You can have confidence in the quality of your drinking water.
The City of Sherwood consistently delivers water that meets or surpasses all federal and state standards.

# The Water Sherwood Drinks

**Safe, reliable drinking water** is a basic life necessity. The City of Sherwood is proud to deliver water to more than 18,205 people every day. We think it is important for our customers to understand where their water comes from, how safe it is, and what actions we take to ensure its continuing safety. In accordance with federal guidelines, this report provides the information you need to know about the water you drink.

Contaminant levels in your drinking water are well below state and federal regulatory limits. The test results are shown on the following pages. Although the City's water supplies are tested for more than 200 regulated and unregulated contaminants, only those that have been detected in the water are included in this report.

Some people may be more vulnerable to contaminants in drinking water than the general populations. Immuno-compromised people, such as those with cancer undergoing chemotherapy, people 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/CDC (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 at 800-426-4791. Frequency of testing varies per federal and state requirements.

In 2005, the Oregon Department of Human Services and Oregon Department of Environmental Quality conducted a source water assessment on the City of Sherwood's groundwater wells. Results indicate that the water system would be sensitive to a contamination event inside the identified Drinking Water Protection Area. Potential sources include high density housing areas, sewer lines and transportation corridors.

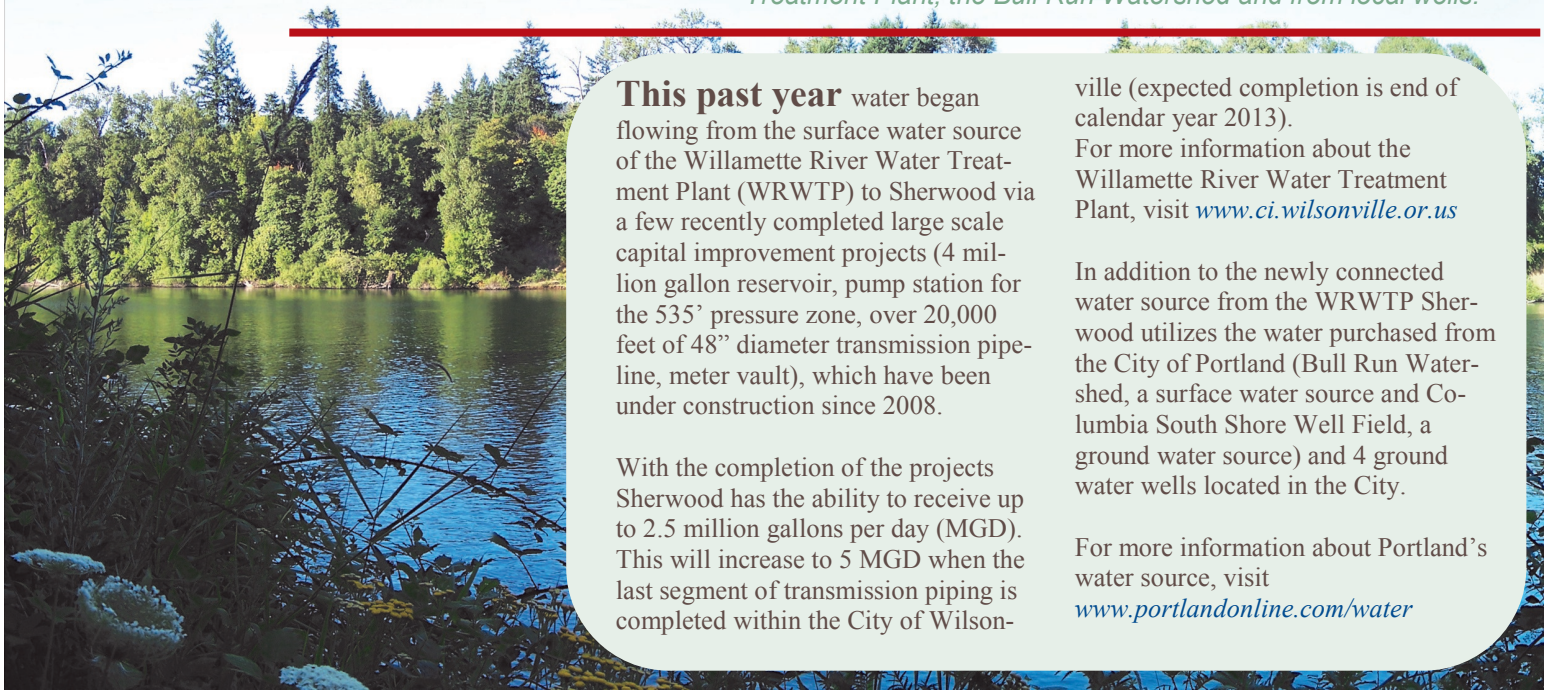
Issued June 2012 based on water quality data for the calendar year 2011. The U.S. Environmental Protection Agency (EPA) requires us to send this report to our customers by July 1st, 2012. If you have any questions about this report, contact Sherwood's Water Division at 503-625-5722 or visit our website at www.sherwoodoregon.gov

## BY THE NUMBERS

| | |
|---|---|
| Average number of gallons of water used per month in a single-family dwelling | 6000 |
| Gallons of water stored at capacity in the City's 3 reservoirs | 9 million |
| Highest volume of water in gallons drawn from City wells in a single month in 2011 | 36 million |
| Gallons of water per month currently flowing through the new pipeline | 75 million |
| Approximate number of gallons used by the city during a high-demand month | 108 million |

# From the Source...

*Sherwood draws water from three sources: the Willamette River Water Treatment Plant, the Bull Run Watershed and from local wells.*



**This past year** water began flowing from the surface water source of the Willamette River Water Treatment Plant (WRWTP) to Sherwood via a few recently completed large scale capital improvement projects (4 million gallon reservoir, pump station for the 535' pressure zone, over 20,000 feet of 48" diameter transmission pipeline, meter vault), which have been under construction since 2008.

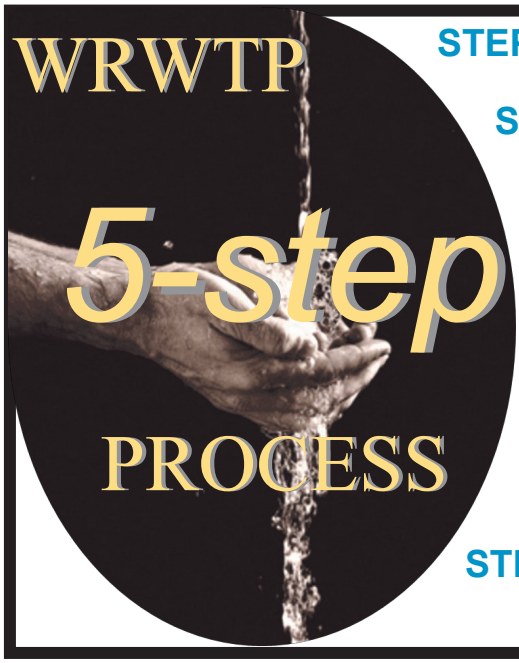
With the completion of the projects Sherwood has the ability to receive up to 2.5 million gallons per day (MGD). This will increase to 5 MGD when the last segment of transmission piping is completed within the City of Wilsonville (expected completion is end of calendar year 2013).
For more information about the Willamette River Water Treatment Plant, visit *www.ci.wilsonville.or.us*

In addition to the newly connected water source from the WRWTP Sherwood utilizes the water purchased from the City of Portland (Bull Run Watershed, a surface water source and Columbia South Shore Well Field, a ground water source) and 4 ground water wells located in the City.

For more information about Portland's water source, visit *www.portlandonline.com/water*

## BY THE NUMBERS

| | |
|---|---|
| Average number of gallons of water used per month in a single-family dwelling | 6000 |
| Gallons of water used in an HE Dishwasher to clean a 12-piece dinner setting | 4 |
| Gallons of water to clean the same 12-piece dinner setting by hand | 27 |
| Gallons of water lost per month through a silent toilet leak | 1500 |
| Gallons of water lost per month through a 1/8" hole in irrigation pipe | 100,000 |



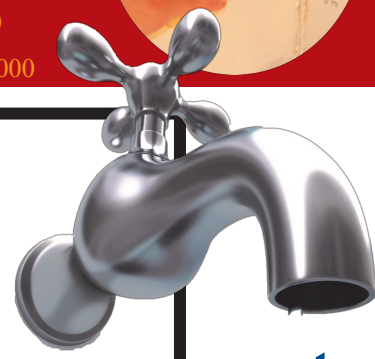

**STEP 1:** Raw water intake draws water into the...

**STEP 2:** Enhanced sedimentation process, which removes materials from the addition of flocculants

**STEP 3:** Ozone is then added to kill bacteria, viruses, Giardia, Cryptosporidium and assist with taste and odor

**STEP 4:** Next, Granular Activated Carbon removes turbidity and pathogens in addition to removing taste and odor; water is then taken through a sand filter which "polishes" to improve particle removal

**STEP 5:** Lastly, Chlorine-secondary disinfectant is added to prevent bacterial growth for its trip through the pipeline



**...to the tap**

**BULL RUN WATER TREATMENT**—The Portland Water Bureau first adds chlorine and then ammonia for effective disinfection. Then Sodium Hydroxide is added to increase pH to help control lead and copper levels at the tap.

**SHERWOOD WELLS**— Sodium Hypochlorite (12.5% chlorine) is added to our four ground water wells to maintain required disinfection with one of the wells having an iron and manganese treatment removal system.

# BY THE NUMBERS

| | |
|---|---|
| Number of meters read monthly in the City | 5727 |
| Number of accounts going green with paperless billing | 781 |
| Number of accounts on the new online Auto-Pay system | 716 |
| Average number of conservations items given away freely per month | 58 |
| Number of Customer Service Representatives here to assist | 3 |

# What *exactly* am I paying for?

**The average single-family dwelling** will see their monthly Utility Bill in the range of $85 to $100. The main reason for a higher or lower Utility Bill would be solely due to water consumption—either directly in that cycle's statement or as a lower Winter Average, which affects the Sewer Consumption Charges.

Roughly *40%* of the total charges are for Sewer. City of Sherwood and Clean Water Services proportionally divide the Fixed Base and the Consumption Charges.

Another *40%* of the total charges is for the water that is consumed, used for cleaning and for irrigation in the summer. The Fixed Base Charge is assessed even if the meter reading shows that no water was used in the cycle.

Surface Water Charges or Storm Water Management will make-up about *15%* of the total bill. City of Sherwood and Clean Water Services each contribute to the process and charge according to investment.

The least portion is the remaining *5%* for Street Utility Fees. Street Maintenance, Street Lights and Sidewalk fees are included on every account.

For more details about each line item please see the graphic or review the back of your next Utility Bill. Please call the Utility Billing Department at 503 925-2315 or visit the Utility Billing webpage for additional customer service.

**WATER CHARGES**

**Base Charge**

The basic fee to have the city deliver water. This fee supports fixed costs such as meter reading, meter maintenance, billing, and debt service for capital improvements. There is a charge for having service available, and will be charged the fixed rate even when water is not used.

**Consumption Charge**

The charge for the actual water used as measured by the meter. Water consumption is charged per 100 gallons = 1 cgal

**STREET UTILITY FEES**

City-wide Street Maintenance, Lights and Sidewalks.

**SEWER CHARGES**

**Base Charge**

All customers pay the Base Charge which is used to pay for the piping required to collect sewage and for the construction and operation of Clean Water Services wastewater treatment facilities.

**Consumption Charge**

The City of Sherwood uses an average of actual winter water consumption to calculate the sewer use charge each year. The winter average is a good indication of indoor water use that enters the sewer system, as most people do not irrigate during the winter months.

**SURFACE WATER CHARGES**

Pays for drainage and water quality programs, including street sweeping, ditch maintenance, storm drain cleaning, emergency flood response, and outreach.

***OUTDOOR*** **water conservation tips are available at the Utility Billing Department and at *www.conserveh2o.org***

**The Cities of Sherwood, Wilsonville and Portland** test your water supply for approximately 200 contaminates. These include all contaminates regulated by the EPA, plus a number of unregulated contaminates. Sampling is conducted at various locations in the water supply and distribution system. Test results are submitted to the Oregon Health Authority, Drinking Water Program, the local agency responsible for enforcing EPA's Safe Drinking Water Act. **If a health related contaminate is not listed in this report, it was not detected.**

Willamette River Water Treatment Plant

Portland Bull Run Watershed

## REGULATED CONTAMINATES—TESTED IN 2011 UNLESS OTHERWISE NOTED

| Contaminate in units of measure | Amount Detected Min.-Max. | MCL Max. Contaminate Level | MCLG Max. Contaminate Level Goal | Major Sources | MCLG Max. Contaminate Level Goal | MCL Max. Contaminate Level | Amount Detected Min.-Max. | Contaminate in units of measure |
|---|---|---|---|---|---|---|---|---|
| **Micro-Biological** | | | | | | | | |
| Turbidity in NTUs | 0.031—0.068 | ≤ 0.3 | N/A | Soil runoff; erosion of natural deposits | N/A | Cannot exceed 5 NTU more than 2 times in 12 months | 0.20—4.4 | Turbidity in NTUs |
| **Inorganics** | | | | | | | | |
| Nitrate in ppm | <.160—.640 | 10 | 10 | Runoff from fertilizer use; leeching from septic tanks and sewage; erosion of natural deposits | 10 | 10 | <0.01—0.14 | Nitrate in ppm |
| Arsenic in ppb | ND | 0 | 10 | Erosion of natural deposits in groundwater aquifers | 0 | 10 | <0.05—1.2 | Arsenic in ppb |
| Barium in ppm | <.00401—.00530 | 2 | 2 | Erosion of natural deposits in groundwater aquifers | 2 | 2 | <0.002—0.0079 | Barium in ppm |
| Antimony in ppb | ND | 6 | 6 | Found in natural deposits | 6 | 6 | <0.05—0.23 | Antimony in ppb |
| Chromium in ppb | ND | 100 | 100 | Found in natural deposits | 100 | 100 | <0.2—0.7 | Chromium in ppb |
| Fluoride in ppm | ND | 4 | 4 | Found in natural aquifer deposits | 4 | 4 | <0.025—0.16 | Fluoride in ppm |

## UNREGULATED CONTAMINATES—TESTED IN 2011 UNLESS OTHERWISE NOTED

| Contaminate in units of measure | Amount Detected Min.-Max. | Major Sources | Amount Detected Min.-Max. | Contaminate in units of measure |
|---|---|---|---|---|
| **Minerals, compounds and gases** | | | | |
| Sodium in ppm | 8.01—9.03 | Added to water during treatment and erosion of natural deposits. Low levels in drinking water unlikely contribute to adverse health. | 2.4—16.9 | Sodium in ppm |
| Nickel in ppb | ND | Found in natural deposits | <0.2—0.6 | Nickel in ppb |
| Vanadium in ppb | 2.56—8.43 | Found in natural deposits | 3.3—3.3 | Vanadium in ppb |
| Radon in pCi/L | ND | Found in natural deposits and released to air during household use. | 369—370 | Radon in pCi/L |

***Violation:** Last quarter of 2011, samples were collected per scheduled frequency for BENZO(A)PYRENE, however reported by the laboratory 4 days late (results were due 1/10/12 but reported 1/14/2012).

| Major Sources | Contaminate in units of measure | Amount Detected Min.-Max. | MRDL Maximum Residual Disinfectant | MRDLG Maximum Residual Disinfectant Goal |
|---|---|---|---|---|
| Naturally present in the environment | Total Coliform in % of monthly samples | 0% | 1 positive monthly sample | 0% of samples w/ detectable coliform bacteria |
| Byproduct of water chlorination | TTHMs (Total Trihal-omethanes) in ppb | 21.155 RAA 7.6—33.0 | 80 RAA | N/A |
| Byproduct of water chlorination | Total Haloacetic Ac-ids (five) in ppb | 18.735 RAA 3.3—31.8 | 60 RAA | N/A |
| Water additive to control microbes | Disinfectant Residu-als in ppm | .02—3.3 | 4 | 4 |
| Byproduct of water disinfection | Bromate in ppb | 1.4—1.6 | 10 | 0 |

| MCLG Max. Contaminate Level Goal | MCL Max. Contaminate Level | Amount Detected Min.-Max. | Contaminate in units of measure | Major Sources |
|---|---|---|---|---|
| 10 | 10 | ND—.7 | Nitrate in ppm | See above |
| 0 | 15 | 1.2 | Gross Alpha in pCi/L | Erosion of natural deposits in ground-water aquifers |
| 1.3 | AL=1.3 | .009—.011 | Copper in ppm | See below |

Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor. Read more about copper and lead on page 6.

## WHAT THE EPA SAYS:

Drinking water and 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. To ensure that tap water is safe, the EPA sets regulations that limit the amount of certain contaminants in water provided by public systems. The Food and Drug Administration (FDA) establishes similar limits for bottled water. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 800-426-4791.

# DEFINITIONS

Action Level (AL): The concentration of a contaminant that, if exceeded, triggers a treatment or other requirements that 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 contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

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

Maximum Residual Disinfectant Level (MRDL): The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

ND (Non-detection): No presence of a contaminant was detected.

NTU: Nephelometric turbidity units, a measure of turbidity.

pCi/L: Piocuries per liter, a measure of radioactivity.

ppb: Parts per billion. 1 ppb means that one part of a particular contaminant is present for every 1 billion (1,000,000,000) parts of water. 1 ppb is equivalent to 1 inch in 16,000 miles, 1 second in 32 years and 1 cent in $10 million dollars.

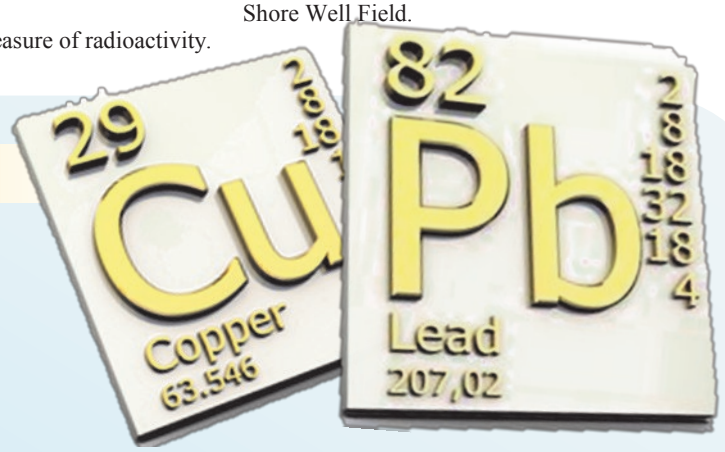
ppm: Parts per million. 1 ppm means that one part of a particular contaminant is present for every 1 million (1,000,000) parts of water. 1 ppm is equivalent to 1 inch in 16 miles, 1 minute in 2 years and 1 cent in $10,000 dollars.

RAA: Running Annual Average. The average result from quarterly samples taken within the distribution system. This average is used to determine compliance with MCLs.

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

Turbidity: Bull Run is an unfiltered surface water supply. The rules for public water systems have strict standards for unfiltered surface water supplies. Turbidity levels in unfiltered water must not exceed 5 NTU more than two times in a twelve-month period. The typical cause of turbidity is sediment suspended in the water that can interfere with disinfection and provide a medium for microbial growth. Large storm events can result in increased turbidity, causing the Portland Water Bureau to shut down the Bull Run system and serve water from the Columbia South Shore Well Field.

## LEAD AND COPPER




While there is not MCL for lead or copper, the federal government identifies "action levels" (AL) that trigger certain actions by the water provider. The action level is based on the 90th percentile. This means that 90 percent of the samples must meet or be under the defined action level. The action level for copper is 1.3 ppm and the action level for lead is 15 ppb.

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. Sherwood 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 running your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your drinking water, you may want to request a free lead-in-water test from The Lead Line. Information on lead in drinking water, testing methods and steps you can take to minimize exposure is available from the Lead Line 503-988-4000 or www.leadline.org, or the Safe Drinking Water Hotline at 800-426-4791 or www.epa.gov/safewater/lead.

| Contaminate | # of Samples | AL | MCLG | 90th Percentile | AL Exceedences |
|---|---|---|---|---|---|
| Lead | 111 | 15 ppb | 0 ppb | 12 ppb | 7 (6%) |
| Copper | 111 | 1.3 ppm | 1.3 ppm | 0.29 ppm | 0 |

# Your Sherwood Water Department activities

## Upcoming maintenance programs for 2012/13:

Prior to connecting to the WRWTP, Sherwood applied to the Oregon Water Resource Department (OWRD) for a use permit. In the permit, Sherwood agreed to implement a few measures or programs to ensure that the new water source was being used most efficiently. Beginning this year, Sherwood will begin an extensive **leak detection program** with a goal of surveying 1/5 of the water system (22 miles of pipeline) for possible leaks. Sophisticated listening devices and data loggers will be placed over water mainlines to determine the location of leaks (most of the work will take place early morning hours when traffic and water usage is minimal). Leaks found will be promptly repaired. In addition to leak detections, PW Crews will begin to replace all, non-testable 2" water meters (the city currently tests for accuracy of all meters larger than 2"). When replacing the water meters, it may be necessary to replace the service lines or portion of the service line up to the meter to facilitate future annual testing of water meters. Prior to any replacement, PW will provide notice to those effected well in advance.

Sherwood will begin an extensive **leak detection program** with a goal of surveying 1/5 of the water system (22 miles of pipeline) for possible leaks.

## 2 MGR Seismic Improvements:

You may have noticed during a recent visit to Snyder Park some additional construction activity on or around the 2 million gallon reservoir. Early this spring, Public Works awarded a project to make the reservoir stronger seismically, repair the roof's protective coating and epoxy coat the inside of the reservoir, which was constructed in 1972. With the addition of 600 dowels/rebar in the floor, repairs to the roof and placement of epoxy coating on the inside of the reservoir, City of Sherwood customers can expect many additional years of service from this 40 year old reservoir. The reservoir was placed back in service in June of this year in time for the higher water demand season.

## Cross-Connection/Backflow Testing:

It is all of our responsibility to protect our most precious resource, water that many of us take for granted every day! It is possible for customer plumbing to jeopardize the public drinking water supply by the way of a cross-connection. State and City rules and regulations require that all cross-connections be protected with a backflow assembly and that these prevention assemblies be tested at least annually. During the month of April of each year a series of letters or notices will be mailed to residential customers reminding them of the July 1st deadline for submission of a passing backflow assembly test report. Notices not received prior to July 1st will cause water dis-connection and additional fees to be charged to the account. Commercial accounts with backflow assemblies are placed on either an April, August or December deadline.

We appreciate your attention and compliance with this program. Over the last year, with the help of our customers, Sherwood has increased testing compliance of backflow testing from 70% in 2010 to 96% in 2011.

To learn more about backflow or the cross-connection program visit *www.sherwoodoregon.gov/backflow-prevention*

## Unidirectional Flushing Program:

In anticipation of changing water sources (Bull Run-PDX System to the WRWTP), Public Works worked with consulting Engineers to develop a systematic flushing program called Unidirectional Flushing Program or UDF. For this method of flushing: 1. take water from the source (with the recent connection to the WRWTP all water now enters the reservoir and then is distributed to customers), and 2. isolate a section of water mainline which allows water to flow in 1 direction to increase flow/velocities in the mainline, which effectively and efficiently removes sediment.

Most of the time fire hydrants are used to flow between 1300-1600 gpm to scour the mainlines. The duration of the flushing is based on the size of pipe, the length of pipe, the field turbidity/chlorine measurements and the goal of 1 exchange of water in the pipe being flushed. In addition to removing sediment in our water pipes staff is able to confirm proper operation of valves and fire hydrants. All water is de-chlorinated prior to entering the storm system.