Duchesne Valley Water Treatment Plant

CENTRAL UTAH WATER CONSERVANCY DISTRICT

Water Quality Report

-Consumer Confidence Report for 2016

Who are we?

Central Utah Water Conservancy District's (the District) primary responsibility is to deliver clean, useable water to our customers by managing the District's vast network of water facilities. Every day we work to maintain and improve these facilities. We monitor flows and water quality and make decisions on how best to serve current customers and secure water for future generations. The District is proud of its role in managing the water in its jurisdiction and using technology, intelligence and hard work to ensure the best possible balance for man and nature.

Duchesne Valley Water Treatment Plant

Brandon and Danny calibrate particle counters.

The Duchesne Valley Water Treatment Plant (DVWTP) is owned and operated by the District. It is located on the east side of Starvation Reservoir. The plant is a regional facility which serves Duchesne County. The plant has a capacity of 8 Millions Gallon Per Day (MGD).

As a wholesaler, DVWTP delivers water to you through Duchesne City, East Duchesne Culinary Water Improvement District, Johnson Water Improvement District, and Myton City.

What Do We Do Everyday?

The story begins with water being collected in the Western Uintah mountains. It starts with snow being collected in these mountains. As it melts it is collected in Current Creek Reservoir and Upper Stillwater Reservoir. We then take it to on a journey through pipes and tunnels into Strawberry Reservoir. That water is released out of the Solider Creek Dam, into the Strawberry River where it ultimately ends up on Starvation Reservoir. But that is not the only source of water for Starvation Reservoir, the Knight Diversion takes water on the Duchesne River and send it into Starvation Reservoir. We use Starvation Reservoir and a big huge pre-sedimentation basin. That means that all the spring runoff dirty water comes into the reservoir and the dirt particle settle to the bottom of the reservoir instead of coming into the treatment plant.

Chuck, Brandon and Dave working on the ozone generators.

Because the plant is on the bluff above the reservoir, we have to pump the water from the reservoir up to the treatment plant. The water comes into the plant and we immediately start chemical addition. We add chemicals because we have to do in a few hours what nature does in years.

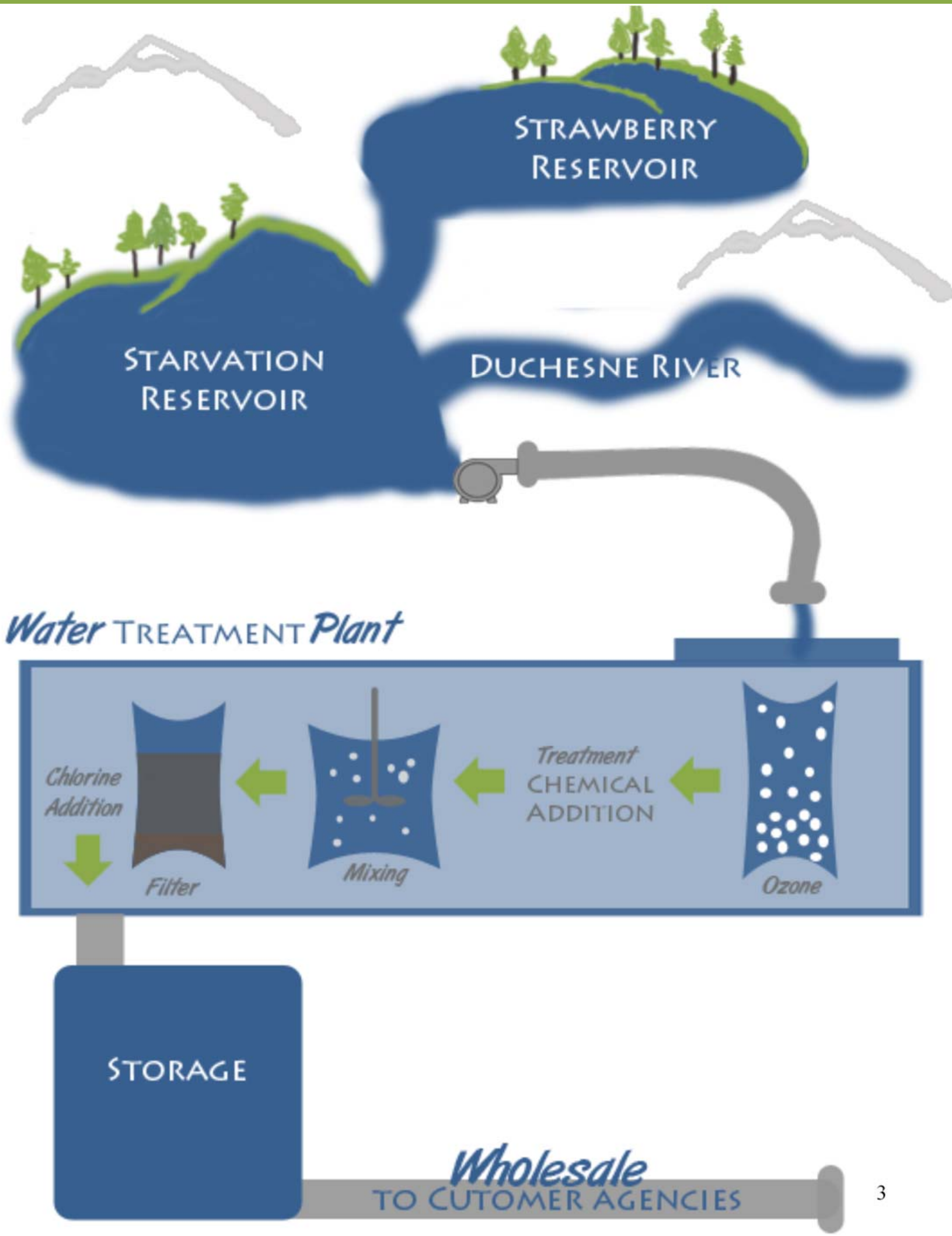
Have you ever tasted water that had a funny smell? Well we try to make certain that does not happen at the DVWTP. We add ozone to our water when it first comes into the plant. The ***ozonation*** process takes the smelly organic chemicals and breaks them apart so there is no more smell.

We add alum and a positive charged (cationic) polymer. This helps to the particles in the water to be attracted to each other. We try to take those microscopic particles and make them macroscopic (visible to the eye). These bigger particles we call ***floc***. In order to increase the likelihood of the floc particles to collide, we gently mix the water. This mixing process is called ***flocculation***.

The water at the top of these basins has the least amount of floc. We take that water and send it to the filters. The ***filtration*** process removes the tiny particles left from the water.

The final step, is to ***disinfect*** the water. We do this by adding chlorine (Cl2) gas. This inactivates the microorganisms, such as bacteria, that might have made it through the filter. After all of this, it is time to put it into pipes and sell it to our customers who bring it to your house.

Where does my Water come from?



WATERSHED *Protection*

A watershed is the area of land where all of the water that is under it or drains off of it goes into the same place. Watersheds come in all shapes and sizes. They cross county, state, and national boundaries. In the continental US, there are 2,110 watersheds; including Hawaii Alaska, and Puerto Rico, there are 2,267 watersheds.

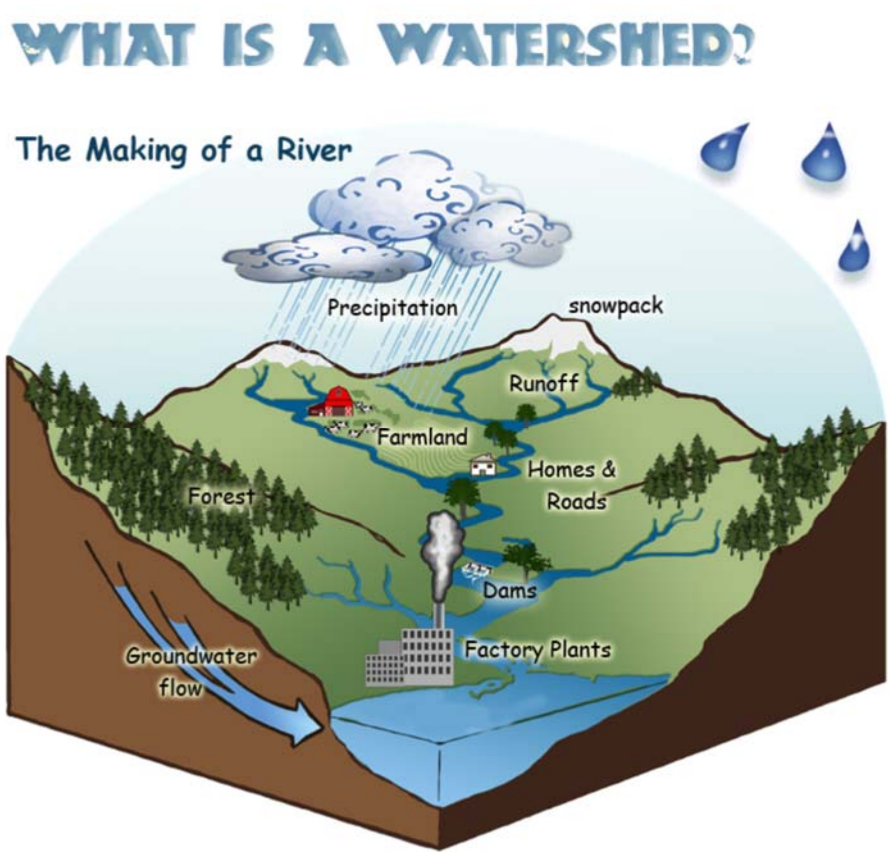
> "THAT AREA OF LAND, A BOUNDED HYDROLOGIC SYSTEM, WITHIN WHICH ALL LIVING THINGS ARE INEXTRICABLY LINKED BY THEIR COMMON WATER COURSE AND WHERE, AS HUMANS SETTLED, SIMPLE LOGIC DEMANDED THAT THEY BECOME PART OF A COMMUNITY."
>
> -JOHN WESLEY POWELL
> SCIENTIST GEOGRAPHER

As you can see from this illustration each drop of water may see many different parts of a watershed. It is our duty to make certain that these drops of water remain as clean as possible.

The DVWTP partners with local and state agencies to help protect the quality of the water from the time it lands on the earth as rain or snow. The local governments have the ability to limit what happens in our watershed. We rely upon them to be an important partner in keeping the water clean.

We all live in a watershed— the area that drains to a common waterway, such as a stream, lake, estuary, wetland, aquifer, or even the ocean — and our individual actions can directly affect it.

Working together using a watershed approach will help protect our local water quality. Even little things such as; camping, hiking, boating, and fishing can impact your watershed.



Source Water *Protection*

In nature, water travels many miles before it comes into the treatment plant. It travels through forests, streams, reservoirs, farms and even mining and industrial areas. All of these can add contaminants to the water. Because of this, surface water sources are vulnerable to contamination.

Drinking Water Source Protection Plans identify the potential risk of contaminating a drinking water source. It also helps to identify ways of lowering the risks and protecting the source water.

Drinking water sources are valuable community assets. Protecting drinking water sources protects the community that uses the water. Restricting what happens in a watershed reduces the risk of potentially polluting activities. Source Protection Plans anticipate potential problems and establish a process for dealing with them.

City, town and county governments have the authority to control the activities of potential contamination sources. The DVWTP partners with local governments to help maintain the pristine quality of the water in the Duchesne area.

The DVWTP has developed Source Water Protection Plans for Starvation Reservoir. This plan is used by local government agencies to help determine potential contamination sources. The Protections Plans are available for review. It is available on our website at:

www.cuwcd.com/drinkingwater/Duchesne.htm

If we can answer any questions about the Plans, please contact our Water Quality Director:

Michael J. Ray

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Exceeding the Requirements

The DVWTP is regulated by the Environmental Protection Agency (EPA) and the Utah Division of Drinking Water. These rules set water quality standards which ensure public health. As a result, we sample our water for a variety impurities. We report the results of these laboratory tests to you in our Consumer Confidence Report .

DVWTP takes these rules seriously. We want to deliver you the safest water possible.

In order to help us be the best, we have joined with other like-minded water plants across Utah and the Nation to set stricter goals than the EPA requires.

On February 12, 1997 the DVWTP joined The Partnership for Safe Water. The goal of the Partnership is to provide a new measure of safety to millions of Americans by setting water quality goals which are stricter than the current EPA regulation.

The way we meet these more difficult standards, is by optimizing treatment plant performance and distribution system operation. The result is the production of superior quality water for you and your family.

More than 200 utilities and 400 plants who have joined Partnership consistently provide the highest quality and safest drinking water possible to 85 million people…and counting.

We also support local groups who want to provide the best water possible. In 1998, the Eastern Water Quality Alliance was formed. DVWTP was a founding member of this Alliance. The Alliance is made up of the local water treatment plants, the Division of Drinking Water and the Utah Public Health Laboratory. This group meets routinely to discuss local water quality issues, upcoming regulations, and challenges faced by rural water treatment plants.

WATER QUALITY *Data*

	UNITS	2016 AVERAGE	2016 RANGE	MONITORING CRITERIA: MCL	MONITORING CRITERIA: MCLG	LIKELY SOURCE(S) / COMENTS Unless noted otherwise, the data presented in this table are from testing conducted in 2016
MICROBIOLOGICAL						
Total Coliform	% positive per month		0	5%	0	Coliforms are naturally present in the environment; as well as feces; fecal coliforms and E. coli only come from human and animal fecal waste.
Escherichia coli	% positive per month		0	tt	tt	Fecal coliforms and E. coli only come from human and animal fecal waste.
Turbidity (surface water)	NTU	0.029	0.020-0.053	95% <0.3	na	Naturally occurring and soil runoff
Lowest Monthly % Meeting TT	%	100% (Treatment Technique requirement applies only to treated surface water sources)				
PESTICIDES/PCBs/SOCs						
Di(2-ethlyhexyl) adiptate	µg/L	ND	ND-0.67	6.0	0	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits 2011 data
All other Parameters	µg/L	ND	ND	Varies	Varies	Various sources 2014 data
DISINFECTANTS/DISINFECTION BY-PRODUCTS						
Chlorine	mg/L	1.28	1.05-1.68	4	NE	Drinking water disinfectant
Total THMs	µg/L	14.0	5.4-27.4	80	NE	By-product of drinking water disinfection.
HAA5s	µg/L	9.4	2.4-17.3	60	NE	By-product of drinking water disinfection.
Bromate	mg/L	ND	ND	0.01	0	By-product of drinking water disinfection.
ORGANIC MATERIAL						
Total Organic Carbon	mg/L	2.08	1.70-2.84	TT	NE	Naturally occurring
UV-254	1/cm	0.022	0.013-0.029	UR	NE	Naturally occurring. This is a measure of UV-absorbing organic compounds.

WATER QUALITY *Data*

				MONITORING CRITERIA		LIKELY SOURCE(S) / COMENTS Unless noted otherwise, the data presented in this table are from testing conducted in 2016
	UNITS	2016 AVERAGE	2016 RANGE	MCL	MCLG	
VOC						
Chloroform	µg/L	7.6	1.9-16.1	NE	70	Byproduct of drinking water disinfection
Bromodichloromethane	µg/L	4.3	2.1-7.7	NE	0	Byproduct of drinking water disinfection
All other Parameters	µg/L	ND	ND	Varies	Varies	Various sources 2015 data
PRIMARY INORGANICS *Monitoring required at least every 9 years for surface water and every 3 years for groundwater.*						
Arsenic	µg/L	3.5	ND-3.5	10.0	0	Erosion of natural deposits; runoff from orchards, runoff from glass and electronics production wastes. 2011 data
Barium	µg/L	nd	ND-80	2000	2000	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits 2004 data
Chromium (total)	µg/L	2.4	ND-7.9	100	100	Discharge from steel and pulp mills; erosion of natural deposits 2011 data
Copper	µg/L	6.7	ND-15	NE	NE	Erosion of natural deposits. 2011 data
Fluoride	mg/L	nd	ND-0.242	4	4	Erosion of natural deposits; discharge from fertilizer and aluminum factories 2004 data
Nitrate	µg/L	nd	ND-0.3	10	10	Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits
Selenium	µg/L	0.8	ND-3.5	50	50	Discharge from petroleum refineries; erosion of natural deposits; discharge from mines 2010 data
RADIOLOGICAL						
Alpha, gross	pCi/L	1.4	nd-1.4	15	0	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation. 2011 data
Radium 228	pCi/L	0.76	nd-1.28	5	0	Erosion of natural deposits. 2011 data

WATER QUALITY *Data*

				MONITORING CRITERIA		LIKELY SOURCE(S) / COMENTS Unless noted otherwise, the data presented in this table are from testing conducted in 2016
	UNITS	2016 AVERAGE	2016 RANGE	MCL	MCLG	
SECONDARY INORGANICS *Aesthetic standards*						
Color	CU	ND	ND	SS=15	NE	Decaying, naturally-occurring organic material and suspended particles
Iron	mg/L	0.13	ND-21.6	SS=30	NE	Erosion of natural deposits 1995 data
Odor	TON	0.8	ND-1.4	SS=3	NE	Various sources
pH		8.10	7.36-8.44	SS=6.5-	NE	Naturally occurring
Sulfate	mg/L	88	88	SS=250	NE	Erosion of natural deposits. 2014 data
Total Dissolved Solids	mg/L	411	384-432	SS=500	NE	Erosion of natural deposits
UNREGULATED PARAMETERS (Monitoring not required)						
Alkalinity	mg/L	200	180-216	UR	NE	Naturally occurring.
Bromide	µg/L	0.021	ND-0.040	UR	NE	Naturally occurring.
Conductance	µmhos/	598	563-629	UR	NE	Naturally occurring.
Calcium Hardness	mg/L	188	152-212	UR	NE	Naturally occurring.
	grains/ gallon	11.0	8.9-12.6	UR	NE	Naturally occurring.

Random Fact!

IF YOU LINED UP PLASTIC MILK JUGS WITH THE AMOUNT OF WATER WE CAN PRODUCE IN ONE DAY:

(8 Million Gallons)

IT WOULD FORM A SOLID LINE OF MILK JUGS FROM

Orem to Vernal

WATER QUALITY *Data* ACRONYMS

- **1/cm:** Reciprocal centimeters
- **AL (Action Level):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements a water system must follow.
- **CFU/100 mL:** Colony-forming units per 100 milliliters.
- **CU:** Color unit
- **EPA:** Environmental Protection Agency
- **FED:** Food and Drug Administration
- **HAA5s:** Haloacetic acids.
- **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.
- **MRDL (Maximum Residual Disinfectant Level):** The maximum residual allowable for chlorine added to drinking water for disinfection purposes.
- **mg/L:** milligrams per liter, or parts per million (like 1 minute in 2 years)
- **MPN/mL:** Most probable number per milliliter
- **NA:** Not applicable.
- **ND:** None detected.
- **NE:** None established.
- **ng/L:** Nanograms per liter, or parts per trillion (like 1 minute in 2 million years).
- **NTU (Nephelometric Turbidity Units):** A measure of water clarity.
- **pCI/L:** Picocuries per liter.
- **Range:** Values shown are a range of measured values. Single values indicate a single measured value.
- **TT (Treatment Technique):** A required treatment process intended to reduce the level of a contaminant in drinking water.
- **TTHMs:** Total trihalomethanes.
- **TDS:** Total dissolved solids.
- **TOC:** Total organic carbon.
- **TON:** Threshold odor number.
- **TSS:** Total suspended solids.
- **µmhos/cm:** Microhms per centimeter.
- **µg/L:** Micrograms per liter, or parts per billion (like 1 minute in 2,000 years).
- **UR:** Unregulated at this time.
- **UV-245:** Ultraviolet light measured at a wavelength of 254 1/cm .

A Message from the *EPA*

In order to ensure that tap water is safe to drink, EPA prescribes regulations which 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.

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 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 may 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, which 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, which 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 by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems; and

- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 and Center for Disease Control (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 at 800.426.4791

Still have questions?

Questions?

Contact us

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Other resources

Division of Drinking Water
195 North 1950 West
Salt Lake City, Utah 84114
801-536-4200

Safe Drinking Water Hotline
1-800-426-4791
ww.water.epa.gov