoring Rule (UCMR3). Unregulated contaminants are those for which the EPA has not established drinking water standards. Monitoring assists the EPA in determining the occurrence of these compounds and whether or not regulation is warranted. The City of Bend began conducting Assessment Monitoring (List 1) in December 2013 and will continue through 2014. Detections from 2013 are summarized in the following table, along with typical sources.

For general information on UCMR3, visit http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/ucmr3 or contact EPA's Safe Drinking Water Hotline at 1-800-426-4791.

Unregulated Contaminants Monitoring (UCMR3) - 2013

Parameter	Units	Maximum Amount Detected	Range Detected	Typical Source
Chromium (total)	ppb	0.52	ND to 0.52	See chromium-6 for use or source information; though the amount measured when analyzing for "total chromium" is the sum of chromium in all of its valence states, the MCL for EPA's current total chromium regulation was determined based upon the health effects of chromium-6
Chromium-6	ppb	0.55	0.076 to 0.55	Naturally-occurring element; used in making steel and other alloys; chromium -3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation
Strontium	ppb	37	13 to 37	Naturally-occurring element; historically commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions
Vanadium	ppb	12	6.6 to 12	Naturally-occurring elemental metal; used as vanadium pentoxide which is a chemical intermediate and a catalyst

Definitions and Units of Measure

Action Level
The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Maximum Contaminant Level (MCL)
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.

Maximum Contaminant Level Goal (MCLG)
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.

Not Applicable (N/A)

Maximum Residual Disinfectant Level (MRDL)
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.

Maximum Residual Disinfectant Level Goal (MRDLG)
The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Nephelometric Turbidity Unit (NTU)
A measure of water's clarity (turbidity).

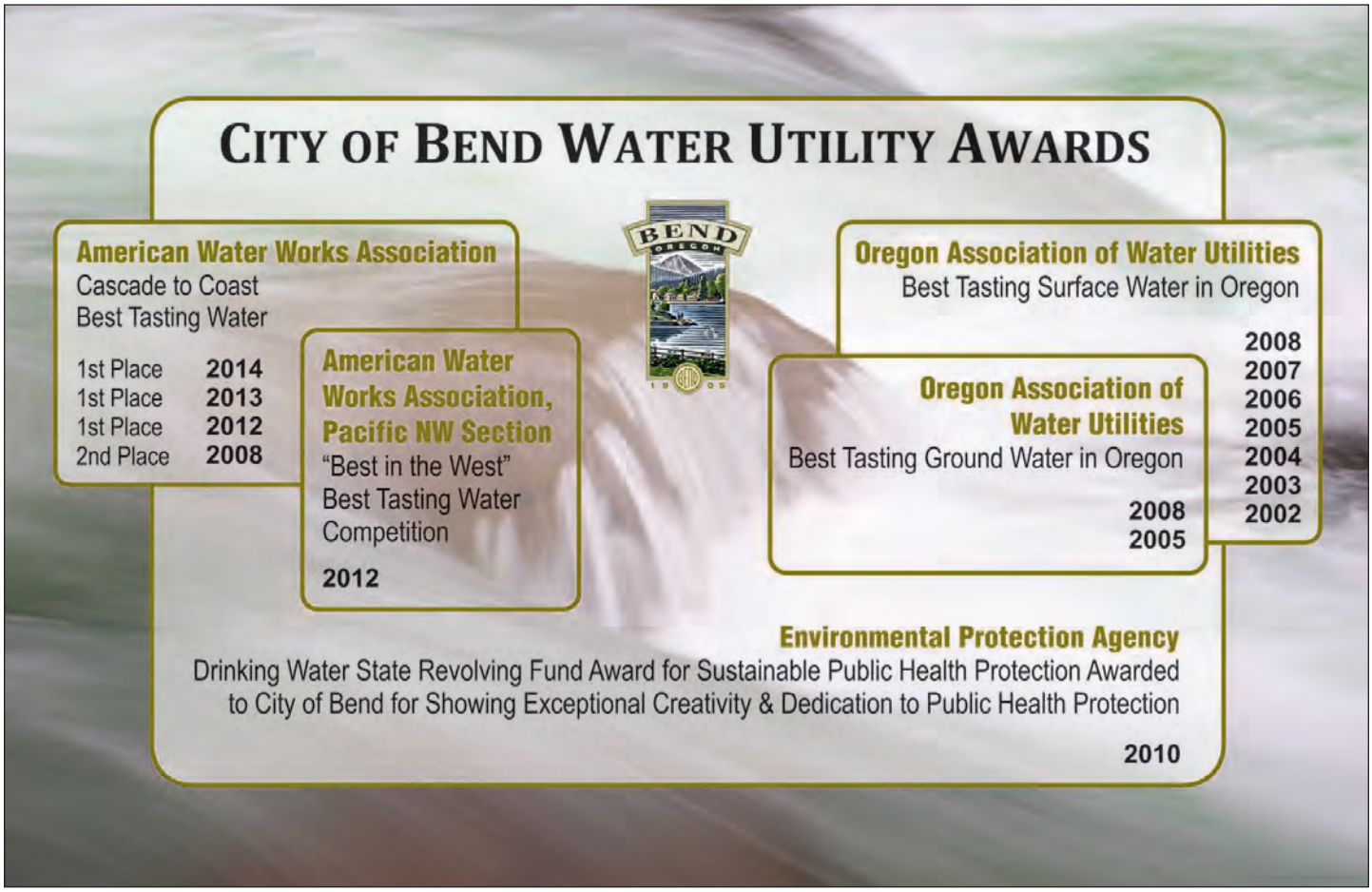
Not Detected (ND)
Substance not detectable using current monitoring equipment.

Part per Million (ppm)
Also known as milligrams per liter (mg/L) which is equal to the number of milligrams of a substance in one liter of water. One part per million is equal to 1,000 parts per billion.

Part per Billion (ppb)
Also known as micrograms per liter (µg/L) which is equal to the number of micrograms of a substance in one liter of water.

90th Percentile
This means that 90 percent of the samples collected were equal to or below the value reported.

Treatment Technique
A required process intended to reduce the level of a contaminant in drinking water.



Request a Paper Copy

You are likely reading the report online, rather than a traditional paper copy sent by mail. The Environmental Protection Agency recently changed the requirements to allow utilities to communicate this important information digitally.

Customers are still able to request a paper copy and can do so by calling 541-317-3000 or completing a request form on-line at bendoregon.gov/waterreportrequest.

This document is also available online at bendoregon.gov/waterreport.

For Additional Information

For more information on this report call Steve Prazak, Water Quality Manager at 541-317-3000 or visit the City of Bend website: bendoregon.gov/waterquality.

The City of Bend will provide auxiliary aids services to persons with disabilities. To request an ADA accommodation of this information in an alternate format such as Braille, large print, electronic format, and audio cassette tape please contact the Accessibility Manager 541-388-5517 and/or 541-330-4021 or e-mail: Accessibility@ci.bend.or.us.