2004
Water Quality Report

The City of Beaverton is pleased to provide you with this 2004 Water Quality Report. The purpose of the report is to update you about your drinking water and to comply with U.S. Environmental Protection Agency (EPA) reporting requirements.

Using data collected during 2004, we have summarized information about your water supply sources. Also included is additional information about other drinking water programs underway.

The City of Beaverton is proud of the high quality of its water supply, which meets or exceeds all state and federal water quality requirements. If you have any questions about this report or other questions about your water, please call us at **(503) 350-4017**.

Si Habla Español: Este informe contiene información muy importante. Tradúscalo ó hable con un amigo quien lo entienda bien.

www.beavertonoregon.gov

This information is available in alternative formats that can be provided upon request. To request alternative formats, please call **(503) 350-4017**.

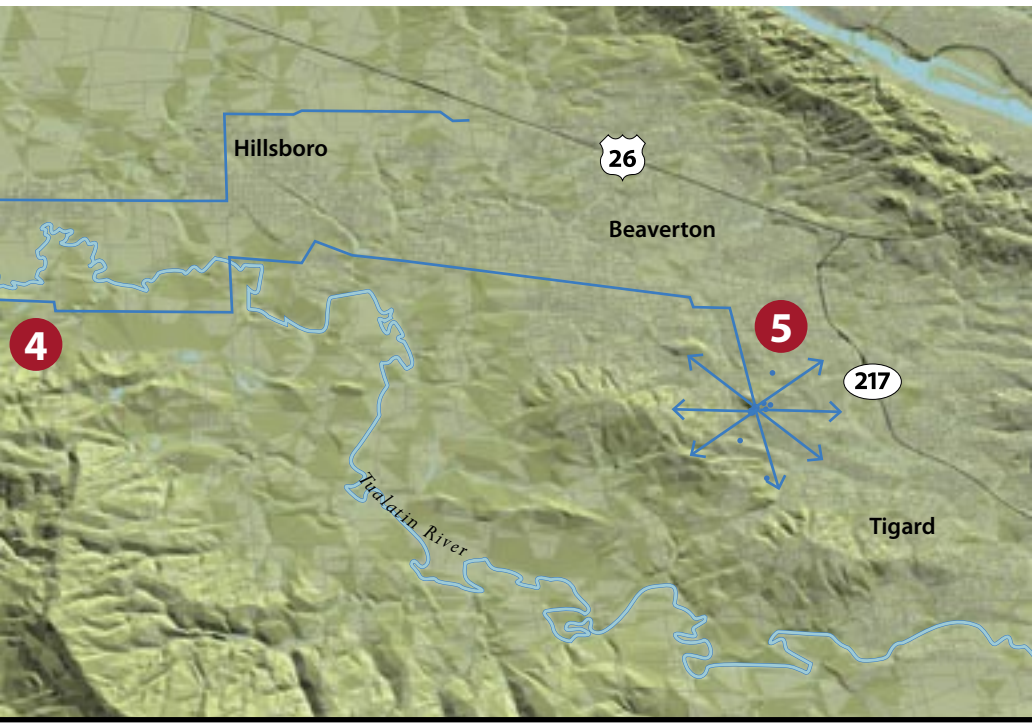
1. In the summer, water released from Barney Reservoir is diverted through a short pipeline across the Coast Range divide into the headwaters of the Tualatin River.
2. Water released from Henry Hagg Lake travels by way of Scoggins Creek to the Tualatin River.
3. Water is then withdrawn from the Tualatin River and pumped to the JWC water treatment plant.

Your Water System at a Glance

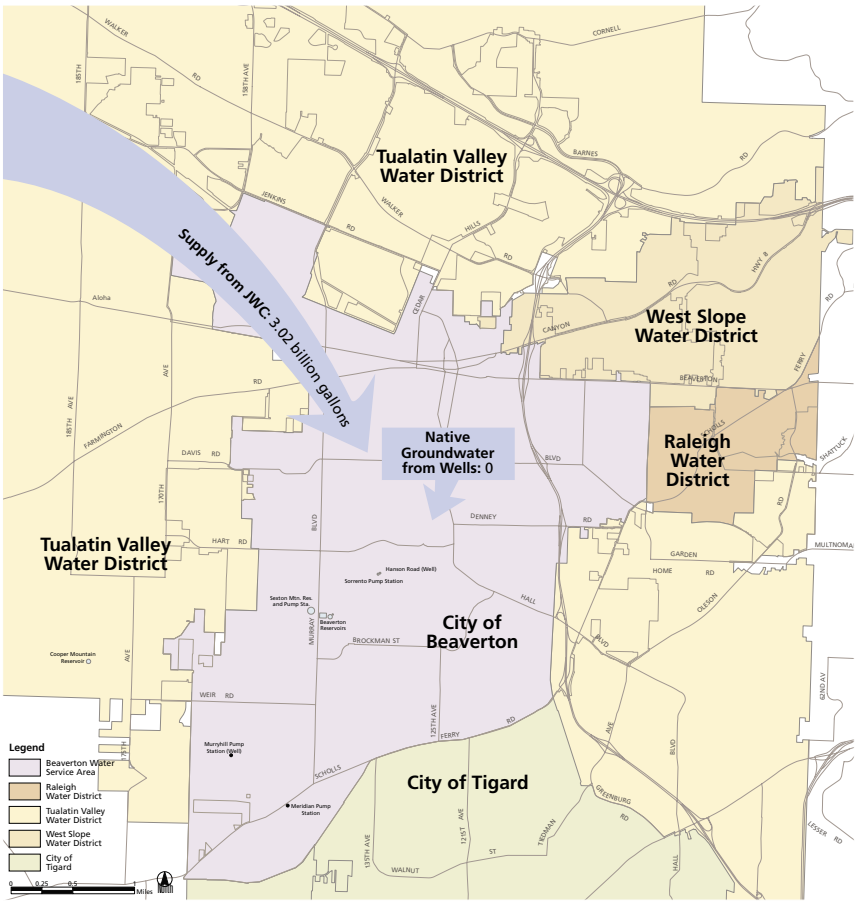
The City of Beaverton is a member of the Joint Water Commission (JWC), which is an intergovernmental water supply group whose owner-members include the cities of Beaverton, Hillsboro, Forest Grove, Tigard, and the Tualatin Valley Water District. The JWC was formed to store, manage, and treat water for its owner-member agencies. For Beaverton residents, the primary source of your water is the JWC water treatment plant. The water treatment plant filters raw (untreated) water pumped from the nearby Tualatin River and treats it to state and federal drinking water standards. The City of Beaverton is entitled to 15 million gallons per day (mgd) of treated drinking water from the JWC water treatment plant. As water is taken out of the Tualatin River for treatment, the flow in the river is maintained in the dryer months by releasing stored water from reservoirs in the Coast Range. This system was designed to maintain minimum stream flows and to ensure that the cities receive water during the dry summer months. After treatment, the drinking water is piped from the JWC treatment plant and stored in aboveground reservoirs in Beaverton. During the winter, some of this treated water is stored underground as part of the City's Aquifer Storage and Recovery (ASR) Program (see more about ASR in a later section of this report). Maintaining in-city storage is important to address high summer-time demands, emergencies, large fires, or interruptions in supply from the JWC water treatment plant.

4 Treated water is pumped about one-half mile to Fern Hill Reservoir, a 20-million-gallon storage reservoir.

5 From Fern Hill Reservoir, water travels approximately 18 miles by gravity through a large-diameter transmission line into the City water distribution systems.



Current Water Service Boundary and 2004 Water Supply Source



SOURCE: http://www.beavertonoregon.gov/departments/gis/gis_maps.aspx

JWC Source = 3.02 billion gallons
ASR water recovered = 203 million gallons
Native groundwater recovered = 0

Current JWC Treatment Plant

City of Beaverton Quick Facts

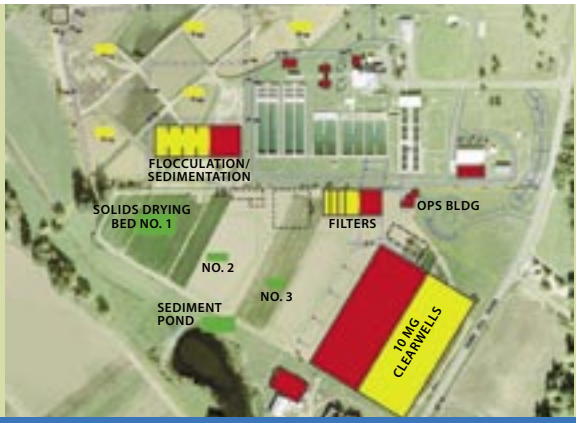
Below are some quick facts about your current water system now and what it will look like in the future.

Beaverton Water System Quick Facts

FACT	TODAY
Population Served	64,000
Beaverton JWC Source Treatment Capacity	15 million gallons per day (mgd)
Average Daily Demand	8.9 mgd
Peak Day Demand	17 mgd
In-town Aboveground Storage	28.25 million gallons (about 3-day average supply)
Number of ASR Wells	2 (with one more under construction)
ASR Storage Capacity	450 million gallons
ASR Pumping Capacity	3 million gallons per day (150 day supply)
Annual Yearly Total Demand	3.021 billion gallons
Approximate Number of Water Quality Samples per Month	125

FACT: Beaverton's water is considered to be slightly hard. The hardness of Beaverton's water typically ranges from 1.5 to 2.6 grains of hardness per gallon of water. Beaverton's native groundwater hardness is approximately 4.4 to 8.8 grains of hardness per gallon of water, which is considered moderately hard.

Future JWC Treatment Plant (Draft Plan)



LEGEND

- Near term improvements
- Phase 1 expansion
- Future expansions
- Optional future treatment

2020
78,800
16 mgd (City's surface water right)
12 mgd
24 mgd
40–45 million gallons
4 to 5
550 million gallons
6 to 7 million gallons per day (about a 90-day supply)
4.4 billion gallons
Estimated 200+

Safe Drinking Water Hotline:

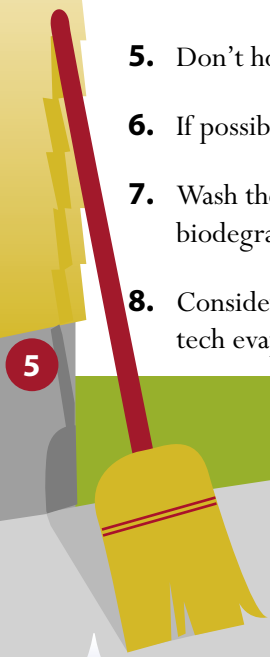
Drinking water, including bottled water, may be reasonably expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline **(1-800-426-4791)**.

Voluntary Water Conservation

The 2001 water shortage, the dry spring of 2004, and this year's dry winter are all good reasons to use water wisely. Water conservation is an important component to any city's water management plan. Water conservation is considered a resource that can play a key role in meeting future water needs. Please check out www.beavertonoregon.gov and www.conserveh2o.org for more on water conservation. Below are some tips for saving water:

Tips for Conserving Water Outside:

1. Add mulch or compost to your soil and water wisely.
2. Water thoroughly but infrequently; your lawn needs only 1 inch of water per week, and that includes rainfall.
3. Keep your grass 2 to 3 inches long.
4. Cover swimming pools.
5. Don't hose driveways and sidewalks — sweep them!
6. If possible, replace some lawn with ground cover.
7. Wash the car, bike, and even the dog on the lawn with biodegradable soap.
8. Consider drip irrigation, soaker hoses, or even a high-tech evapotranspiration-based irrigation system.



FACT: Did you know that only 1 percent of the world's water is suitable for all of humanities' needs including drinking?

Tips for Conserving Water Inside:

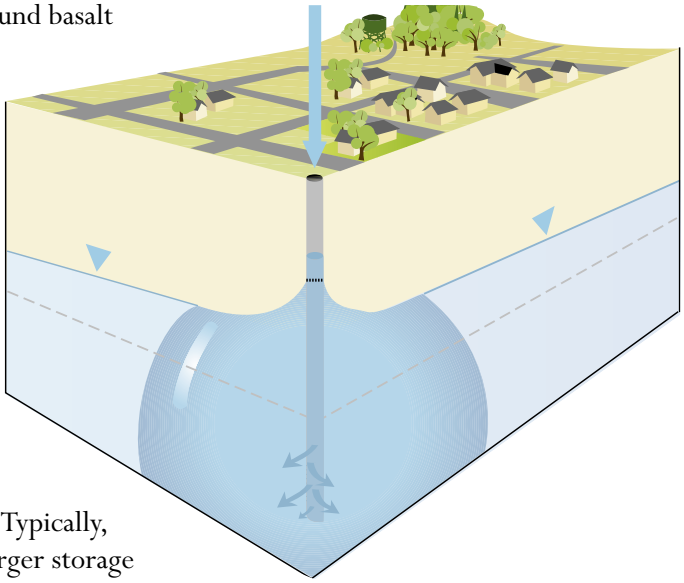
1. In older toilets, add a "toilet dummy" to reduce the volume in the tank; also check for leaks.
2. Fill the tub only half way during a bath and take short showers — good luck with the kids!
3. Shut off the water when shaving and brushing your teeth.
4. Keep water in the refrigerator instead of running the tap to get cool water.
5. When buying new appliances, consider the energy- and water-efficient models. You may be eligible for a rebate.
6. Consider an aerator for your faucet — it saves as much as 50 percent of the water from the tap.
7. Fix all water leaks.
8. Consider an "at-point" water heater if your hot water tank is a long distance from your bathroom.
9. Use a dishwasher. It saves water and your hands; also run it when it's FULL.
10. Consider adding a pressure-reducing valve to lower your home's water pressure — this results in less water being used.

Did you know that toilets use more water than clothes washing in a typical household and that dishwashers use the least amount!

Aquifer Storage and Recovery (ASR) Program Update

Previous consumer confidence reports have presented the City's ASR Program. They can be found at: http://www.beavertonoregon.gov/departments/engineering/eng_drinkwaterprg.html

What is ASR? Essentially, it is storing drinking water underground, then pumping it out when it is needed. Beaverton's ASR Program involves injecting treated drinking water from the JWC water treatment plant into natural underground basalt formations (aquifers) during the winter and spring. Stored water then is pumped out of the aquifers during the summer when demand increases.



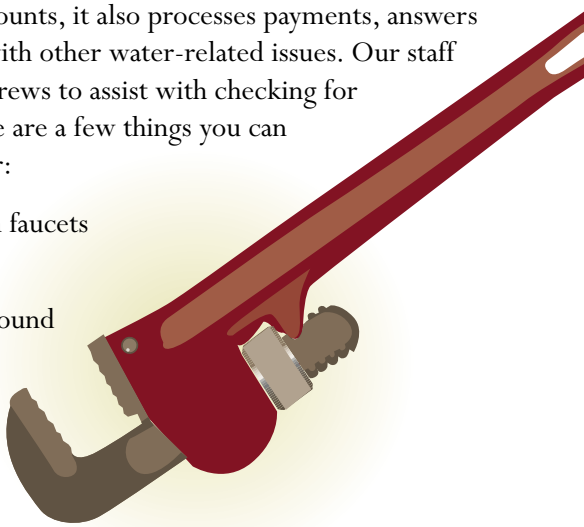
A basalt aquifer consists of volcanic rock with porous cavities much like an irregular honeycomb. Typically, aquifers have much larger storage capacity than municipal storage tanks. The City can store up to 450 million gallons of treated water in the basalt aquifer using two ASR wells. When water is needed, up to 3 million gallons per day can be recovered from those wells. After the City's third ASR well is completed in 2005, the system capacity will increase to 6 million gallons per day; the storage volume will stay the same. ASR continues to play an important role in the City's water system and for this reason the City is exploring additional ASR sites.

Important Health Information:

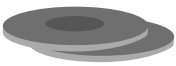
Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can 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 (1-800-426-4791).

Customer Service

Does your home have a leaky pipe or faucet? Is your water pressure low? Our Customer Services Department is typically your first point of contact with the City on water-related problems. Not only does it manage more than 16,263 accounts, it also processes payments, answers questions, and can assist you with other water-related issues. Our staff works very closely with field crews to assist with checking for leaks and other concerns. Here are a few things you can do as a consumer to save water:



- Replace worn washers in faucets and showerheads.
- Check for moist spots around plumbing, including outside.
- To detect a silent toilet leak, put several drops of food color in the tank and don't flush for 10 minutes. If color appears in the bowl, you have a leak!
- Read your meter — if the sweep hand moves when your water is shut off, you have a leak.



In addition to answering water-related questions, our department can explain billing options, such as direct debit (no more checks and stamps). The Customer Service Department is open Monday through Friday from 8:00 AM to 5:00 PM, so feel free to call (503 526-2257) or stop by our office at City Hall. We are here to help!

Water Supply Projects

Below is a list of key water projects in which the City is participating.

Tigard Interconnect and Master Meter No. 2

As you may recall in last year's Water Quality Report, an average of 3.2 million gallons per day of drinking water originating from the JWC water treatment plant was wheeled through Beaverton's pipes and delivered to the Tigard drinking water system in 2003. In 2004, the amount was 2.5 million gallons per day. Tigard purchases water from the JWC and this water flows from the JWC water treatment plant through transmission lines and then through Beaverton's water distribution piping before it reaches an interconnection to Tigard's water system. In 2003, Tigard officially joined the JWC water supply group as a new member. The first inter-tie between Beaverton and Tigard was constructed on Barrows Road and it can deliver up to 4 million gallons of drinking water per day. In 2006, construction of a second master water meter and interconnect piping to carry water from Beaverton to Tigard is planned. The second meter and interconnect pipeline is intended to increase the flow and pressure of potable water to serve the higher elevations of Tigard.

JWC Fern Hill Reservoir No. 2

Construction of a second JWC water storage reservoir, Fern Hill Reservoir No. 2, will begin in mid-summer 2005. The City's share of construction of this reservoir is 27 percent. The JWC Fern Hill Reservoir No. 2 will be the second 20-million-gallon finished water storage reservoir and will be built next to an existing aboveground reservoir that holds treated drinking water for distribution to member agencies' water customers.

JWC Water Treatment Plant Near-Term Improvements

The existing drinking water treatment plant serving JWC member agencies will be expanded during 2005-2006. The new improvements will use and build on upgrades completed in 1997 to increase the plant production capacity from the current 60 million gallons per day of treated drinking water to 75 million gallons per day. The result is a very low unit cost expansion compared with previous water treatment plant expansions. This additional drinking water is needed to serve new water users in Forest Grove, Hillsboro, Beaverton, Tualatin Valley Water District, and Tigard.

JWC Treatment Plant

Henry Hagg Lake

Tualatin River Basin Water Supply Project

Since 2003, the City of Beaverton has been participating in the Tualatin River Basin Water Supply Project. The purpose of the work to date has been to evaluate reliable, safe, and sustainable water supply options to meet the long-term Tualatin River instream flow, agricultural irrigation, and municipal and industrial water needs in Washington County to the year 2050. Four key water source options have been identified and considered: 1) a no action alternative, 2) raise the Scoggins Dam by 40 feet to increase water storage by 16.5 billion gallons, 3) raise the Scoggins Dam by 20 feet to increase water storage by about 8 billion gallons, and 4) construct the Willamette River Irrigation Exchange Pipeline, a new pipeline from the Willamette River, and use that water for agricultural irrigation. Option 4 would free-up about 8 billion gallons of irrigation water annually stored behind Scoggins Dam for other uses. The recommended option currently being evaluated in a federal environmental impact statement process is a 40-foot Scoggins Dam raise in conjunction with the Raw Water Pipeline (described below) and a large capacity pump station below the dam that would capture and divert Tualatin River winter- and spring-time surplus streamflow and pump it back to Hagg Lake (behind Scoggins Dam). The Raw Water Pipeline Pump Back option (the combination of the Raw Water Pipeline and associated pumping station) is expected to raise the reliability of annually filling the expanded Scoggins Reservoir (Hagg Lake) to as much as 93 percent. The three project components of the Tualatin River Basin Water Supply Project are estimated to cost $200 million and would be funded by the project partners. Beaverton's current financial participation commitment is 7.8 percent of the project cost.

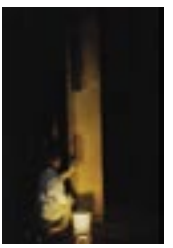
JWC Raw Water Pipeline

The JWC has been working since 2003 on important engineering studies for a new water-supply pipeline: the Raw Water Pipeline. The project was first proposed and preliminarily evaluated in 1991 by the JWC partners. The planned project involves installation of a large-diameter pipeline system that, once built, will carry raw water during future summers directly from Hagg Lake (Scoggins Dam) to the JWC water treatment plant. The proposed 7-mile-long pipeline also may be used as a component of the Raw Water Pipeline Pump Back option described above. A preliminary design report was completed in early 2005 by a local consultant working for the JWC and other interested public agencies. Construction costs for the Raw Water Pipeline will be split among participating agencies in the Tualatin River Basin Water Supply Project. The current method of moving raw water from Hagg Lake downstream to the JWC water treatment plant is by using Scoggins Creek and the Tualatin River. Water released from Barney Reservoir also travels to the JWC water treatment plant by way of the Tualatin River. In addition to the JWC, there are other agencies that use the Tualatin River channel to convey water from these impoundments. During the summer at high release periods, the river channel is nearing capacity when the JWC water demand requires large quantities of raw water. This project will meet the future needs of the JWC. An additional anticipated benefit of the pipeline is that operating costs will be lower because the JWC water treatment plant will receive water directly from Hagg Lake.

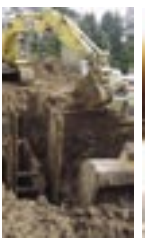
Assuring Your Water is There When You Turn on the Tap

Our field staff operates and maintains the following:

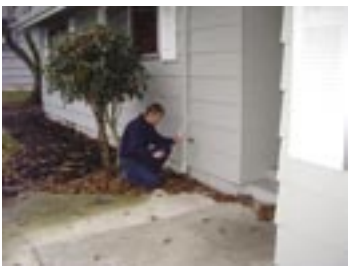
1. Maintains 228 miles of pipeline infrastructure
2. Maintains five reservoirs, which hold 28.25 million gallons
3. Maintains two groundwater (ASR) wells, which produce 3 million gallons per day
4. Maintains three pumping stations
5. Maintains one fluoridation station
6. Maintains 16,263 service connections
7. Repairs an estimated 36 mainline leaks per year
8. Ensures 2,125 fire hydrants are working properly
9. Inspects and maintains 135 mainline pressure-reducing valves
10. Maintains the city park fountain and public fountain at the Round






Water Quality Testing



Ongoing water quality testing continues to be one of the highest priorities for the City's drinking water program in its commitment to provide safe drinking water to residents. As previously stated, the City collects an average of 125 samples per month (1,500 samples per year) for testing to ensure that the City's drinking water meets state and federal standards.

Additional Water Quality Information

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 and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in the water include:

- Microbial contaminants, such as cryptosporidium, viruses, and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm 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 byproducts of industrial processes and petroleum production, and also can come from gas stations, urban stormwater runoff, and septic systems
- Radioactive contaminants, which can be naturally occurring or result from oil and gas production and mining activities

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

FACT: The pH of the water in Beaverton's distribution system ranges from 7.0 to 8.2.

2004 Water Quality Data

Major sources: JWC and ASR wells

Regulated Contaminant	Regulatory Exceedance?[a] (MCL/TT)	Federal/State Regulatory Level	Federal Goal (MCLG)	Measured Concentrations Range
Microbiological				
Total Coliform Bacteria	No	5% of monthly samples	0	ND
Turbidity (NTU)	No	< 0.3 NTU in 95% of daily samples in any month, and maximum of 1 NTU for an individual sample	NA	0.03 – 0.95
Inorganic				
Barium (ppb)	No	2000	2000	ND – 5.9
Nitrate (as Nitrogen) (ppm)	No	10	10	ND – 1.5
Sodium (ppm)	No	No standard	No standard	7.28- 12
Fluoride (ppm)	No	4	4	ND – 0.9
Chromium (ppb)	No	100	100	ND
Copper (ppm)	No	1.3 (AL)	1.3	ND – 0.26
Lead (ppb)	No	15 (AL)	0	ND – 16
Radiological				
Radon (pCi/L)	No	No standard	No standard	ND - 420
Gross Alpha (pCi/L)	No	15	0	ND
Gross Beta (pCi/L)	No	50	0	ND
Disinfection Byproducts and Disinfectant Residuals				
Total Trihalomethanes (TTHMS) (ppb)	No	80	NA	26.5 - 56.3
Total Haloacetic Acids (HAAs) (ppb)	No	60	NA	0 – 318
Chlorine (ppm)	No	4 (MRDL)	4 (MRDLG)	0.510 - 0.865

Table Notes

[a] The highest concentration detected during the year was used for evaluating compliance to drinking water standards, except for Disinfection Byproducts and Disinfection Residuals where the standards require evaluation of the annual rolling average of concentration.

[b] 90th percentile value reported. If the 90th percentile value does not exceed the Action Level, the water system is in compliance and uses the prescribed corrosion control measures. No water samples exceeded the Action Level for Copper and less than 4% of the water samples exceed the Action Level for Lead. A total of 30 samples were collected from individual homes as part of the copper and lead testing program.

[c] A total of 24 samples for were collected per year from the distribution system and tested for trihalomethanes and haloacetic acids. .

AL – Action Level: The concentration of a constituent in water that, if exceeded, triggers treatment or an action that a water system is required to follow.

Disinfection By-product: A chemical produced by the disinfection process.

Radon: Radon is a radioactive gas that is found throughout the U.S. The EPA is in the process of reviewing a radon rule in drinking water, but has not finalized the rule.

MCL – Maximum Contaminant Level: The highest level of contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as possible.

Measured Concentrations Average	Year Tested	Major Sources in Drinking Water
ND	2004	Naturally present in the environment
0.28	2004	Soil runoff
2.9	2004	Erosion of natural deposits; discharge from metal refineries; discharge of certain drilling wastes
0.57	2004	Erosion of natural deposits; runoff from fertilizer use; leaching from septic tanks, sewage
9.7	2004	Water treatment additive; erosion of natural deposits
Not Applicable	2004	Water treatment additive (promotes strong teeth); erosion of natural deposits; discharge from fertilizer and aluminum factories
ND	2004	Erosion of natural deposits; discharge from steel and pulp mills.
0.24[b]	2004	Erosion of natural deposits; corrosion of household plumbing systems; leaching from wood preservatives.
5[b]	2004	Erosion of natural deposits; corrosion of household plumbing systems
123	2004	Erosion of natural deposits.
ND	2004	Erosion of natural deposits.
ND	2004	Decay of natural and man-made deposits
35.6[c]	2004	Byproduct of drinking water chlorination
37.4[c]	2004	Byproduct of drinking water chlorination.
0.681	2004	Water treatment additive used to control microbes.

MCLG – Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected health risk. MCLGs are federally non-enforceable, health-based goals established by the EPA. MRLGs 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 level of a drinking water disinfectant below which there is no know or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.
ND = Not Detected
pCi/L = Picocuries Per Liter
ppm = Parts Per Million
ppb = Parts Per Billion
NTU = Nephelometric Turbidity Units
TT = Treatment Techniques

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