RAPID CITY WATER DIVISION

ANNUAL DRINKING WATER QUALITY REPORT

January 1, 2016 – December 31, 2016

Following is the Rapid City 2016 Water Quality Report. This report is designed to inform you about the quality of the water that the Rapid City Water Division delivers to you every day. Our constant goal is to provide you with a water supply that is not only safe and dependable but also refreshing. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. Our dedicated staff is committed to this goal.

The public water supply delivered to your tap is absolutely safe. Rapid City's water quality is in complete compliance with all state and federal drinking water regulations.

Rapid City uses a number of sources of water for our water system. Included in our sources are two infiltration galleries located along the Rapid Creek alluvium. These are the Jackson Springs Gallery and Girl Scouts Gallery. We utilize eight wells that draw water from the Minnelusa and Madison Aquifers. We also utilize surface water from Rapid Creek, which originates in the Rapid Creek drainage area west of Rapid City. This source includes the Deerfield and Pactola Reservoirs. These reservoirs supply water to the Mt. View and Jackson Springs surface water treatment plants for municipal use as well as downstream irrigation use. The Deerfield and Pactola dams are operated and maintained by the City of Rapid City Water Division under a contract with the US Bureau of Reclamation.

The state has performed an assessment of our source water and they have determined that the relative susceptibility rating for the Rapid City public water supply system is medium. Information on this assessment can be obtained by calling the State Department of Environment and Natural Resources at 605-773-3296 or by visiting the following web site: http://denr.sd.gov/des/gw/Sourcewater/Source_Water_Protection.aspx

All sources of drinking water are subject to potential contamination by substances that are naturally occurring or man-made. As water travels over the land or underground, it can pick up substances or contaminants such as microbes, inorganic, organic, and radioactive substances. 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. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's 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 health care providers. EPA and Center for Disease Control guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline 800-426-4791. Please call our office if you have questions.

If you have any questions about this report or concerns about your water quality, please contact Jeff Crockett, Water Superintendent or Tim Weber, Water Production Supervisor at 605-394-4162. We want our customers to be informed about this valuable resource and our operation. If you wish to attend any of the regularly scheduled Rapid City Council meetings, these meetings are held on the first and third Mondays of each month at 6:30 p.m. in the Council Chambers at the Rapid City/School Administration Building located at 300 Sixth Street. If you would like to attend the Council Public Works meetings, these meetings are held on Tuesday afternoons prior to the Monday Council meetings. The Council Public Works meetings are also held in the Council Chambers at 12:30 p.m.

We at the Rapid City Water Division are dedicated in providing the safest, best tasting water to all of our customers. Our staff is professional and committed to this goal. Our employees are certified by the State of South Dakota in the water treatment and water distribution fields. We ask that all our customers assist us in protecting our water sources, which are the heart of our community, our way of life and our children's future. Thank you for the opportunity to present this year's report.

Jeff Crockett

Water Superintendent
Rapid City Water Division of Public Works

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RAPID CITY WATER DIVISION
300 Sixth Street
Rapid City, SD 57701

2016

WATER DIVISION

Annual Drinking Water Quality Report

January 1, 2016 – December 31, 2016



Northridge Reservoir

Our staff at the Water Division routinely monitors for substances in your drinking water according to Federal and State regulations. Table I is a summary of the substances that we are required to monitor for. Table II lists the detected substances of our monitoring for the period of 2012-2016. We are serious about testing in order to maintain compliance. Laboratory costs for our drinking water quality monitoring program for 2016 were $34,220.

MCLs are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink two liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

Nitrates: As a precaution we always notify physicians and health care providers in this area if there is ever a higher than normal level of nitrates in the water supply.

Lead: Lead in drinking water is rarely the sole cause of lead poisoning, but it can add to a person's total lead exposure. All potential sources of lead in the household should be identified and removed, replaced or reduced. Recently there has been considerable news media coverage concerning the concentration of lead in public water supplies. Lower PH or "acidic" waters, ranging from a PH of 5 – 7, if not treated at the source, will cause lead to leach out of older lead fixtures and plumbing. The PH of Rapid City's source water ranges from a PH of 7.5 – 8.0 on the PH scale. Our water is considered moderately hard or "basic" on the PH scale and therefore is non-corrosive when coming into contact with metals such as lead. In fact, excavations of metal service lines within the City, when cut and exposed, have shown a build-up of calcium inside the pipe. In August of 2015, 30 lead samples were taken throughout town. The highest level detected for this round of sampling was 3 Ppb (part per billion) of lead. USEPA has set the maximum contaminant level for lead at 15 Ppb.

Arsenic: While our drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

Radiological: Surface water samples are sampled every 9 years while groundwater samples are sampled every 6 years. Samples were taken in 2012 with the next samples due in 2018.

Waivers: Rapid City was granted an asbestos waiver from the South Dakota Department of Environment and Natural Resources in December 2010. The waiver was granted because Rapid City water is non-corrosive and will not leach asbestos materials from the water distribution system. The asbestos waiver expires in 2019. A waiver for inorganics was also issued in December of 2010 through 2019 with one sampling required in 2012. Rapid City has been allowed to go to reduced monitoring for lead and copper. Sampling (30 representative samples) will be conducted every three years. Sampling for lead and copper was completed in 2015. The next sampling will take place in 2018.

The City of Rapid City public water system participated in EPA's Unregulated Contaminants Monitoring Rule III (UCMR3) program in 2016. A copy of these results may be obtained by calling our office at 394-4162.

TABLE I – REQUIRED MONITORING

Total Coliform – 80 samples are taken per month at designated sites throughout the distribution system. The State of South Dakota and the US Environmental Protection Agency (EPA) set drinking water standards and have determined that the presence of total coliforms is a possible health concern. Total coliforms are common in the environment and are generally not harmful themselves. The presence of total coliform bacteria in drinking water is an indicator that the water may be contaminated with disease-causing bacteria.

Inorganic Chemicals – All ground water sources were granted a waiver through 2019. These chemicals include Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Mercury, Nickel, Selenium and Thallium. Some sources of contamination include discharge from petroleum refineries, discharge of drilling wastes, discharge from metal refineries, corrosion of galvanized pipes, discharge from mines and erosion of natural deposits. All sources were sampled in year 2012.

Asbestos – One representative sample taken from the distribution system every nine years. Likely source of contamination is the decay of asbestos cement water mains and erosion of natural deposits. Rapid City has been granted a waiver for this constituent because our water is non-corrosive. This waiver is good through December of 2019.

Nitrite – One sample taken at each source every three years. Samples were taken in 2015. Sources of contamination include runoff from fertilizer use, leaching from septic tanks, sewage and erosion of natural deposits.

Nitrate – Samples taken annually on groundwater sources and every quarter on surface water sources. Sources of contamination include runoff from fertilizer use, leaching from septic tanks, sewage and erosion of natural deposits.

Radiological – Sources were sampled in 2015. The next sampling will take place in 2018. Likely source of contamination is decay and erosion of natural deposits.

Synthetic Organic Contaminants (SOCs) including Pesticides and Herbicides – All sources were sampled in 2015. All sources, groundwater and surface water, will be sampled tri-annually in the future. Sources of contamination include discharge from chemical factories, leaching of certain soils, leaching from insecticides and runoff from herbicides.

Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5) – Samples are taken quarterly for ground and surface water. Source of contamination is the by-product of drinking water chlorination.

Turbidity – Samples are manually taken every two hours when the Surface Water Treatment Plants are using water from Rapid Creek. Maximum Contaminant Level (MCL) = 95% of the samples taken each month must be less than or equal to .15 NTU for the Mt. View plant and .3 NTU for the Jackson Springs plant. Turbidity is continuously monitored with instrumentation. Contamination source is soil runoff.

Volatile Organic Contaminants (VOCs) including Regulated and Unregulated – Samples are taken at each source every three years. Samples were last taken in 2015. Likely sources of contamination include discharge from factories, leaching from gas storage tanks and landfills, discharge from chemical plants, discharge from industrial plants and petroleum refineries.

Lead and Copper – 30 representative samples are taken every three years. Rapid City was allowed to go to reduced monitoring in October of 1999 because our water is non-corrosive. Sources of contamination include corrosion of household plumbing systems and erosion of natural deposits. The last sampling was completed in August of 2015.

TABLE II – TEST RESULTS: DETECTED SUBSTANCES FOR RAPID CITY'S WATER QUALITY REPORT

Substance	Violation Y/N	Unit	MCL	MCLG	Highest Level Detected	Range	Major Sources
Microbiological Regulated							
1. Jackson Springs Turbidity* 9/4/16	N	NTU	TT	N/A	0.12	100% samples at or below 0.12	Soil runoff. Turbidity is a measurement of the clarity of the water.
2. Total Coliform Bacteria 2016	N	pspm	5%	0	0%	Positive Samples	Naturally present in the environment.
Inorganic Regulated							
3. Fluoride 5/31/16	N	Ppm	4	4	0.81	0.59-0.81	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
4. Arsenic -Jackson Springs 2016	N	Ppb	10	N/A	<.005	ND – <.005	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes.
5. Barium 2/23/16	N	Ppm	2	2	.097	ND – .097	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
6. Lead * 8/13/15	N	Ppb	AL=15	0	3	0 – 3	Corrosion of household plumbing systems; erosion of natural deposits.
7. Copper* 8/21/15	N	Ppm	AL=1.3	0	0.30	0 – .30	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
8. Nitrate (as Nitrogen) 7/7/16	N	Ppm	10	10	0.827	0-0.827	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
9. Mercury 2/23/16	N	Ppb	2	2	<.0002	<.0002	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland.
Disinfection Byproducts							
10. Total Trihalomethanes 2016	N	Ppb	80	0	21.06	8.3-21.06	By-product of drinking water chlorination.
11. Haloacetic Acids	N	Ppb	60	0	<15	<15	By-product of drinking water chlorination.
12. Total Organic Carbon 9/13/16 (Jackson Springs)		Ppm	RR	NA	1.94	0.818-1.94	Naturally present in the environment.
Radioactive Substances Regulated							
13. Alpha Emitters 11/7/14	N	Pci/L	15	0	5.2	.9-5.2	Erosion of natural deposits.

1. Turbidity – The highest single measurement = 0.12 NTU on 9/14/16 100% of the samples met the turbidity limits (Jackson Springs).
6. Lead – 30 lead samples were taken from various customer taps in 2015. 100% of the samples measured 3 Ppb or less. No samples taken exceeded the action level of 15 Ppb.
7. Copper – 30 copper samples were taken from various customer taps in 2015. 90% of the samples measured .30 Ppm or less. No samples taken exceeded the action level of 1.3 Ppm.
10. Total Trihalomethanes – Computed quarterly, as a running annual average (RAA).
11. Haloacetic Acids – Computed quarterly, as a running annual average (RAA).

KEY TO TABLE II

ND =No Detects. Laboratory analysis indicates that the constituent is not present.
Pspm =Positive samples per month.
Ppm = parts per million, or milligrams per liter (mg/l).
Ppb = parts per billion, or micrograms per liter.
Ppt = parts per trillion, or nanograms per liter.
Ppq = parts per quadrillion, or picograms per liter.
Pci/L = picocuries per liter is a measure of the radioactivity in water.
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.
V&E =Variances and Exemptions. State or EPA permission not to meet an MCL or a treatment technique under certain conditions.
AL = Action Level or the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
TT = Treatment Technique - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.
RR = Removal Ratio.
MCL = Maximum Contaminant Level - The "Maximum Allowed" (MCL) 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.
MCLG = Maximum Contaminant Level Goal - The "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.