



2010

Federal Way, WA, Issue 13, July 1, 2011

WATER QUALITY REPORT

Lakehaven Utility District is pleased to present our 13th annual Water Quality Report that summarizes the quality of the water provided to our customers during 2010. Our goal is to provide high quality drinking water and maintain an excellent record of compliance with all state and federal drinking water regulations.

This report is a review of water quality tests performed in 2010 and is provided to you to comply with federal and state drinking water regulations. All community water systems must provide a Consumer Confidence Report to their customers and the State Office of Drinking Water by July 1 of each year. The purpose of this report is to provide you, the consumer, with a summary of where your water comes from and how safe and pure your water was during the previous operational year (2010). Much of the information in our water quality report is presented to the high level of detail required by law. However, we have tried to make an effort to keep it clear, useful and readable to our valued customers.



Where Does Your Water Come From?

During 2010, Lakehaven Utility District delivered 69% of your drinking water from groundwater pumped from deep wells that are owned and operated by the District. The remaining 31% of drinking water was supplied from surface water through the Second Supply Project (SSP).

Groundwater pumped from our wells originates from four underground aquifer systems located below the Federal Way area. These aquifers are identified as: Redondo-Milton Channel Aquifer; Mirror Lake Aquifer; Eastern Upland Aquifers; and Federal Way Deep Aquifer. (Note: an aquifer is an underground saturated zone of groundwater that has a sufficient economic quantity available for use). At various times of the year, the District is able to operate as many as 24 wells that have been completed in these four local aquifer systems. These production wells are nearly all located within the central area of our water distribution system.

The water from the Second Supply Project (SSP) comes from a protected watershed of the Green River originating in the foothills of the Cascade Mountains in South King County. SSP water is diverted below Howard Hanson Dam into a 34 mile long pipeline system built by a partnership between Lakehaven Utility District, the City of Tacoma, the City of Kent, and Covington Water District. The City of Tacoma manages the SSP system, including overseeing the water quality, water treatment, and pipeline maintenance in cooperation with the project partners. The drinking water from the SSP is an interruptible source of water available for Lakehaven and is intended to supplement our groundwater supply. Its availability can be interrupted due to drought conditions, low river flow volumes in the Green River, or other water quality issues. Lakehaven will continue to utilize water from the SSP as it is available to better manage our water resources and help reduce the demand on our existing groundwater system. Lakehaven and its partners are currently pursuing a filtration project on the Green River supply to further enhance its water quality and reliability.

Safe and Secure Water

Wellhead Protection Program:

Preventing pollution is the first priority in protecting public health and our groundwater supply. The District has developed a Wellhead Protection Program intended to identify potential areas where surface water can more readily contribute to the storage of water in our underground aquifer systems and affect the quality of water pumped from our wells. Through this program, the District continues to work on developing an appropriate management plan to protect our water quality should a surface contaminant spill occur.

Water System Security:

To assure that your drinking water supply remains safe and secure, Lakehaven Utility District has taken increased security measures to reduce the vulnerability of the drinking water supply to acts of terrorism, sabotage, and vandalism.

Water Quality Treatment

Iron and Manganese Treatment:

Iron and manganese are harmless (naturally occurring) minerals found in most public water systems, especially groundwater. Underground water in aquifers with a lower pH value commonly contains dissolved iron and manganese ions. Chemical changes that occur after groundwater is pumped to the surface can cause these ions to precipitate into a solid oxide compound resulting in staining of household faucets/fixtures, dishwashers, clothes in the wash, and an accumulation of fine sediment throughout the water distribution system. Removal of iron and manganese by treatment that uses adsorption, oxidation, and filtration has been installed at fifteen District wells where dissolved iron and manganese concentrations in the groundwater are high. Four of these wells with treatment systems were used for water production during 2010. By treating and filtering the water, the District is able to significantly reduce the accumulation of mineral sediments of iron and manganese in the distribution system and prevent the potential staining that occurs in customer households.

Arsenic Treatment:

Arsenic is a regulated primary inorganic contaminant found in waters of Western Washington and is typically present due to natural weathering and dissolution of arsenic bearing rocks and minerals. Only two of the District's 24 wells produce groundwater with a concentration of arsenic that slightly exceeds the Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL) of 10 parts per billion. During 2010, arsenic in groundwater pumped from one of our primary production wells was treated for removal that lowered the concentration to 60% below the MCL. Although your drinking water meets EPA's standard for arsenic, it may have contained low levels of naturally produced arsenic in 2010. There is a small chance that some people who drink water containing low levels of arsenic for many years could also develop circulatory disease, cancer, or other health problems. Some people who drink water that contains arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer. However, most types of cancer and circulatory diseases are due to factors other than exposure to arsenic.

Regular Board Meetings are held every
2nd and 4th Thursdays of the month at:

Lakehaven Center
31531-1st Avenue South
Meetings start at 6:00 p.m.

Lakehaven Utility District Water Quality
Section: (253) 946-5410
www.lakehaven.org

Department of Health Web Site:
www.doh.wa.gov/ehp/dw

Environmental Protection Agency (EPA)
Web Site:
www.epa.gov/safewater

EPA Safe Drinking Water Hotline:
(800) 426-4791

Chlorine Treatment:

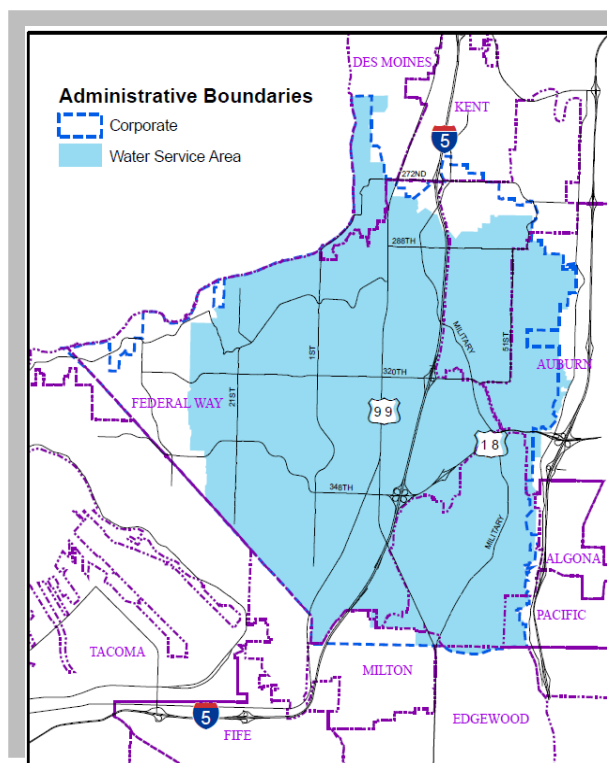
As an important component of our water treatment program, the Washington State Department of Health requires the addition of chlorine to our drinking water as a disinfectant to make sure that our water remains biologically safe for our customers to use. Just as water is essential to life, chlorine is considered essential to maintaining a safe water supply. Public health officials overwhelmingly agree that the introduction of chlorine into U.S. drinking water supplies back in 1908 was one of our history's great public health advances. Since the beginning of its use, safe chlorinated water has played a key role in the virtual elimination of cholera, typhoid fever, dysentery and gastroenteritis, as well as many other epidemic waterborne diseases that once killed tens of thousands of Americans. Although Lakehaven Utility District maintained good, high quality untreated drinking water in the past, the risk of waterborne disease decreases significantly when chlorine is used as a disinfectant for our public water supply.

pH Adjustment With Sodium Hydroxide Treatment:

During 2010, sodium hydroxide was added to groundwater pumped from several of our wells as a necessary treatment process to raise the pH to make the water less acidic. Raising the pH with sodium hydroxide reduces pipe corrosion and helps meet health requirements by minimizing the amount of lead and copper ions that can leach from customers' plumbing systems. The District's Corrosion Control Treatment Program is regulated by the State of Washington Department of Health to meet the U.S. Environmental Protection Agency (EPA) Lead & Copper Rule.

Fluoride:

Fluoride is a natural element found in the earth's crust and is commonly found in various concentrations in raw water supplies (both surface and groundwater). Other than drinking water, toothpaste and food are major sources of fluoride exposure (especially tea and fish) and at low levels, fluoride has been known to prevent dental cavities. The natural fluoride levels in Lakehaven Utility District's groundwater is considered lower than optimal for helping to prevent dental decay. During 2010, Lakehaven Utility District provided drinking water from the Second Supply Project (SSP)



that was treated with fluoride by the City of Tacoma and contained fluoride equal to the US Public Health Service (USPHS) suggested range in drinking water of about 1.0 part per million (mg/L). However, based on new recommendations from the U.S. Department of Health and Human Services (HHS), Tacoma recently reduced its dose of fluoride in the SSP water supply from 1.0 mg/L (milligrams per liter) to 0.8 mg/L. This change is still within the range determined by the EPA

to be therapeutic and safe. However, SSP water blends with groundwater pumped from Lakehaven wells in the distribution system and fluoride levels do become diluted in some locations and are below the desirable therapeutic range. If you have children on fluoride supplemental treatment, you may want to consult with your dentist or pediatrician about the variable fluoride concentrations that may be present in your drinking water. As stated on page 1, the SSP water may not be a constant source of water available for Lakehaven and is not intended to fully replace our groundwater supply.

2010 WATER QUALITY MONITORING RESULTS

What contaminants may be found in drinking water?

There is no such thing as naturally pure water. In nature, all water contains some impurities. As water flows in streams, sits in lakes, and filters through layers of soil and rock in the ground, it dissolves or absorbs the substances that it touches. Some of these substances are harmless. In fact, some people prefer mineral water precisely because minerals (which are chemical substances) give it an appealing taste. However, at certain levels minerals, just like man-made chemicals, are considered contaminants that can make water unpalatable or even unsafe. 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 (800-426-4791).

What do the tables mean?

The following tables show the results of water quality analyses on "treated" source water during 2010. Every regulated contaminant that was "detected" in the water during 2010, even in the most minute traces, are listed in these tables along with unregulated, secondary, and physical and chemical parameters. A host of additional substances were tested in 2010 but because they were not detected they are not shown on the table. The tables contain the name of each substance, the Maximum Contaminant Level or highest level allowed by regulation (MCL), the Maximum Contaminant Level Goals or ideal goals for public health (MCLG), the amount detected, the usual sources of such contamination, footnotes explaining our findings and a key to units of measurement. We are pleased to report that there were no EPA or State drinking water violations for Lakehaven Utility District in the year 2010. Additional information on all data can be obtained by calling Lakehaven Utility District at 253-946-5410.

**Water Quality Table Definitions:*

ppm: part per million	ppb: part per billion	pCi/L: Picocuries per liter
CFU/ml: Colony-Forming Unit per milliliter	MCL: Maximum Contaminant Level – The highest level of a contaminant that is allowed in drinking water.	MCLG: Maximum Contaminant Level Goal. The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a safety of margin.
Trigger: Systems with compounds detected at concentrations in excess of this level are required to take additional samples.	<p>EPA Regulated Analytes: Concentrations of these elements may not exceed the maximum contaminant level (MCL).</p> <p>EPA Regulated (Secondary) Analytes: Do not pose risks to human health but may impair taste, odor, and/or clarity of drinking water.</p>	NTU: Nephelometric Turbidity Unit is a standard unit to measure water clarity.
AL: Action Level is the concentration of a contaminant which, if exceeded, triggers treatment or other requirement which a water system must follow. Action Levels are reported at the 90 th Percentile for homes at greatest risk.	<p>ND: Not Detected at a level greater than or equal to the State Reporting Level (SRL).</p> <p>NA: Not Applicable</p>	Highest Detection: Represents the highest concentration (or flow weighted average) that was measured by laboratory analysis during the entire year of monitoring the quality of our water.

2010 Water Quality Monitoring Results

Regulated Substance	MCL	MCLG	Lakehaven Groundwater Range of Level Detected	Lakehaven Groundwater Highest Detection	SSP Surface Water Range of Level Detected	SSP Surface Water Highest Detection	Major Sources	Violation
EPA Regulated Analytes								
Fluoride	4 ppm	Trigger 2 ppm	ND	ND	0.74 – 1.16 ppm	1.16 ppm	Erosion of Natural Deposits & Chemical addition	NO
Nitrate	10 ppm	Trigger 5.0 ppm	ND – 2.0 ppm	2.0 ppm	ND	ND	Runoff From Fertilizer Use, Septic Systems	NO
Total Trihalomethane	80.0 ppb	0.0 ppb	2.6 – 14.4 ppb	11.9 ppb (Running Annual Average)	15.9 – 40.5 ppb	33.4 ppb (Running Annual Average)	Chlorine Disinfection By-product	NO
Haloacetic Acid	60 ppb	0.0 ppb	ND – 6.1 ppb	4.5 ppb (Running Annual Average)	13 – 44.5 ppb	36.4 ppb (Running Annual Average)	Chlorine Disinfection By-product	NO
Bromate	10 ppb	0.0 ppb	NA	NA	<5.0 ppb	<5.0 ppb	Ozone Disinfection By-product	NO
EPA Regulated (Secondary) Analytes								
Chloride	250 ppm	Trigger 250 ppm	3.0 – 8.0 ppm	8.0 ppm	3.0 ppm	3.0 ppm	Natural Mineral Deposits	NO
Manganese	0.05 ppm	Trigger 0.05 ppm	ND – 0.06 ppm	0.06 ppm	ND – 0.06 ppm	0.06 ppm	Natural Mineral Deposits	NO
Sulfate	250 ppm	Trigger 250 ppm	<10 – 16 ppm	16 ppm	<10 ppm	<10 ppm	Natural Mineral Deposits	NO
State Regulated Analytes								
Sodium	NA	NA	7.0 ppm	7.0 ppm	7.2 ppm	7.2 ppm	Natural Mineral Deposits	NO
Turbidity	5 NTU	Trigger 1.0 NTU	0.9 NTU	0.9 NTU	0.7 – 3.8 NTU	3.8 NTU	Natural Erosion	NO
State Unregulated Analytes (From Distribution System/Targeted High Risk Customers Tap)								
Lead	AL=15 ppb	NA	ND – 14.0 ppb	5.0 ppb (90 th Percentile)	ND – 14.0 ppb	5.0 ppb (90 th Percentile)	Household Plumbing	NO
Copper	AL=1.3 ppm	NA	ND – 1.2 ppm	0.8 ppm (90 th Percentile)	ND – 1.2 ppm	0.8 ppm (90 th Percentile)	Household Plumbing	NO
Microbiological & Disinfection Standards In Lakehaven's Distribution System								
Heterotrophic Plate Count (HPC Bacteria)	NA	NA	ND – 140 CFU/ml	140 CFU/ml	ND – 140 CFU/ml	140 CFU/ml	Naturally Found Throughout The Environment	NA
Free Chlorine Residual	4.0 ppm	Not less than 0.2 ppm	0.11 – 1.66 ppm	1.66 ppm	0.11 – 1.66 ppm	1.66 ppm	Treatment Additive To Control Bacteria	NO

[Additional Water Quality Information](#)

[Washington State Department of Health Monitoring Waivers](#)

Variances and Exemptions

In 2010, Lakehaven Utility District applied for and received special monitoring waivers for certain targeted wells from the Washington State Department of Health. These special monitoring waivers were granted for the purpose of reducing unnecessary sampling and testing of raw groundwater for analysis of organic and inorganic chemicals and the more common insecticides, herbicides, and pesticides. The District received these waivers because previous laboratory tests show no detection of these contaminants and groundwater from these wells has a very low susceptibility to contamination.

[Additional Contaminants Monitored](#)

Lakehaven Utility District also tests for other substances and microscopic organisms found in our drinking water for which no mandatory testing standards have been set. Many substances and microscopic organisms found in water may be a concern if they occur at high concentrations. Because of this, the District has been monitoring heterotrophic (HPC) bacteria in our drinking water for many years. The HPC test measures a broad group of microorganisms that are commonly found in drinking water and this test is used by our “Water Quality Monitoring Program” as a tool to track the concentration of these “background” microorganisms in our distribution system. The EPA has determined that a well operated water system with a well maintained distribution system should have HPC bacteria populations of less than 500 colonies per milliliter (ml). A sample with a count higher than 500 colony-forming units per milliliter is considered undesirable and should be investigated to determine



the cause. During 2010, the District sampled and tested our drinking water throughout the distribution system for the presence of HPC bacteria each week (using a state certified laboratory and government approved techniques) and found the annual average concentration of these organisms in our water system is well below an average of 5 units per milliliter. To make sure these organisms remain in low concentrations, we'll keep testing and keep you informed.

[Cryptosporidium](#)

Cryptosporidium is a microscopic organism related to surface water supplies that, when ingested, can result in diarrhea, fever and other gastrointestinal symptoms.

Tacoma Water has tested for Cryptosporidium in the Green River since 1993 and no evidence of actual Cryptosporidium-related health problems have been detected in areas served with Green River water. The Washington State Department of Health has not required Lakehaven Utility District to monitor or test for the presence of the protozoan Cryptosporidium in our drinking water supply because our source groundwater (pumped from protected deep aquifers) is not vulnerable to this type of biological contaminant.

Some people may be more vulnerable to contaminants in drinking water than is 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 (Center for Disease Control) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline, 1-800-426-4791.

Water Use Efficiency (WUE) Performance Report

In 2003 the Washington State Legislature passed ESSHB 1338, better known as the Municipal Water Law (MWL), to address the increasing demand on our state's water resources. The law establishes that all municipal water suppliers (MWS) must use water more efficiently in exchange for water right certainty and flexibility to help them meet future demand. The MWL directed the Department of Health (DOH) to adopt a water use efficiency rule which now replaces the 1994 Conservation Planning Requirements guidance document. The WUE rule requires water systems to engage their customers and interested public in a public forum setting when establishing their water efficiency goals. It ensures customers and the public can provide input on the decisions made by the governing body. It also helps the public understand the need to use water more efficiently and to educate them on how they can help the water system achieve conservation goals.

Performance Reporting Period: January 2010 to December 2010 (Month/Year)

Distribution System Leakage Summary:	
Total Water Produced and Purchased – Annual Volume	3,389 <input checked="" type="checkbox"/> million gallons <input type="checkbox"/> gallons
Distribution System Leakage – Annual Volume	156 <input checked="" type="checkbox"/> million gallons <input type="checkbox"/> gallons
Distribution System Leakage – Percent*	4.6%

** This estimated number represents unbilled water. Actual leakage amount may be less.*

Lakehaven Utility District WUE Goal Progress:

In 2007, the Board of Commissioners adopted a water use efficiency goal consistent with a memorandum of agreement that began in 2000 between its Second Supply Project partners of Kent, Covington, and Tacoma to reduce our combined projected water consumption by 10% collectively over 10 years from 2000 to 2010. The end of 2010 marked the conclusion of the District's adopted 2007 Water Use Efficiency Goal. The District is pleased to report a 10.6% reduction in its water use over the past ten years that exceeded the previously set water use efficiency goal.

New Lakehaven Utility District WUE Goal:

The Board of Commissioners met on April 28, 2011 for a scheduled public hearing concerning information and updates for the District's next Water Use Efficiency Goal. After the public hearing, a new 2011 – 2014 Water Use Efficiency Goal was established by the Board of Commissioners to maintain water production rates at or below the 2008 comprehensive Water System Plan "projected" water demand figures with conservation until a new comprehensive water system plan is approved in 2014. The new goal assumes a continuation of Lakehaven's current conservation efforts will be needed to stay on target. The calculation for average annual water production rates will exclude water sales to potential customers/purveyors outside the current District boundaries.



Lakehaven Utility District
31627 - 1st Avenue South
P.O. Box 4249
Federal Way, WA 98063

2010 WATER QUALITY REPORT

This report was prepared by the Lakehaven Utility District Water Operations Department. For more information, call our Water Quality Section of Lakehaven Utility District at 253-946-5410 or access our web site at www.lakehaven.org.