

# Mountain Water and Linda Vista Water Company

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*Providing affordable quality water  
and dependable services to the  
Missoula community.*

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## *Mountain Water and Linda Vista Water Company*



## *1999/2000 Annual Water Quality Report*

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Mountain Water Company (MWC) and Linda Vista Water Company (LVWC) are happy to provide you with this Annual Water Quality Report for the calendar year 1999. This report will provide you with information on the quality of drinking water in Missoula (based on water quality monitoring performed during 1999) and other valuable information.

The United States Environmental Protection Agency's 1988 designation of the Missoula Valley as a Sole Source Aquifer has helped define public policy and what Missoulians hold as critical to their health and welfare. MWC has been an active partner in the fight to protect this priceless resource – the Missoula aquifer. Several studies, partially or fully funded by MWC, have helped us put together a fairly substantial body of knowledge about the threats to the Missoula aquifer.

Based on these studies, our primary public education effort since 1990 has been the protection of the aquifer that provides drinking water to approximately 55,000 people. Amendments to the 1996 Safe Drinking Water Act correspond ideally with this ongoing education effort.

In addition to requiring this annual report, the amendments also require all states to perform source water assessment programs, or SWAP's. States must complete SWAP's by mid-2003. SWAP's must delineate the boundaries of the watersheds providing source water for public water systems like MWC and LVWC. They must also identify, to the extent practicable, the origins of regulated and certain unregulated contaminants in the delineated watersheds in order to determine the susceptibility of public water systems to these contaminants. With the knowledge from previous studies already in hand, MWC and LVWC will be working with the state to take this effort to the next level. We hope to complete the SWAP for Missoula in 2002. This report will then be made available to interested citizens for review.

MWC and LVWC would like to tell you more and can provide speakers for your service, or community group, or school meetings. Just give us a call. If you should have questions on any portion of the information in this report or need additional copies, please feel free to call Brad Hafar or Arvid Hiller at Mountain Water Company at 406-721-5570.

Our commitment to help protect this priceless resource remains as strong as ever. We need everyone's support and we appreciate the efforts of those who are working to that end.

Thank you!

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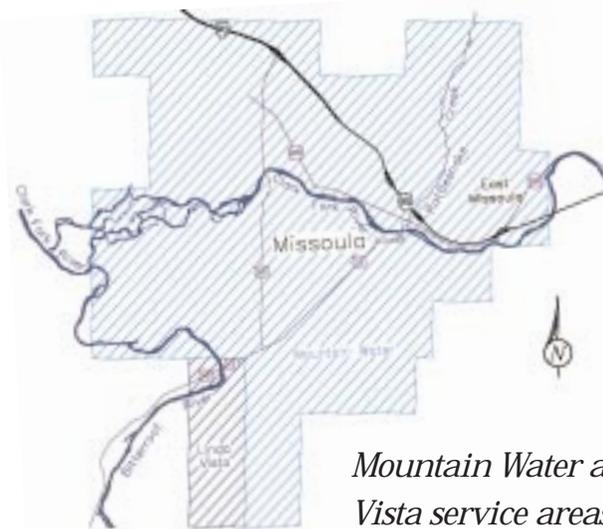
## **WHERE DOES YOUR WATER COME FROM?**

The Missoula Aquifer is currently the only active source of drinking water for Missoula Valley residents. This aquifer supplies 80% of the residents in Missoula County with drinking water. The remainder of County residents live outside the Missoula Valley and receive their drinking water from a variety of surface and ground water sources.

Hydrologists judge the Missoula aquifer to be one of the finest sources of ground water in America. This aquifer is the result of more than twenty million years of geological forces that laid down over a hundred feet of porous sand, gravel, and boulders, then capped it with a layer of surface soil.

This natural storage tank contains billions of gallons of fresh water that is constantly being replenished from the Clark Fork River. In many cases this remarkable resource is surprisingly close, ranging anywhere from 40 to 120 feet below ground level. This water serves all of MWC and LVWC customers from 35 wells in the Missoula Valley.

Rattlesnake Creek lies just north of Missoula and, under the guidance of the Montana Department of Environmental Quality, serves as an alternative source available for use in emergency situations. Rattlesnake Creek is a surface water supply originating in the Rattlesnake Wilderness Area and emptying into the Clark Fork River. For many decades this source was used as one of the primary sources of water supply to the Missoula community. Strict environmental conditions are maintained in the watershed to preserve the quality of this source for whenever it is needed.



*Mountain Water and Linda Vista service areas.*

## **WHAT KINDS OF CONTAMINANTS MIGHT BE FOUND IN DRINKING WATER?**

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. The tables in this report indicate which minerals and substances have been detected in the water provided by MWC and LVWC. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline at (800-426-4791).

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 healthcare providers. Environmental Protection Agency/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791). Ground water is the source of water for MWC and LVWC and is not considered vulnerable to contamination by *Cryptosporidium* or other similar protozoan pathogens.

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. In order to ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Contaminants that may be present in source (untreated) 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 that can be naturally occurring or result from urban storm 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 storm water runoff, and residential uses.

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

Radioactive contaminants, that can be naturally occurring or the result of oil and gas productions and mining activities.

The Maximum Contaminant Level Goal (MCLG) 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. The Maximum Contaminant Level (MCL) is the highest level of a contaminant allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Because there have been no confirmed findings of synthetic organic chemicals (SOC's) in MWC or LVWC wells, the Montana Department of Environmental Quality (DEQ) has allowed us to reduce the level of monitoring for these chemicals. This has resulted in a significant reduction in monitoring costs for MWC and LVWC. This monitoring waiver is reviewed every three years by DEQ.

The tables that follow on pages 4 and 5 represent the detected findings of monitoring all of our wells for 78 constituents regulated by primary and secondary drinking water standards, and 122 others that are unregulated. **Mountain Water Company is pleased to tell you there have been no contaminants detected that exceed any federal National Primary Drinking Water Regulations (health related) or secondary (aesthetic) drinking water standards.**



## 1999 MONITORING RESULTS

### PRIMARY STANDARDS - Health-related

INORGANIC MATERIALS	Federal MCL	MCLG	Units of Measure	Range (including highest value) for MWC	(a) Results For MWC	Date Of Last Sample*	Results For LINDA VISTA	Date Of Last Sample*	POTENTIAL SOURCES OF contamination
Arsenic	50	NS	ppb	<1 - 3	0.9	1997, 98, 99	1	1998	Erosion of natural deposits; historical mining and smelting
Barium	2	2	ppm	0.1 - 0.4	0.23	1997, 98, 99	0.4	1998	Erosion of natural deposits; discharge from drilling waste
Cadmium	5	5	ppb	<1 - 2	ND	1997, 98, 99	ND	1998	Erosion of natural deposits; corrosion of galvanized pipes; runoff from waste batteries and paint
Chromium	100	100	ppb	<2 - 9.6	3.0	1997, 98, 99	6.3	1998	Erosion of natural deposits; discharge from pulp mills
Copper	1.3##	1.3	ppm	ND - 0.93	0.64	1998	ND - 0.8 0.68 ##	1997	Corrosion of household plumbing systems; erosion of natural deposits
Fluoride	4 (2.0#)	4	ppm	<0.1 - 0.18	0.14	1997, 98, 99	0.2	1998	Erosion of natural deposits; discharge from fertilizer factories
Lead	15##	0	ppb	ND - 5.6	4.1	1998	ND	1997	Corrosion of household plumbing systems; erosion of natural deposits
Nitrate	10	10	ppm	0.41 - 2.1	0.82	1999	4	1999	Erosion of natural deposits; leaching from septic tanks, sewage; runoff from fertilizer use

### RADIONUCLIDES

Gross Alpha	15	0	pCi/L	<1 - 3.3	1.53	1998	2.7	1998	Erosion of natural deposits
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### ORGANIC CHEMICALS

Tetrachloroethylene (PCE)	5	0	ppb	ND - 0.96	<0.5	1999	ND	1999	Discharge from factories and dry cleaners
TTHM Monitoring (dist. system) (b)	100	NS	ppb	1 - 6	3.4	1999	NA	NA	By-product of drinking water disinfection

#### KEY TO ABBREVIATIONS AND FOOTNOTES

NS = No Standard  
 ND = Not Detected  
 NA = Not Applicable at this time or not required to monitor for  
 NTU = Nephelometric Turbidity Units (measure of suspended material in water).  
 ppb = parts per billion, or micrograms per liter (ug/L)  
 ppm = parts per million, or milligrams per liter (mg/L)  
 pCi/L = Picocuries per liter  
 # = A secondary (aesthetic) drinking water standard  
 ## = Action level measured at the consumer's tap, a primary drinking water standard.  
 Average for these chemicals represent the 90th percentile sample result from consumer taps. For Linda Vista, copper range is also shown, including highest value detected.  
 < = Less than (essentially equivalent to ND)

(a) = The result is weighted according to the individual contribution in pumping by each well to the total. (Active wells only)  
 (b) = Total Trihalomethanes (TTHM's) monitoring is conducted on a quarterly basis in the distribution system.  
 (c) = An Aggressiveness Index greater than 12 indicates the water is not aggressive (non-corrosive).  
 (d) = A positive number Langlier Index indicates the water is noncorrosive.

MAXIMUM CONTAMINANT LEVEL (MCL) - The highest level of a contaminant 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 a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

ACTION LEVEL - The concentration of a contaminant which, if exceeded, triggers a treatment or other requirement which a water system must follow.

PRIMARY DRINKING WATER STANDARD - Primary MCLs, specific treatment techniques adopted in lieu of primary MCLs, and monitoring and reporting requirements for MCLs that are specified in regulations.

**1999 MONITORING RESULTS**

*Additional water quality parameters detected which might be of interest to consumers.*

SECONDARY STANDARDS - Aesthetic, non-health standards

CHEMICAL PARAMETERS	Federal MCL	MCLG	Units of Measurement	Range for MWC	Results For MWC	Date of Last Sample*	LINDA VISTA	Date of Last Sample*
Chloride	500	NS	ppm	3-14	5.8	1997, 98, 99	23	1998
Sulfate	500	NS	ppm	9 - 20	16	1997, 98, 99	17	1998
Total Dissolved Solids (TDS)	1,000	NS	ppm	146 - 290	206	1997, 98, 99	250	1998
Zinc	5,000	NS	ppb	<10 - 20	10	1997, 98, 99	5	1998

PHYSICAL PARAMETERS

Color	15	NS	units	<3 - 5	<3	1997, 98, 99	<3	1998
Odor Threshold	3	NS	units	0 - 1	<1	1997, 98, 99	1	1998
pH	6.5 - 8.5	NS	units	7.1 - 8.1	7.8	1997, 98, 99	7.2	1998
Turbidity/ clarity	5.0	NS	NTU	<0.05 - 0.29	0.1	1997, 98, 99	0.2	1998

ADDITIONAL PARAMETERS - Unregulated

Aggressiveness (c)	NS	NS	units	11.4 - 12.4	12.1	1997, 98, 99	11.4	1998
Alkalinity (as CaCO <sub>3</sub> )	NS	NS	ppm	125 - 212	164	1997, 98, 99	130	1998
Bicarbonate	NS	NS	ppm	152 - 259	200	1997, 98, 99	159	1998
Calcium	NS	NS	ppm	33 - 59	45	1997, 98, 99	38	1998
Corrosivity (Langlier Index) (d)	NS	NS	units	(-0.5) - (+0.6)	+0.26	1997, 98, 99	-0.5	1998
Hardness (Ca CO <sub>3</sub> )	NS	NS	ppm	132 - 211	163	1997, 98, 99	174	1998
Hardness	NS	NS	grains	7.7 - 12.3	10	1997, 98, 99	10.2	1998
Magnesium	NS	NS	ppm	11 - 21	13.8	1997, 98, 99	17	1998
Potassium	NS	NS	ppm	1 - 2	1.7	1997, 98, 99	2.4	1998
Sodium	NS	NS	ppm	6 - 15	7.3	1997, 98, 99	16	1998

\* Regulations prescribe different monitoring frequencies for various contaminants because the concentrations of these contaminants do not change frequently. Therefore, we monitor for some contaminants less than once per year. Some of our data, though representative, are more than one year old. Some monitoring is rotated over a three-year basis so we can obtain some data every year and to even out the substantial cost of performing this monitoring.

This report is intended to provide information for all water users. If received by an absentee landlord, a business, or a school, please share the information with tenants, employees, or students. We will be happy to make additional copies of this report available. Complete records of water quality analyses are open for inspection by the public upon request.

## **RADON**

By the end of the year 2000, the United States Environmental Protection Agency (EPA) will have finalized a new regulation for radon in drinking water. It appears that this long awaited regulation will be unique to any other drinking water regulation in that it will require a strong indoor air program to be run by the State of Montana. This makes sense since the National Academy of Sciences (NAS) has determined that 98% of the health threat from radon occurs in air while no more than 2% comes from water.

Radon is a colorless, odorless gas that is found virtually everywhere on Earth. Radon is a common naturally-occurring element formed by the natural decay of uranium in the ground. As a gas, radon can seep into the home through cracks and holes in the foundation, becoming the largest source of indoor radon. Radon gas can also be released from drinking water while showering, washing clothes and during other household activities.

Radon levels in MWC wells range from 55 to 802 pCi /L (picocuries per liter of water) with an average of 315 pCi/L. The NAS estimates that this level equates to approximately 0.3 pCi/L of air which is 1/100th of the recommended indoor air standard and is less than 1/10th of the average outdoor level in the United States.

USEPA recommends that all homeowners test their homes for radon and take mitigation measures if indoor air exceeds 4 pCi/L. To obtain information on radon and how it may affect your home, call the State of Montana Radon Hotline at 1-800-546-0483.

## **CAPITAL IMPROVEMENTS**

1999 Actual	\$ 4,030,539
20 Year Total	\$ 30,147,914
20 Year Average	\$ 1,507,396
Based on 1999 Dollars, 20 year total	\$ 34,071,051
Based on 1999 Dollars, 20 Year Average	\$ 1,703,553

*In 2000, MWC has budgeted over \$2.3 million in water system improvements for Missoula.*

## **CAPITAL IMPROVEMENTS FOR 1999**

- **39th Street Project** – 7,500 feet of 16" main from High Park Dr. to Hwy. 93 S., to improve transmission capability and flow to the southwest part of the city.
- **North Russell Project** – Connecting the north side of the tracks to an area between the tracks and the Clark Fork River, improving transmission to the north side.
- **Extensive electrical improvements** at the Arthur and Maurice wells, and the upper Elk Ridge booster station which allows for emergency backup of water supply.
- **Pine Street Project** – Main replacement for the new bus terminal.
- **Madison Street Main Project** – Replacement of two 16" mains with one 24" main, to resolve flooding concerns.

## WHAT IS BACKFLOW AND WHY IS IT A DANGER?

*If you would like more information on backflow protection, please call Gary Mitchell at 721-5570.*

Mountain Water customers expect the water supplied to them to be safe and healthful. In pursuit of this goal, Mountain Water Company has expended considerable resources to protect the water from contamination or pollution as it flows through the distribution system. This can change once water enters private property. It is possible for contamination to occur when a water supply line is connected to equipment containing a non-potable (unfit to drink) substance. A water line may be connected to a tank filled with acid, or a hose may drop into a bucket of cleaning solution. These connections, called cross-

connections, whether permanent or temporary, would be dangerous if no protective measures were taken. Water distribution systems are designed with the intention of the water flowing in a certain direction - from the distribution system to the consumer. However, hydraulic conditions within the system may deviate from the "normal" conditions, causing the water to flow in the opposite direction in unprotected systems. This is called backflow.

Federal, state and local laws require water suppliers to protect their water systems from pollution or contamination due to backflow. It is very important that a strong cross-connection control program be maintained in order to protect the safety of the drinking water. To accomplish this goal, the water supplier, health department, plumbing authority, and the consumer must work together. The water supplier and health department may carry out cross-connection control



**FIG. 1: BAD. FIG. 2: GOOD.**

This "air gap" prevents the accidental reverse flow of whatever is in your pail. (Probably something you wouldn't want in your tap water.)

surveys, not only to determine what may be needed to protect the distribution system from contamination or pollution, but also to determine what may be needed to protect the consumer's internal water system.

The consumer, on the other hand, must be aware of the dangers cross-connections pose to them and their neighbors and how they can be prevented by the installation of an approved, properly installed backflow prevention assembly.

With cooperation, a comprehensive cross-connection control program will keep Missoula's water distribution system free from objectionable impurities and health hazards.

**For more information about Mountain Water Company or links to other water industry and water quality sites please review our web site at: [www.mtnwater.com](http://www.mtnwater.com).**

**In addition Mountain Water Company representatives are available to meet with or present to community service clubs or your neighborhood council, just call 721-5570 and ask for Doug Harrison.**

### **MOUNTAIN WATER COMPANY INTERACTIVE VOICE RESPONSE**

Misplaced your bill? Need to know your balance or due date? Want to check if your payment has been received? Don't have time to wait on hold?

Access your account 24-hours-a-day, 7-days-a-week using the new automated information service now available at Mountain Water Company. Simply have your 10-digit account number in hand and dial (406) 523-5065.

Choose from the available options to find the answers to these and other questions. And don't worry if you get lost, you can press zero during regular business hours to talk to one of our friendly Customer Service Representatives.

Mountain Water Company's web page is currently under construction. Please review this report at [www.mtnwater.com](http://www.mtnwater.com).