2005 Annual Drinking Water Quality Report

FOREST VIEW ACRES WD
PWSID CO0121250

Esta es información importante. Si no la pueden leer, necesitan que alguien se la traduzca.

We are pleased to present to you this year's Annual Quality Water Report. Our constant goal is to provide you with a safe and dependable supply of drinking water.

All 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 the 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. For more information about contaminants and potential health effects, or to receive a copy of the U.S. Environmental Protection Agency (EPA) and the U.S. Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by cryptosporidium and microbiological contaminants, call the EPA *Safe Drinking Water Hotline* at 1-800-426-4791.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- ***Microbial contaminants,*** such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- ***Inorganic contaminants,*** such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- ***Pesticides and herbicides*** that may come from a variety of sources, such as agriculture, urban stormwater runoff, and residential uses.
- ***Organic chemical contaminants,*** including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and also may come from gas stations, urban stormwater runoff, and septic systems.
- ***Radioactive contaminants,*** that can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the Colorado Department of Public Health and Environment prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

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, and detected nitrate levels are above 5 ppm, you should ask advice from your health care provider.

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested. Flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline at 1-800-426-4791.

FOREST VIEW ACRES WD routinely monitors for constituents in your drinking water according to Federal and State laws. The following tables show the results of our monitoring for the period of January 1st to December 31st, 2004 unless otherwise noted. The State of Colorado requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. Some of our data, though representative, may be more than one year old. To help you understand the terms and abbreviations used in this report, we have provided the following definitions:

- *Parts per million (ppm) or Milligrams per liter (mg/l)* - one part per million corresponds to one minute in two years or a single penny in $10,000.
- *Parts per billion (ppb) or Micrograms per liter (µg/l)* - one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.
- *Parts per trillion (ppt) or Nanograms per liter (nanograms/l)* - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in $10,000,000,000.
- *Parts per quadrillion (ppq) or Picograms per liter (picograms/l)* - one part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in $10,000,000,000,000.
- *Picocuries per liter (pCi/L)* - Picocuries per liter is a measure of the radioactivity in water.
- *Nephelometric Turbidity Unit (NTU)* - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- *Action Level (AL)* - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- *Treatment Technique (TT)* - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.
- *Maximum Contaminant Level Goal (MCLG)* - The "Goal" is 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.
- *Maximum Contaminant Level (MCL)* - The "Maximum Allowed" is 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 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 a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

The state recently completed source water assessments for most community water systems. Please contact Dan Lafontane at 719-271-2763 for more information about the source water assessment for our drinking water system, any questions about the annual drinking water quality report, to learn more about our system or to attend scheduled public meetings. We want you, our valued customers, to be informed about your water utility, the services we provide and the quality water we deliver to you every day.

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The system's sources of water are listed below. The State is conducting source water assessments for all public water systems. To find out the status of the source water assessment for our system or to learn more about what you can do to help protect our drinking water sources, please call the contact listed at the beginning of the report.

Source Name	Source Type	Water Type
ARAPHAOE WELL 2ND BACKUP	Well	Groundwater
DAWSON WELL 1ST BACKUP	Well	Groundwater
Limbaugh Creek	Intake	Surfacewater

Table of Detected Contaminants

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Chemical Contaminants

Contaminant	Date	Exceedence	Level	Unit	MCLG/ MRDLG	MCL/ MRDL	Likely Source
Barium	10/28/2004	N	0.069	ppm	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride	10/28/2004	N	1.70	ppm	4	4	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Gross Alpha emitters	12/29/2004	N	3.30	pCi/l		15	Erosion of natural deposits
Gross Beta Particle Activity	12/29/2004	N	5.20	pCi/l	0	50	Decay of natural and man-made deposits
Combined radium	12/29/2004	N	1.90	pCi/l		5	Erosion of natural deposits
Radium-226	12/29/2004	N	0.50	pCi/L		5	Erosion of natural deposits
Radium-228	12/29/2004	N	1.40	pCi/L		5	Erosion of natural deposits
Sodium	10/28/2004	N	9.60	ppm		10000	
Solids, Total Dissolved (tds)	12/29/2004	N	180.00	ppm		500	
Nitrate	3/31/2004	N	0.068	ppm	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Contaminant	Date	Percentage of Samples Below the Treatment	Likely Source
Turbidity	1/1/2003	100.00%	Soil Runoff

Lead and Copper 90th Percentiles

Contaminant	Date	Level	Unit	MCLG	AL	Count
Copper	1/1/2002-12/31/2004	0.34	ppm	1.3	1.3	10
Lead	1/1/2002-12/31/2004	11.00	ppb	0	15	10

Questions have recently been raised as to the condition of FVAWD's infrastructure and its ability to provide clean, safe water in sufficient quantity to meet the resident's needs. The District's Technical Committee, which was formed this last winter, has prepared the following description of our water system, an account of recent work, and plans for future improvements.

The main components of the FVAWD are as follows: the Arapahoe aquifer deep well and its associated filters, the Dawson aquifer well (currently under construction), the 250,000 gallon storage tank, the surface water treatment plant, and the booster station. The District components contain some redundancy and some single points of failure. Please note that it is not unusual for a district of our size to have single points of failure. Many small districts have only a single source of water. Our district is unusual in that we have both ground water and surface water sources.

The District has just completed scheduled maintenance on the Arapahoe aquifer well per the 10-year interval specified by the District's engineering consultants - the Farnsworth Group. The well casing was acid treated and then scrubbed with a wire brush to remove rust and clean the screens. Both the pump and its motor were replaced. After this service, the well was test pumped at 115gpm (gallons per minute). A sustained rate of 75gpm will meet all the District's needs during peak summer months.

Water from the Arapahoe aquifer requires treatment to remove dissolved minerals (iron and manganese). The Arapahoe well's filter train is effective at complying with Colorado State water quality requirements. After running for four hours, the filters must be taken off line and back-flushed for one hour and thus we lose one hour of potential water flow. Therefore, the District currently has plans to add an additional filter train to the Arapahoe well that would allow one set of filters to be back flushed while the other set remains on line and delivering water into the system. This work was part of our grant request to Colorado Division of Local Affairs (DOLA).

This winter, the District completed redrilling its Dawson aquifer well. Although the projected pumping capacity will not be sufficient to supply the entire needs of the District during peak summer usage, it will be an excellent supplement to our other water sources. With a projected rate of 20-25gpm (same as the old Dawson well), and with the ability to pump at a higher rate for shorter periods, this well will provide some level of redundancy in the event of an unexpected failure of one of our other sources of water. The District is currently working with engineers from AmWest to design the appropriate pump, motor and controls for the Dawson aquifer well.

After the new Dawson aquifer well was drilled, the District was mandated by the State of Colorado to fill the old Dawson aquifer well with concrete. The failure of the original Dawson well can be attributed to its age (over 30 years) and the quality of the original materials used to construct the well. Its casing and screens were both made of cast iron. The replacement Dawson well and the Arapahoe well both have high quality stainless steel screens.

Because our wells are located in the lower eastern edge of the District, additional pumping is required to push the water into the upper areas of the District and into the storage tank. This is accomplished by our booster station. The booster station contains two pumps, one sized for the Arapahoe well and the other for the Dawson. Both pumps were completely rebuilt in July of 2002.

The District's surface water is drawn from South Monument Creek in Limbaugh Canyon using water rights established in 1868. A new direct filtration surface water treatment plant was installed in 1995 through a contract with Environmental Products Division Inc. The system has two sets of filters (3 first stage filters and 2 second stage filters) that use garnet sand media to filter out impurities and are designed to never need full media replacement. The media filters are periodically backwashed using storage tank water, which flushes the impurities into a backwash pond. This process cycle takes approximately 30 minutes per filter set. The plant then goes back on line, delivering fresh, filtered, and chlorinated drinking water into the system and the 250,000 gallon water storage tank above the plant. Because the stream intake is higher in altitude than the storage tank, this system needs little if any pumping energy, thereby saving electricity. The District's surface water plant was the first of its kind to be installed in Colorado.

A semi-automated control system was originally installed to allow the filters to be back-flushed based off of either differential pressure or run time, and to automatically control associated valves. This control system has proved to be troublesome, and is no longer operational. Replacement of the control system has been identified by the District as an important project and was also part of our grant request to DOLA. All other automated controls in the plant are operational.

The Colorado Department of Public Health and Environment commissioned an evaluation of the treatment plant in 2001 and identified a possible problem with too little chlorine detention time if the plant runs at its maximum design rate of 121gpm. Because the plant is never run at this rate, the District has *always* met the required detention time and has never been in violation of water quality standards. However, the potential for too little detention time exists, and the District contracted with the engineering firm ASCG Inc. to identify possible solutions. The solution chosen requires replacement of the pipe between the treatment plant and the storage tank with a very large diameter pipe that acts as a chlorine contact time chamber. This major project is also part of our grant request to DOLA.

Leakage in the District's piping ranges from 20% to 30% depending on overall usage, but calculates to a fairly constant 14gpm. These leakage losses are periodically evaluated to determine if action is justified. The points to be considered are as follows:

- A brand new water system might have leakage rates as low as 5%, but 10% is not uncommon. Reducing our leakage to these levels (7gpm) would be very expensive, at a minimum, hundreds of thousands of dollars.

- Leak detection utilizing industry standard methods (correlation and direct contact methods) was last conducted by a leak detection contractor in 2003. No leaks large enough to warrant repair were found. Due to the cost (approx. $70,000) neither we nor any of our neighboring districts own this type of equipment. Sophisticated leak detection using helium is available but is much more expensive to perform and requires disruption of service to large areas of the community.

The current recommendation of the Technical Committee is that the money needed for leak detection would be better spent by simply replacing sections of poor quality water main, and continue to repair leaks as discovered.

Preventative maintenance for critical equipment in the District is currently performed using schedules recommended by the equipment manufacturer in the operation and maintenance manuals for this equipment. The Technical Committee has been asked to prepare a master repair and maintenance schedule document for the entire system.

This document was prepared by the following members of the Technical Committee:

William Barton
Bob Goldman
Dan Lafontaine
Fred Lanyon
Kevin Lonergan