

Water Quality & Annual Business Report

2011

A Message from Your Board of Commissioners



Larry Ghilarducci
President

As part of the ongoing review of our operation by the staff and eagle-eyed Commissioners of the Lakewood Water District, two of the “numbers” we review regularly are the amount of water we pump out of our wells and the amount of water we sell. If we pump more than we sell, the obvious question is “where the heck did the excess go?” Presuming constant levels in our storage tanks, the answer is either under-registering of meter(s) or, in a word, “leakage.”

During the past year, we lost over 13 percent of the water pumped to one or both of these two culprits. This is not good. (The State of Washington adopted a Water Efficiency Rule in 2003 requiring that figure to be 10 percent or lower.) What’s happening? Like all of us, the District is afflicted with that evil process called “aging.”

Our consulting engineer, Craig Gibson, as part of his recent in-depth study of our system, provided much insight into the problem. This study is primarily his work product for which we thank him.



Bill Philip
Vice-President

When the Lakewood Water District was formed in 1943, it acquired from the federal government 41 miles of water mains with attached individual service lines. Most of the original mains and service lines are still in use and probably date back to the 1930s.

The original water mains were made of asbestos cement (AC), and some cast iron; the service lines were of galvanized steel. From the mid-1970s until 1995, the District installed mostly polyvinyl chloride (PVC) mains with polyethylene (PE) service lines, and then changed to ductile iron mains with PE service lines from 1995 to the present.



John Korsmo
Secretary

These older AC mains are not as durable as the newer PVC and ductile iron mains, since they are brittle and will often crack if undermined and back filled improperly, or hit with construction equipment by contractors or other utility companies. The original galvanized steel service lines are subject to corrosion due to age.

From 1978 to 1985, Pierce County installed new sewer lines throughout Lakewood. The District was overwhelmed by the work to accommodate the sewer construction along with the number of broken water mains and service lines resulting from the sewer construction. Hundreds of breaks required repairs with new pipe sections, repair bands, and couplings. In the next few years, leakage from our mains increased substantially, resulting in our adoption of a leak detection and system repair program. But detection and repair were not enough to solve the problem. In 1995, the District initiated a Water Main Rehabilitation and Replacement (R&R) Program and since then has set aside an average of \$700,000 each year for the replacement of the old mains and their associated parts and pieces, including service lines.

Craig reports that 20-25 miles of the original 41 miles of mains installed before 1943 are nearing the end of their useful lives.

The remaining old galvanized steel lines installed before the 1970s are well beyond their service lives. The couplings, bands, and clamps used for repair of the many water main and service line breaks during the sewer construction have relatively short service lives remaining. When these fittings fail, the water leakage could cause damage to private property improvements, road structures, and other utility lines.

It is estimated the cost of R&R for those 20-25 of the original 41 miles of mains and services at current prices could exceed \$15 million. If we performed just that needed R&R over the next 15 years, it would cost about \$1M each year. However, there’s more.

At the end of 1978, the District switched to PVC and Ductile Iron pipe. While incomplete and unofficial, there are indications from our new GIS system that there may be as many as 200 miles of AC and old steel main left in the District’s system to replace. At \$200/foot, that is approximately \$1M per mile. This would cost \$5M a year over 40 years to replace 200 miles of water main. The District has 256 miles of water main, so potentially almost 80 percent of our infrastructure needs to be replaced in the next 40 years! You can therefore plainly see it is an understatement to say that the \$700,000 presently set aside annually for R&R is not even in the hemisphere of being enough to meet the urgent needs of the District.

So you can see what’s coming! We must increase our revenues and continue to control our costs. We believe we are doing a good job on the cost side of the equation. That’s why we are being proactive in setting a schedule now to systematically perform the needed work at the most cost-effective levels possible before things wear out or break, versus waiting until valves start blowing and mains start breaking; which would be way more expensive to fix...to say nothing of potential damage to homes, local businesses, and property.

On the revenue side, we have started to generate increased income from the sale of our excess water to the Spanaway, Rainier View, and Summit areas now being delivered through our recently completed transmission line. We continue to realize rental income from various companies mounting their antennae on our water towers. Borrowing the needed funds is a probability, and we will have to service that debt. And, of course, we look to you, our friendly customers, for your continued business (monopolies are good 😊). We do want to alert you, however, to the obvious...the likely raising of rates in future years to help fund the necessary R&R projects.

Rest assured that all of us involved in the operation of the District will continue to make responsible decisions regarding all revenues and expenditures in order to provide you the highest level of service and product at the most reasonable price possible.

Warm regards,
Your Board of Commissioners

To learn more about District programs and your water services, be sure to visit our website: www.lakewood-water-dist.org
We invite you to ‘like’ us on Facebook and follow us on Twitter @LakewoodWaterDi





Another Clean Audit

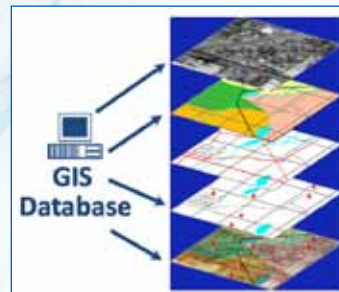
We hope you're not tired of reading about our clean audits every year! Your Lakewood Water District does work hard day in and day out to deliver the highest level of integrity, accuracy, and regulatory compliance through exceptional financial and compliance practices.

Once again, and for the 16th year in a row, the State Auditor's Office has completed its annual review and awarded the District a clean audit. The SAO's official Accountability Audit and Financial Statement Audit Reports note no deficiencies and compliment the District on its strong financial policies, precise accounting internal controls, and competent and cooperative staff.

The District commissioners and staff are proud of our record of consistently clean audits and are committed to continuing our efforts to maintain our financial stability so we can serve you most efficiently.

What is "GIS"?

Lakewood Water District is excited to announce its embarking on a new adventure called "GIS." "GIS," not just another water-industry acronym, stands for "Geographic Information System," and is a computerized system that takes all sorts of information—like where every single piece of water main, valve, register, meter, and land parcel is located in our system—and integrates it all into a digital map of the District. If you look at the graphic below, you can see it's kind of a combination of layers of information.



Since the District was formed nearly 70 years ago, a voluminous amount of information and data about the water system has been generated. This information includes the amount of water produced month-by-month and year-by-year, water system construction drawings, water rights documentation, hydraulic modeling,

as well as a wide variety of other types of data. As these pools of information have grown, being located in any number of different areas of the District, the District has had to adopt new methods of gathering, storing, and maintaining in one place, this ever-growing amount of information. And now, accessing this information will take mere seconds or minutes versus hours, days, or even weeks as it did before. That will save the District tons of time, resources, and money...and all those savings will be passed on to you, our rate-payers and customers.

The District's new Geographic Information System, or GIS, provides any District staff member immediate access to this library on a location-by-location basis. Plus, by launching the new GIS, the District has also gained the advantage of having access to much more mapping and geographic information gathered and provided by the City of Lakewood, Pierce County, and many other state, federal, and private entities. It is our vision and plan to provide opportunities to link services from the District's website to these other agencies and more in the future.

This new, valuable tool will help the District staff provide even better customer service and provide more accurate information more quickly to help expedite customers' needs and requests; and it will help us to better design and operate our water system to be able to more efficiently and securely deliver your safe, clean, reliable water to your homes each day.

Lakewood Water District Balance Sheet

Year Ended December 31, 2011 (Unaudited)

ASSETS

Total Net Utility Plant	\$ 52,881,950
Cash	3,018,747
Other Current Accrued Assets	869,850
Total Current Assets	\$ 3,888,597
Deferred Debits	310,474
TOTAL ASSETS	\$ 57,081,021

CURRENT LIABILITIES & EQUITY

Current Liabilities	\$ 428,162
Deferred Credits	4,917
Contributions in Aid of Construction	15,066,467
Bonds Payable	14,538,298
Unappropriated Retained Earnings	27,043,177
TOTAL LIABILITIES & EQUITY	\$ 57,081,021



District Projects 2010-2011

Wholesale Booster Pump Station

The new 7.4-million-gallons-per-day maximum capacity pump station, including the building and site improvements, was completed in late 2011 to provide proper flow and pressure to the wholesale water customers along the new Wholesale Transmission Main. Engineering and design work was completed by RH2 Engineers. Contractor WC&T, Inc. out of Lacey, Washington finished the \$1.3M project on time and within budget. Two pumps were installed, and provisions were made for two additional pumps to be installed as water demands increase.

Grant Avenue R&R— Berkeley Street to Orchard Street

The City of Lakewood received additional sanitary sewer grants and designated some of those funds to install sanitary sewers in Grant Avenue from Berkeley to Orchard Streets. Lakewood Water District (LWD) partnered with the City in replacing the old and undersized asbestos concrete (AC) water mains in this area with 1,800 lineal feet of new 8-inch ductile iron main, including one new fire hydrant and 39 water service replacements. Engineering and design work was completed by the District's engineer and provided to the City to show on their construction drawings. This project, estimated at a little under \$155K,

was completed on time, and well under budget by contractor Northwest Cascade, Inc. out of Puyallup, Washington.



Veterans Drive R&R, Phase 1— Interlaaken Drive SW to Lakeholme Road SW

As part of the District's Water Main Rehabilitation and Replacement Program, LWD replaced 1,800 lineal feet of undersized, old AC main with new 12-inch and 8-inch ductile iron water mains, including four fire hydrants and 27 water service relocations. Engineering and design on this project was performed by CHS Engineers of Bellevue, Washington. This project, with an Engineer's Estimate of \$210K, was awarded to Pape & Sons, Inc. out of Gig Harbor, Washington at a bid of \$185,725.84. The project was completed early and under budget.

2012 Projects



Kendrick Street R&R— 111th Street to the Railroad Tracks

District construction field staff installed a total of 1,020 feet of 8-inch ductile iron water main, replacing the old 6-inch and 8-inch AC pipe. The project included the installation of five 8-inch main inline valves, one 6-inch hydrant maintenance valve, one new fire hydrant, and the replacement of 18 water services. Engineering and design work was completed by the District's engineer in cooperation with the City's computer drafting group.

Veterans Drive R&R, Phase 2— Lakeholme Road SW to Alameda Avenue SW

This project continues the 2011 project involving replacement of approximately 1,700 lineal feet of old AC main with new 12-inch and 8-inch ductile iron mains along Veterans Drive including new hydrants, valves, and replacement water services. CHS Engineers again provided the engineering and design work. This project, with an Engineer's Estimate of \$213K, was awarded to Iversen & Sons, Inc., out of Rochester, Washington at a bid of \$176,916.21. The project is scheduled to be completed by mid-August 2012.

If Water is Free, Why Does it Cost Money?

You've no doubt heard the saying "It's not the fall that kills you. It's the sudden stop." The same sort of distinction can be made when it comes to your tap water. It's not the water that costs money. It's getting it to your house or business that does. Some have wondered why there is a water bill at all, since water (abundantly around here) falls from the sky for free. We here at Lakewood Water District would like to explain briefly where your dollar goes.

The District gets all of our water from underground aquifers. As with any resource harvested from the ground, such as oil, minerals, gas etc., getting water out of these aquifers costs money. Large pumps and motors, some of which have more power than a family sedan, carry water out of our 30 wells, ranging from a couple of hundred feet to well over a thousand feet deep, and into our tanks, reservoirs, and 256 miles of water main in the District's distribution system. We then treat the water with a small amount of chlorine, made in-house at our well sites, to ensure its quality before passing it on to our customers.

Of course, there are many other necessary components to our water system. Meters, valves, and hydrants are all integral parts of our infrastructure. Trucks, backhoes, and other tools and equipment are needed for the day-to-day activities in the field. And, of course, since

none of these parts and equipment can install or maintain themselves, we have a staff of trained individuals to ensure everything is working properly – from the technician who reads and repairs your meter to the crew installing new mains down your street to the entire office staff who delight in taking care of all our customers' needs. All of these cost varying amounts of money. So while it's true that water, in essence, is free, there are numerous aspects and much cost related to the pumping, treating, distributing, and metering of it.

We understand, unlike other services you may enjoy, you do not have a choice in your water company. Therefore, we are determined to do all we can to keep our cost, and therefore your cost, as low as possible without sacrificing the high quality water or solid customer service our customers have come to expect.



Pine • Walnut • Langlow • Lakeland R&R

This project involves replacement of approximately 2,450 feet of old, substandard AC pipe with new 8-inch ductile iron pipe and appurtenances (all related accessories). This project includes tying together the dead-end mains of Pine Street, Walnut Avenue, Langlow Street, and Lakeland Avenue south of Veterans Drive SW. Engineering and design work is currently proceeding by RH2 Engineers. The project Engineer's Estimate is approximately \$450,000. The project is scheduled to be bid in July and completed before the end of the year.

Washington Avenue R&R— Spruce Street South 900 Feet

Habitat for Humanity has purchased a number of parcels for future residences in the Tillicum area. The City of Lakewood is requiring sanitary sewer service be extended to these parcels prior to their development. LWD coordinated with the City as sewer is installed in the Tillicum area to save the cost of restoration after installation. One area of concentrated development was along Washington Avenue within 400 feet southwest of Spruce Street. Sanitary sewer along with the water system replacement was designed by Apex Engineering. The District replaced



approximately 400 feet of old, substandard AC pipe with new ductile iron water main and accessories, including 10 new water services. Northwest Cascade, the City's contractor on the job, installed the water main for the District at a cost of approximately \$21K.

Springbrook Water Main Upgrade

This project will involve construction of a 16-inch water main in McChord Drive from the Ponders Well site to Bridgeport Way then west along Bridgeport Way from McChord Drive to San Francisco Avenue. The new main will provide better water supply to the Springbrook area, including the increased fire flow necessary to meet City of Lakewood zoning requirements for the neighborhood in the vicinity of the Fir Acres Trailer Park where redevelopment of the area may occur. The District has been approved for a Public Works Trust Fund Loan of \$776,900 at 0.5 percent interest for this project. This project, engineered by Murray, Smith & Associates and budgeted at \$800K, is expected to go to bid mid-summer 2012.



Lakewood staff conducting annual flushing of water mains.

Interstate 5 Crossing at Orient Street SW

The District currently has a 10-inch water main inside a 30-inch steel casing under I-5 near Orient Street. The casing needs to be extended to the freeway right-of-way limits on both sides and a new 20 or 24-inch water main installed inside. The District is presently awaiting state and federal approval of the permit. This project is needed to improve flows in our service area east of I-5 and will provide the required water supply for the new wholesale water supply system. Engineering is being provided by Kennedy/Jenks; the Engineer's Estimate is pending. The project is budgeted at \$400K.



Water Use Efficiency Rule

Public water purveyors have always had basic standards they are required to meet. In 2003, the Municipal Water Law was passed by the legislature, and it included the Water Use Efficiency Rule (WUE) which holds water utilities to more specific standards in the areas of 1) source and use metering requirements; 2) system leak standards; 3) conservation goals and objectives; and 4) reporting requirements. The standards in the WUE were not enforced until late 2007. Lakewood Water District had been largely compliant all along and became 100 percent compliant in January of 2008. In 2010, the District became non-compliant only in the area of unaccounted-for water. The District is presently taking aggressive, focused action to discover and eliminate the cause of our increased percentage of unaccounted for water (note "A Message from Your Commissioners" on page 2).

Monitoring Our Lakes & Streams

We consistently keep an eye on the levels of select lakes and streams in our service area. The levels of the area lakes are indicators of the level of the water table in the Steilacoom Gravel deposited by the receding Vashon Glacier. Water in the Steilacoom Gravel also leaks through the Vashon Till or springs out above the till adding to the flows of the area's major springs such as Ponce de Leon, Chambers, Garrison, and Sequelichew. The District collects monthly data from gauges on Ponce de Leon and on five lakes (American, Gravelly, Hidden, Louise, and Waughop). This information, together with the data collected from the Pierce County Stream Team, is vital to the District's aquifer management program as well as the Tacoma-Pierce County Health Department's long-term groundwater monitoring program.



Beautiful Waughop Lake

The Source of Your Water

The District's sole source of water is from underground aquifers. No surface water, desalinated water, or recycled water is used. The District has a total of 30 active wells, which together provide a maximum production capacity of approximately 30 million gallons per day (mgd), with a total water right capacity to pump up to 60 mgd.

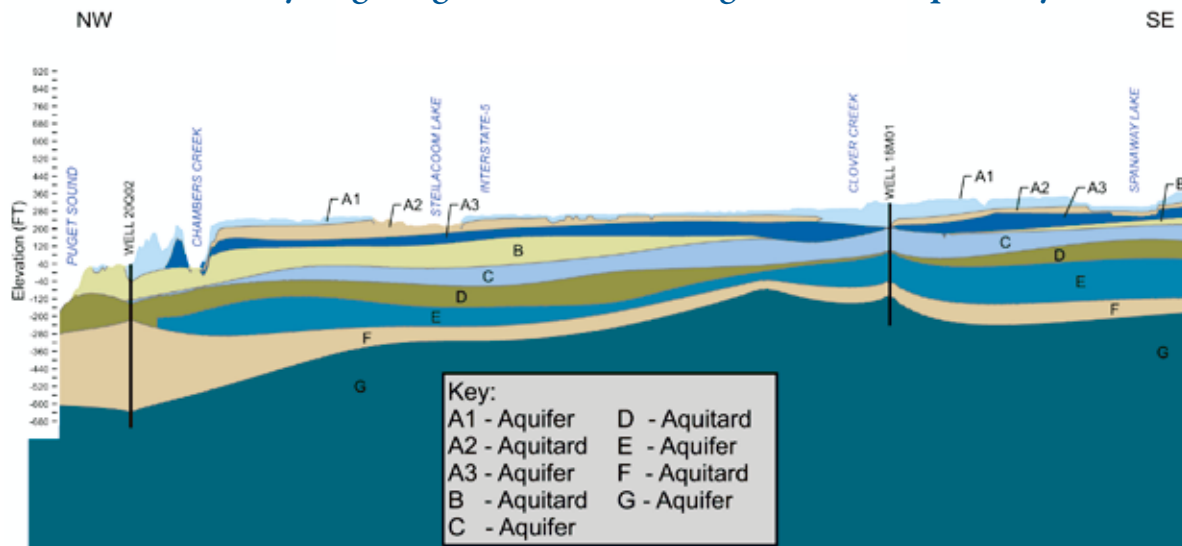
The Lakewood area has two geologic formations commonly exposed at the surface, called the Steilacoom Gravel and the Vashon Till. The Gravel was deposited by vigorous, widespread, and braided glacial out-wash rivers which flowed from the receding Vashon glacier and emptied into a short-lived glacial lake west and south of present-day Lakewood. The Gravel is highly permeable, rapidly receiving all rainwater, and is less than 30 feet thick in most places. The area lakes are expressions of the water table level in the Steilacoom Gravel. In contrast, the Till is a firmly compacted mix of gravel and fine silts. It is resistant to erosion and infiltrates rainfall poorly. The Steilacoom Gravel and Vashon Till lie on older sequences of glacial and interglacial deposits that extend at least 1500 feet below the surface at Lakewood.

Water enters these deep interglacial deposits by leaking downward from other, near-surface deposits. With few exceptions, the major wells in the area extend to these deeper deposits, tapping aquifers at greatly different depths.

Aquifer Zones are designated as layers A, C, E, and G from shallowest to deepest, as displayed on the accompanying chart. Aquifer Zones are of generally glacial origin and tend to be coarse-grained and highly permeable. Aquitards B, D, and F, which are usually of interglacial origin, represent finer-grained and less permeable layers whose sediments were deposited by the ancestral Nisqually and Puyallup rivers. Historical sedimentation is not unlike the alluvium presently being deposited by these rivers today.

Recharge (replenishing) of the aquifers comes from local rainfall or snowmelt in the Clover/Chambers drainage basin. The E and G level aquifers will most likely receive some additional deep underflow from the south Puyallup/Graham area westward to Puget Sound.

Generalized Hydrogeologic Section from Puget Sound to Spanaway Lake



For Your Health: Important Information from the Environmental Protection Agency (EPA)

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.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk of infections. These people should seek advice about drinking water from their health care providers.

More information about contaminants and potential health effects, and EPA/CDC (Center for Disease Control) guidelines on appropriate means to lessen the risk for infections by *cryptosporidium* and microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.



We take many water samples throughout the year to assure clean, safe water.

Water Quality Sampling Results

Your water meets or exceeds all federal, state, and local quality standards, ensuring that you enjoy safe, clean water. The table below reflects the maximum allowed levels of certain contaminants and the levels experienced in Lakewood Water District. Not listed are 63 volatile organic chemicals for which we tested, all resulting in either Not Detected (ND) or well below the MCL (Maximum Contaminant Level). As a customer, if you ever experience water that is unsatisfactory, please do not hesitate to call us. Our goal is to provide the cleanest, safest, and best-tasting water possible.

Sample Type	Samples Taken per Year	Last Sample Year	Next Sample Year	MCL (maximum level allowed)	Highest Level Detected	Detected Range	Number of Samples Over MCL	MCLG	Typical Sources
Arsenic*	22 every 3 yrs	2010	2013	10 ppb	<6 ppb	<2ppb - <6ppb	0		Erosion of natural deposits
Asbestos	3 every 3 yrs**	2011	2014			No structures detected	0	0	Friable fibers
Copper	30 every 3 yrs	2011	2014	1.3 ppm	0.63	.02 - .63	0	1.3 ppm	Household plumbing
Fecal Coliform	840 per yr	2011	2012	0	ND	ND	0	0	Human and animal fecal waste
Total Coliform	840 per yr	2011	2012	<5% positive	ND	ND	0	0	Found throughout the environment
Haloacetic Acids	16 per yr***	2011	2012	60 ppb	5.1 ppb	0.0 - 5.1 ppb	0	0	Byproduct of drinking water disinfection
Lead****	30 every 3 yrs	2011	2014	15 ppb	.003	<.001 - .003	0	0	Household plumbing
Nitrates	22 per yr	2011	2012	10 ppm	2.3	<0.2 - 2.3	0	0	Erosion of natural deposits
Total Trihalomethanes	16 per yr***	2011	2012	80 ppb	3.0 ppb	0.0 - 3.0	0	0	Byproduct of drinking water disinfection

*While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the cost of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

**Asbestos testing is required by the EPA every five years; LWD tests more often for your safety.

***As of September 1, 2012, the Disinfectant Byproduct Rule will go into effect, requiring 4 samples taken per quarter vs 4 per year.

****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 service lines and home plumbing containing lead. Lakewood Water District is responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at 1-800-426-4791 or at <http://www.epa.gov/safewater/lead>.

Our testing resulted in no violations.

The chart above only reflects a portion of the testing LWD performs. Complete Source Water Assessment (testing result) information is available at the District office.



Definitions:

AL: (Action Level) The concentration of a contaminant which triggers treatment or other requirement which a water system must follow.

1 mg/L = 1000 ug/L

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

using the best available treatment technology.

MCLG: (Maximum Contaminant Level Goal) The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

NA: Not Applicable

ND: Not Detected

ppb: parts per billion, or micrograms per liter (ug/L)

pCi/L: Pico Curie per Liter

ppm: parts per million, or milligrams per liter (mg/L)

For aqueous (water) samples:

1 mg/L = 1 part per million (ppm)

1 ug/L = 1 part per billion (ppb)

ug = micrograms



PRSR STD
US POSTAGE
PAID
TACOMA, WA
PERMIT 356

P.O. Box 99729
Lakewood, Washington
98496-0729

If you would like to learn more about our water, or have questions regarding water quality or what you can do to help keep our water supply clean and safe, please contact us at Lakewood Water District, or any of the following:

Lakewood Water District
11900 Gravelly Lake Drive SW, Lakewood, WA 98499
www.lakewood-water-dist.org • 253-588-4423

Mailing Address
P.O. Box 99729 • Lakewood, WA 98496-0729

Randall M. Black, General Manager
Email: rblack@lakewood-water-dist.org

Washington State Department of Health (WDOH)
www.doh.wa.gov/ehp/dw

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

Safe Drinking Water Hotline • 800-426-4791
Email: hotline-sdwa@epa.gov

To request additional copies of this year's Water Quality & Annual Business Report, please contact the District office at 253-588-4423.

Pick Your Way to Pay

Hmmm...
how should I pay today?

- In person with cash, check, or VISA/MasterCard
- Mail
- Online with VISA/MasterCard or Quick Check at: www.lakewood-water-dist.org
- Our Automated Phone System at 253-292-4377
- On the phone with Customer Service (& credit card)
- Automatic withdrawal from your bank account (ACH)
- Scheduled payment through your online banking

Rate Comparisons

Comparison of Lakewood Water District Rates with Surrounding Utilities;
Two-Month Billings of Residential Costs for Water as of June 1, 2012.

