

What were the results from last year's testing?

The table in this report shows which compounds were detected in your drinking water. The following are a few terms which need to be defined to understand the table.

- ◆ **Maximum Contaminant Level Goal (MCLG):** the level of a contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety.
- ◆ **Maximum Contaminant Level (MCL):** the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as possible using the best available treatment technology.
- ◆ **Maximum Residual Disinfectant Level (MRDL):** The highest level of a disinfectant allowed in drinking water. The addition of a disinfectant is necessary for control of microbial contaminants.
- ◆ **Maximum Residual Disinfectant Level Goal (MRDLG):** The level of a drinking water disinfectant below which there is no known or expected risk to health.
- ◆ **ppb:** parts per billion, or micrograms per liter (ug/l). One part substance per billion parts of water.
- ◆ **ppm:** parts per million, or milligrams per liter (mg/l). One part substance per million parts of water.
- ◆ **pCi/l:** picocuries per liter. This is a measure of radioactivity.
- ◆ **Action Level (AL):** the concentration of a contaminant, which, if exceeded, triggers treatment or other actions by the water provider. This term is typically limited to discussions of lead and copper concentrations.
- ◆ **ND:** not detected by test method.
- ◆ **n/a:** not applicable.
- ◆ **<:** less than.

I. PRIMARY STANDARDS— POTENTIAL HEALTH RISKS	MCLG	MCL	*RED HILL* WATER RESULT	# OF SAMPLES > AL	RANGE OF DETECTIONS	VIOLATION?	TYPICAL SOURCE OF CONTAMINANT
MICROBIOLOGICAL ORGANISMS							
Total Coliform Bacteria ¹	0	Presence of coliform in monthly sample	0 ²		0%	No ²	Naturally present in the environment
Fecal Coliform Bacteria (as E. coli) ¹	0	³ See footnote	0 ²		0%	No ²	Human and animal fecal waste
RADIOACTIVE COMPOUNDS							
Radium-228 ⁴	0 pCi/l	5 pCi/l	0.8 pCi/l		0.3-0.8 pCi/l	No	Erosion of natural deposits
Gross Alpha ⁴	0 pCi/l	15 pCi/l	<0.5 pCi/l		<0.5 pCi/l	No	Decay of natural deposits
Gross Beta ^{4,5}	0 pCi/l	50 pCi/l	2.2 pCi/l		1.1-2.2 pCi/l	No	Erosion of natural deposits
INORGANIC COMPOUNDS							
Lead ⁶	0 ppb	15 ppb (AL)	<2 ppb ⁷	0	all < 2 ppb	No	Corrosion of household plumbing systems; erosion of natural deposits
Copper ⁶	1.3 ppm	1.3 ppm (AL)	0.32 ppm ⁷	0	<0.02-0.50 ppm	No	Corrosion of household plumbing systems; erosion of natural deposits
Nitrates	10 ppm	10 ppm	1.06 ppm		1.06 ppm	No	Runoff from fertilizer use & erosion of natural deposits; leaching from septic tanks; sewage
VOLATILE ORGANIC COMPOUNDS							
Xylenes, Total	10,000 ppb	10,000 ppb	15 ppb ⁸		1.9-15 ppb ⁸	No	Paints and other protective coatings; adhesives; petroleum products; petroleum refineries
Ethylbenzene	700 ppb	700 ppb	2.4 ppb ⁸		<0.5-2.4 ppb ⁸	No	Paints and other protective coatings; adhesives; petroleum products; petroleum refineries
DISINFECTANT & DISINFECTION BY-PRODUCT CONTAMINANTS							
Free Residual Chlorine	MRDL= 4 ppm	MRDLG= 4 ppm	0.88 ppm ⁹		0.30-1.20 ppm	No	Water additive to control microbes (disinfectant)
Total Trihalomethanes (TTHMs) ¹⁰	n/a	80 ppb	12.0 ppb		12.0 ppb	No	By-product from disinfection
Haloacetic Acids (HAAs) ¹⁰	n/a	60 ppb	9.3 ppb		9.3 ppb	No	By-product from disinfection
II. SECONDARY STANDARDS— AESTHETIC FACTORS							
pH	n/a	6.5-8.5	6.58-6.74 (quarterly testing, 2014)		6.58-6.74	No	Runoff/leaching of natural deposits
Chloride	n/a	250 ppm	5.6 ppm ¹¹		-	No	Runoff/leaching of natural deposits
Iron	n/a	0.3 ppm	<0.05 ppm ¹¹		-	No	Runoff/leaching of natural deposits
Manganese	n/a	0.05 ppm	<0.01 ppm ¹¹		-	No	Runoff/leaching of natural deposits
Sulfate	n/a	250 ppm	<5.0 ppm ¹¹		-	No	Runoff/leaching of natural deposits
Total Dissolved Solids	n/a	500 ppm	58 ppm ¹¹		-	No	Runoff/leaching of natural deposits
III. OTHER PARAMETERS OF INTEREST							
Alkalinity	n/a	n/a	18.5 ppm ¹¹		-	n/a	Runoff/leaching of limestone minerals from soil and rock
Conductivity	n/a	n/a	66 micromhos/cm ¹¹		-	n/a	Runoff/leaching of natural deposits
Hardness	n/a	n/a	9 ppm ¹¹		-	n/a	Runoff/leaching of limestone minerals from soil and rock
Sodium	n/a	n/a	7.32 ppm ¹¹		-	n/a	Runoff/leaching of natural deposits

¹ Unit of Measurement for total and fecal coliform bacteria is the presence or absence of bacteria in a 100 ml sample.

² No monthly sample collected within the distribution system showed the presence of coliform bacteria.

³ Fecal coliform MCL: A routine sample and a repeat sample are total coliform positive, and at least one is also fecal coliform positive.

⁴ Sampled in 2010; not required again by the VDH until 2019.

⁵ EPA considers 50 pCi/l to be the level of concern for beta particles.

⁶ Sampled in September, 2012 from four residences and the elementary school. Scheduled to be sampled again in 2015.

⁷ The value reported is the 90th percentile for all data collected (5 samples).

⁸ Volatile organic compounds (VOCs) were sampled on June 17 and December 29, 2014, and tested by the State Laboratory. These VOCs are apparently being leached from the inner coating of the water storage tank.

⁹ System-wide average.

¹⁰ TTHMs and HAAs were sampled in August, 2012 at the connection most distant from the well house; this is assumed to be the point of highest concentration. Scheduled to be sampled again in 2015.

¹¹ Sampled in September, 2012. Scheduled to be sampled again in 2015.

What do all these numbers mean?

This information shows that your drinking water **met and exceeded all regulatory requirements during 2014**. We are fortunate to have a contaminant-free and reliable source for your drinking water needs, and a well-operated and maintained treatment facility. Additional information is provided below that will give you more detail on each potentially harmful contaminant or compound detected in your drinking water.

What are the potential health risks associated with these contaminants?

- **Total and Fecal Coliform Bacteria.** Not detected in 2014. Coliforms are a large group of bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present. Fecal coliform bacteria, in particular, indicate a likely contamination from human or animal wastes. These microorganisms can result in short-term effects such as nausea, headache, cramps and diarrhea, and they pose a special health risk for infants, young children, the aged, and those with severely compromised immune systems.
- **Combined Radium, Gross Alpha and Gross Beta.** These are naturally-occurring forms of radiation, resulting from certain minerals that are radioactive. When these minerals are eroded into the source water, radiation in the water may result. Some people who drink water containing radium, or alpha or beta emitters, over many years may have an increased risk of getting cancer.
- **Lead and Copper.** The 1994 USEPA Lead and Copper Rule mandates a household testing program for these metals, and the values reported in the chart above are from samples that were collected from select residences and the elementary school. Infants and children who drink water containing lead in excess of the Action Level could experience delays in physical or mental development. Children could show deficits in attention span and learning abilities. Adults who drink this water over many years could possibly develop kidney problems or high blood pressure. **See the box for additional information on lead.** Copper is an essential nutrient, but some who drink water containing copper in excess of the Action Level could experience gastrointestinal distress in a relatively short period of time. Some who drink this water over many years could develop kidney or liver damage. Individuals with Wilson's disease should consult their doctor.
- **Nitrate** is a form of nitrogen found primarily in fertilizers, sewage, and runoff from natural deposits. Infants below the age of six months who drink water containing nitrate in excess of the MCL could develop "blue baby syndrome" in which there is a bluish coloration of the skin and shortness of breath. The infant can become seriously ill and, if untreated, may die.
- **Xylenes and Ethylbenzene** are two compounds in a large class of chemicals referred to as volatile organic compounds, or VOCs. These compounds, which include both naturally-occurring and man-made chemicals, are numerous in type and are present throughout the environment. The majority of the biologically-derived VOCs are generated in vegetation. They are a component of fuels and other petroleum products. A large majority of the numerous synthetic VOCs are solvents used in paints and other protective coatings, adhesives, thinners, cleaning agents, degreasers, refrigerants, pharmaceuticals, cosmetics and other personal care items, and in many other industrial and commercial products. Some people who drink water containing xylenes in excess of the MCL over many years may experience damage to their nervous system. Some people who drink water containing ethylbenzene in excess of the MCL over many years may experience problems with their liver or kidneys.
- **Chlorine** is added at the treatment station to inactivate disease-causing microbes. Some people who use water containing chlorine in excess of the MRDL could experience irritation of the eyes, nose and skin. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
- **Trihalomethanes and Haloacetic Acids** are compounds formed by the interaction of chlorine with naturally-occurring organic matter, and they are sometimes referred to as disinfection by-products. Chlorine is added at the treatment station to inactivate disease-causing microbes, and organic matter is naturally present in the groundwater from leaves and decaying plants, although to a much lesser extent than in surface water supplies (reservoirs and streams). Some people who drink water containing these compounds in excess of the MCL over many years may experience problems with their liver, kidneys or central nervous system, and may have an increased risk of getting cancer.