

BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION

SARAH HAND AND GRETCHEN HAND,
a married couple

Complainant,

v.

RAINIER VIEW WATER COMPANY, INC.,

Respondent.

DOCKET UW 170924

**SARAH HAND'S EXHIBIT 44 TO
CROSS EXAMINATION**

EXHIBIT 44

TO CROSS EXAMINATION OF BOB BLACKMAN AND RACHEL STARK

July 25, 2018

2017 Rainier View Annual Water Quality Report for Southwood Water System



RAINIER VIEW WATER COMPANY ANNUAL WATER QUALITY REPORT: 2017

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For more information on this Southwood water report, contact James Jensen; Rainier View Water Company's Quality Control Manager. Contact him with your questions or concerns at (253) 537-6634 ext. 1239 or jimmy@rainierviewwater.com. Please be sure to reference your water system name when leaving a message.

About Rainier View Water Company

Rainier View Water Company (RVWC) a public water utility has grown to become one of the largest investor owned water utilities in the state of Washington, serving a population of over 35,000 in parts of Graham, Spanaway, Puyallup, Gig Harbor and additional outlying areas.

RVWC currently owns and operates 27 public water systems with an inventory of 100 wells. Whether it is a small system servicing 4 homes or a large system servicing 14,000 connections. RVWC is staffed with courteous and knowledgeable water professionals who strive to continually improve upon the quality of services we provide to you, our valued customer.

This 2017 Water Quality Report is your annual update on the quality and safety of your drinking water. It includes recent water quality results through the monitoring period ending December 31, 2017, in accordance with state and federal regulations (not all testing is required every year). This report also provides access through references and telephone numbers to source water assessments, health effects information, and other water system topics.



Southwood Water System

System Identification Number
82844H

The Southwood Water System is owned and operated by Rainier View Water Company and is located in central Pierce County. The system encompasses approximately 21 square miles of predominantly rural areas with wide-spread residential development. The system has a unique history ultimately resulting in the systems 5 pressure zones. The system consists of 27 wells and 15 storage tanks with nearly 10 million gallons of storage. The system also has 5 Iron and Manganese treatment facilities, with another 3 scheduled for completion by the end of the second quarter of 2017. The Southwood Water system serves nearly 15,000 connections.



Common Causes of Color, Taste, and Odor Problems in Drinking Water

Discoloration:

Green or Blue Water: Usually caused from corrosion of copper plumbing. When this occurs, a bluish green stain may appear on porcelain fixtures. Metals like lead and copper may become present in the drinking water from corroding pipes, and may pose a serious health concern depending on the level present. If you suspect corrosion, contact Rainier View Water Company's quality control department.

Dark Brown or Black Water: Often caused by manganese, a naturally occurring mineral commonly found in ground water. Manganese does not pose a threat to human health. Several minutes of flushing all cold water faucets and toilets will sometimes clear this problem up. If it does not, contact Rainier View Water Company's Quality Control department.

Brown, Red, Orange, or Yellow Water: Usually caused by Iron rust. Galvanized Iron, steel, or cast iron pipes in a home or business, or the water main can cause rusty water. While unpleasant, iron in drinking water is not considered a human health concern. Several minutes of flushing each faucet is recommended. If the problem persists, contact Rainier View Water Company's quality control department.

Milky or Cloudy Water: Caused by tiny air bubbles in the water. Fill a glass with water and let it sit for a few minutes. If the bottom of the glass starts to clear first, the cloudiness is caused by trapped air bubbles in the water. This does not pose a health risk, and should clear up within a few minutes.

Taste and Odor:

Chlorine Taste or Smell: Chlorine added to the water for disinfection may come in contact with organic matter in your plumbing system, making the taste and odor stronger than normal. This is not normally a health concern unless present in very high quantities. Additionally, activated carbon filters such as Brita and PUR can be found in most supermarkets and remove chlorine from the water.

Sulfur or Rotten Egg Smell: Bacteria growing in a sink drain or in a hot water heater can cause this problem. Occasionally, naturally occurring hydrogen sulfide may be present in the water supply. If a glass of water continues to have this odor after sitting for several minutes and being swirled around it is an indication of hydrogen sulfide (sulfur) in the water supply.

Vulnerable populations...

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 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).

Protecting your water sources...

Rainier View Water Company has completed a source water assessment for all of our systems. This assessment reviewed the adjacent land uses that may pose a potential risk to the water sources. These risks include, but are not limited to, gas stations, landfills, dry cleaning, agricultural fields, wastewater treatment plants, and mining activities. Protecting and maintaining safe drinking water for all customers is important to Rainier View Water. We routinely monitor each well head for potential contaminants, but there are several things the customer can do to help. What you can do to protect source water:

- Ensure that your septic system is properly maintained.
- Use chemical fertilizers and pesticides sparingly if at all.
- Don't dump any hazardous waste on the ground. This includes: motor oil, pesticides, paint or paint cans, moth balls, flea collars, household cleaners, medicines, etc.

The Washington State Department of Health Office of Drinking Water has compiled Source Water Assessment Program (SWAP) data for all community water systems in Washington. A source water assessment includes:

- A delineation (definition) of source water protection area.
- An inventory of potential sources of contamination.
- A determination of how susceptible the source is to contamination.

An interactive map with data for your water system is available at:

<http://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/SourceWaterProtection/Assessment.aspx>



LETS TALK ABOUT LEAD

It is likely you have heard about lead in drinking water, especially as a result of the events in Flint, Michigan. You probably have questions about it yourself. So here are some facts about lead in drinking water.

- Lead is a naturally occurring metal, but it is also toxic to humans.
- Lead leaches into the water supply when corrosive water comes in contact with pipes and breaks the metal down, which results in lead particles contaminating the water.
- In Flint, around half of the city's service lines to homes were made of lead. The water was not being treated with an anti-corrosive agent, which the federal government requires.
- The United States Congress banned the use of lead solder and restricted the lead content of faucets and pipes in 1986. However, homes built prior to the ban may still have plumbing that contains lead.
- Hot water is also much more corrosive than cold water. It causes lead to dissolve more quickly than cold water. For this reason, if you suspect your water contains lead, you should avoid cooking with it completely, and use a completely different source for mixing baby formula.
- Lead is completely odorless, tasteless, and invisible when dissolved in water.
- If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>



Rainier View Water Company complies with health and safety codes mandating use of lead-free material in water system replacements, repairs, and new installations. We have no known lead service lines in any of our systems. We test and treat (if necessary) water sources to ensure that the water delivered to customer meters meets water quality standards and is not corrosive toward plumbing materials.

The water we deliver to your home meets lead standards, but what about the water in your home's plumbing? In Washington state, lead in drinking water comes primarily from materials and components used for in-home plumbing (for example, lead solder used to join copper plumbing, and brass and other lead-containing fixtures). Therefore, the Lead and Copper Rule is a critical part of our water quality program. This rule requires us to test water *inside* a representative number of homes that have plumbing most likely to contain lead and/or lead solder. This test, along with other water quality testing, tells us if the water is corrosive enough to cause lead from household plumbing to leach into the water. If the Action Level (the concentration of a contaminant which, when exceeded, triggers action which a water system must follow before it becomes a health concern) is exceeded, either at a customer's home or system wide, we work with the customer to investigate the issue. If the problem is system wide, we will implement corrosion control treatment at the source.

SOUTHWOOD WATER QUALITY TABLE

The water quality information presented in this report is from the most recent round of testing. All data shown was collected during the last calendar year unless otherwise noted in the table. Your water is tested for more than 150 different contaminants for which state and federal standards have been set. The following table identifies what contaminants were found in your water, and at what levels.

REGULATED AT THE GROUNDWATER SOURCES

| Constituent | Last Tested | Units | MCL | MCLG | Your Water | Regulation Met? | Potential Sources of Contaminant |
|-------------|-------------|-------|------|------|------------|-----------------|----------------------------------|
| Arsenic | 2016 | ppm | 0.01 | 0.01 | 0.005 | YES | Natural erosion |
| Nitrate | 2017 | ppm | 10 | 10 | 5.6 | YES* | Agricultural uses, septic |

REGULATED AT GROUNDWATER SOURCES (Secondary)

| Constituent | Last Tested | Units | SMCL | Your Water | Regulation Met? | Potential Sources of Contaminant |
|-------------|-------------|-------|------|------------|-----------------|---|
| Manganese | 2016 | ppm | 0.05 | 0.23 | NO** | Leaching from natural deposits |
| Sodium | 2014 | ppm | None | 25 | YES | Erosion of natural deposits; seawater influence |
| Turbidity | 2014 | NTU | None | 0.3 | YES | Soil runoff |

REGULATED IN THE DISTRIBUTION SYSTEM

| Constituent | Last Tested | Units | MCL | Your Water | Regulation Met? | Potential Sources of Contaminant |
|----------------------|-------------|-------|-----|------------|-----------------|----------------------------------|
| Total Trihalomethane | 2017 | ug/L | 80 | 3.1 | YES | Disinfection byproduct |
| Haloacetic Acid | 2017 | ug/L | 60 | ND | YES | Disinfection byproduct |

REGULATED AT THE CONSUMERS TAP

| Constituent | Last Tested | Units | AL | Samples collected | 90th % value | Regulation Met? | Potential Sources of Contaminant |
|-------------|-------------|-------|-------|-------------------|--------------|-----------------|---|
| Lead | 2015 | ppm | 0.015 | 30 | 0.001 | YES | Corrosion of household plumbing systems |
| Copper | 2015 | ppm | 1.3 | 30 | 0.63 | YES | Corrosion of household plumbing systems |

DISINFECTION RESIDUAL

| Constituent | Your Water | Units | MRDL | Range | | Regulation Met? | Potential Sources of Contaminant |
|-------------|------------|-------|------|-------|------|-----------------|------------------------------------|
| | | | | Low | High | | |
| Chlorine | 0.68 | ppm | 4 | 0.01 | 1.48 | YES | Water additive to control microbes |

BACTERIOLOGICAL ANALYSIS

| Constituent | Month Detected | Samples per month | TTT | # of samples detected | TTT? | Potential Sources of Contaminant |
|----------------|----------------|-------------------|-------|-----------------------|------|--|
| Total Coliform | December | 50 | >5.0% | 1*** | No | Sampling technique; naturally present in the environment |

DEFINITIONS

(MRDL) Maximum Residual Disinfectant Limit: Highest detectable free chlorine residual.

(MCL) Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water.

(SMCL) Secondary Maximum Contaminant Level: Acceptable concentrations of contaminants which cause unpleasant tastes, odors, or colors in the water.

(ppm) Parts Per Million: Also known as mg/L or milligrams per Liter.

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

(ND) Not Detected: Amount present in sample either absent or less than detectable levels.

(ug/L) Microgram Per Liter: 1 ug/L is about 1 Part Per Billion (ppb)

(TT) Treatment Technique: An enforceable procedure limit which public water systems must follow to ensure control of a contaminant.

(TTT) Treatment Technique Trigger: When a treatment trigger occurs, water systems must conduct an assessment to find and fix any sanitary defects.

PLEASE REFERENCE THE WATER QUALITY EXCEEDENCE REPORT LOCATED ON NEXT PAGE

WATER QUALITY EXCEEDENCE REPORT

*Nitrate

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider. The sample that registered the highest was taken from a source that contributes minimal water to the system, and only in emergency situations.

**Secondary Contaminants

National Secondary Drinking Water Regulations (NSDWRs) set non-mandatory water quality standards. The EPA does not enforce these "secondary maximum contaminant levels" (SMCLs). They are established as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color, and odor. These contaminants are not considered to present a risk to human health.

**Manganese

The EPA recommends a limit of .05 mg/l for aesthetics such as taste, discoloration, and staining of laundry and plumbing. Manganese deposits in plumbing cause black sediment and blackish turbidity. Also, manganese bacteria are often present which can cause clogs in piping. Manganese is an essential trace element needed by our bodies (found in grains and teas).

**Filtration

Rainier View Water Company installed four new ATEC filtration systems throughout the Southwood system in 2017 designed to remove Iron and Manganese. The samples reported in this document were the last samples required (by DOH) before the filtration system went online. Since the systems went online we continue to monitor the finished water for Iron and Manganese on a bi-weekly basis and both Iron and Manganese have continually been below the MCL.

***Total Coliform

Total Coliform tests are the standard testing method for bacteria in drinking water required by the State of Washington Department of Health.

Coliform bacteria include a large group of many types of bacteria that occur throughout the environment. They are common in soil and surface water and may even occur on your skin. Most types of coliform bacteria are harmless to humans. Coliform bacteria are often referred to as "indicator organisms" because they indicate the potential presence of disease-causing bacteria in water. The presence of coliform bacteria in water does not guarantee that drinking the water will cause an illness, but repeat samples must be taken to ensure that other disease-causing pathogens are not present.

***Bacteriological Analysis

During Rainier View Water Company's routine bacteriological sampling of the system in December of 2017 there was a sample collected that tested coliform positive. All the repeat samples that were collected (according to the Total Coliform rule) came back negative for both Coliform and E.Coli. All routine samples since have been satisfactory.

Regarding “contaminants” in drinking water...

The sources of drinking 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 can pick up substances resulting from the presence of animals or from human activity.

Drinking 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 EPA’s Safe Drinking Water Hotline (1-800-426-4791).

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

Contaminants that may be present in source water include:



Inorganic contaminants:
such as salts and metals, which can occur naturally or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, and farming.



Organic chemical contaminants:
including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production. They can also come from gas stations, urban storm water runoff, and septic systems.



Microbial contaminants:
such as viruses, parasites, and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife.



Pesticides and herbicides:
which may come from various sources such as agriculture, urban storm water runoff, and residential uses.



Radioactive contaminants:
which can occur naturally or result from oil and gas production and mining activities.

How Do Leaks Affect Your Consumption & Billing?

How to Read Your Meter

With several different models of residential meter dials in our system, there are a couple of different ways to read them. All of our residential meters are cubic feet meters and we bill in 100 cubic foot increments.

Below are a couple of the most common views and how to read them.

Example 1

The black numbers at the right end are not used for reading as those are the 1’s and 10’s numeric positions. In this example, the read that would show on a statement is 656. If your prior read was 649, then your consumption would be 700 cu ft.



How Do Leaks Affect Your Consumption & Billing Continued...

View 1



View 2



View 3



View 4



Example 2

Some of our electronic meters have high resolution liquid crystal displays (HRLCD) those meters have 4 different views that change approximately every 15-20 seconds.

View 1: shows all of the digits available in the read

Digits with lines above and below are the billing portion of the read, i.e. since we bill in increments of 100 cf. – anything below that is not included in the billing.

View 2: is an abbreviated view of the read

Digits with lines above and below are the billing portion of the read, i.e. we bill in increments of 100 cf. – anything below that is not included in the billing.

View 3: shows meter model number

This particular meter is a 5/8", also known as .625" meter, so the model number is 25.

View 4: is the rate of flow in gallons per minute.

This particular meter does not have water running through it at this time, so it is not showing a rate of flow.

Example: If the meter showed .07, then .07 gallons per minute are flowing through the meter.

EXAMPLES FOR CALCULATING CONSUMPTION

GALLONS PER HOUR: .07 GPM X 60 MIN. = 4.20 GAL/H

GALLONS PER DAY: 4.20 GPH X 24 HRS = 100.80 GAL/DAY

GALLONS PER MO: 100.80 GPD X 30 DAYS = 3,024 GAL/MO

Developing your household summer conservation program can help you save money this summer. Having your home and irrigation system inspected for leaks from time to time and adding a rain sensor to your automatic sprinkler system would be good investments and aid in efficient use of water. We offer a complementary Home Water Conservation Kit to assist in leak detection (one per household, available at our office).

| Leak size | Gallons Per Day | Gallons Per Month | Cubic Feet Per Month | Usage Billing (in 100 cubic ft. increments) | |
|------------------------|-----------------|-------------------|----------------------|--|--------------------|
| | | | | Regular Rates | Conservation Rates |
| • 1/32" leak consumes: | 264 | 7,920 | 1,058 | \$10.60 | \$10.60 |
| • 1/16" leak consumes: | 943 | 28,300 | 3,783 | \$50.54 | \$68.60 |
| • 1/8" leak consumes: | 3,806 | 114,200 | 15,267 | \$328.84 | \$643.60 |
| • 1/4" leak consumes: | 15,226 | 456,800 | 61,070 | \$1,437.20 | \$2,933.60 |

This example is based on usage rates for a 5/8", 3/4", or .625" meter and does not include the base billing of \$14.90

These are just a few ways for you to conserve water. If you would like additional water use efficiency information, please visit www.rainierwater.com or <http://www.h2ouse.org>