

2000 Water Quality Report

SUBSTANCE	HIGHEST LEVEL ALLOWED (MCL)	DMWW RANGE USING DES MOINES RIVER WATER	DMWW RANGE USING RACCOON RIVER WATER	DMWW RANGE USING TREATMENT PLANT AT MAFFITT RESERVOIR	DMWW MAXIMUM DETECTED LEVEL	EPA MCLG (EPA GOAL)	SOURCES OF CONTAMINANT
MICROBIOLOGICAL CONTAMINANTS							
Turbidity	0.5 NTU	nd-0.15 NTU	nd-0.20 NTU	nd-0.16 NTU	0.20 NTU	N/A	Soil Runoff
INORGANIC CONTAMINANTS							
Fluoride	4.0 mg/l	0.99-1.3 mg/l	0.79-1.2 mg/l	0.25-1.7 mg/l	1.7 mg/l	4.0 mg/l	Additive to Promote Strong Teeth
Nitrate (as N)	10.0 mg/l	0.51-3.3 mg/l	0.33-5.5 mg/l	nd-4.3 mg/l	5.5 mg/l	10.0 mg/l	Runoff from Fertilizer Use
Sodium	unregulated	12.0-29.0 mg/l	15.0-25.0 mg/l	14.0-22.0 mg/l	29.0 mg/l	unregulated	Erosion of Natural Deposits
Sulfate	unregulated	38.0-91.0 mg/l	38.0-65.0 mg/l	43.0-73.0 mg/l	91.0 mg/l	unregulated	Erosion of Natural Deposits
ORGANIC CONTAMINANTS							
Atrazine	3.0 µg/l	nd-0.21 µg/l	0.20 µg/l	0.46 µg/l	0.46 µg/l	3.0 µg/l	Runoff from Herbicide Use
Metolachlor	70.0* µg/l	nd-0.27 µg/l	nd	nd	0.27 µg/l	N/A	Runoff from Herbicide Use
Total							
Trihalomethane	100.0 µg/l	27.0* µg/l	41.0-63.0 µg/l	18.0-56.0 µg/l	63.0 µg/l	0 µg/l	By-product of Chlorine Disinfection
Total Haloacetic Acid (HAA5)	60.0 µg/l	nd	nd	5.0-14.0 µg/l	14.0 µg/l	0 µg/l	By-product of Disinfection Process

UTILITY	COPPER ACTION LEVEL	COPPER 90th PERCENTILE**	LEAD ACTION LEVEL	LEAD 90th PERCENTILE**	SOURCES OF CONTAMINANT
COPPER AND LEAD - Regulated at Customer Tap					
Ankeny	1.3 mg/l	0.061 mg/l	15.0 µg/l	29.0 µg/l	Corrosion of Home Plumbing
Clive	1.3 mg/l	0.05 mg/l	15.0 µg/l	11.0 µg/l	Corrosion of Home Plumbing
Cumming	1.3 mg/l	<0.020 mg/l	15.0 µg/l	<5.0 µg/l	Corrosion of Home Plumbing
Des Moines Water Works	1.3 mg/l	nd***	15.0 µg/l	10.0*** µg/l	Corrosion of Home Plumbing
Johnston	1.3 mg/l	0.03 mg/l	15.0 µg/l	7.0 µg/l	Corrosion of Home Plumbing
New Virginia	1.3 mg/l	<0.02 mg/l	15.0 µg/l	<6.0 µg/l	Corrosion of Home Plumbing
Norwalk	1.3 mg/l	nd****	15.0 µg/l	2.0**** µg/l	Corrosion of Home Plumbing
Pleasant Hill	1.3 mg/l	<0.01*** mg/l	15.0 µg/l	<1.0*** µg/l	Corrosion of Home Plumbing
Polk Cty Rural WD #1	1.3 mg/l	nd***	15.0 µg/l	13.0*** µg/l	Corrosion of Home Plumbing
SE Polk Rural Water	1.3 mg/l	0.036 mg/l	15.0 µg/l	0 µg/l	Corrosion of Home Plumbing
Urbandale	1.3 mg/l	0.02 mg/l	15.0 µg/l	6.0 µg/l	Corrosion of Home Plumbing
Warren Water District	1.3 mg/l	<0.02 mg/l	15.0 µg/l	<5.0 µg/l	Corrosion of Home Plumbing
Wauke	1.3 mg/l	<0.02 mg/l	15.0 µg/l	<6.0 µg/l	Corrosion of Home Plumbing
Windsor Heights	1.3 mg/l	nd***	15.0 µg/l	10.0*** µg/l	Corrosion of Home Plumbing
Xenia Rural Water	1.3 mg/l	0.043 mg/l	15.0 µg/l	<5.0 µg/l	Corrosion of Home Plumbing

*Health Advisory Level ** 90% of samples must be below Action Level ***1999 data - testing not required in 2000 ****1998 data - testing not required in 2000 *One sample taken

LEAD: 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 your 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 and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline at (800) 426-4791.

NOTE: The EPA requires monitoring of over 80 drinking water contaminants. Those listed above are the only contaminants detected in your drinking water. For a complete list or for more information about contaminants, please contact Des Moines Water Works or your local water utility. Contact information for each water utility is listed on page 4 of this publication.

Distribution Violations

The following utilities had distribution violations in 2000. The specifics of each violation and corrective actions are provided in detail. If you have any questions, please contact the utility.

UTILITY	VIOLATION	CORRECTIVE ACTION
City of Ankeny	Lead exceeded 90th percentile Action Level (AL)	Repeat samples confirm Action Level below 90th percentile; Resume lead & copper testing

Action Level (AL) - The concentration of a contaminant that, if exceeded, triggers a treatment or other requirement that a water system must follow.

Inorganic Chemicals - Chemical substances of mineral origin, such as lead and copper.

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.

Microbiological Contaminants - Very small organisms, such as bacteria, algae, plankton, and fungi.

NA - Not applicable

nd - Not detected

NTU - Nephelometric Turbidity Units.

Organic Contaminants - Naturally occurring or synthetic substances containing mainly carbon, hydrogen, nitrogen, and oxygen. This includes most pesticides and industrial chemicals.

pCi/l - picocuries per liter; measure of radioactivity.

µg/l - micrograms per liter; parts of contaminant per billion parts of water. One part per billion (ppb) is equivalent to a single penny in ten million dollars.

mg/l - milligrams per liter; parts of contaminant per million parts of water. One part per million (ppm) is equivalent to a single penny in ten thousand dollars.

Radionuclides - Contaminants giving off ionizing radiation.

Treatment Technique (TT) - A required process intended to reduce the level of a contaminant in drinking water.

Visit DMWW's water quality Web site: www.dmww.com/EMPACT

HEALTH Information

You Should Know

Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. 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. The Center for Disease Control has guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants. They are available from the Safe Drinking Water Hotline.

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems.

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, you should ask for advice from your health care provider.

FDA regulations establish limits for contaminants in bottled water that must provide the same protection for public health. Any bottled water that is labeled "drinking water" has to meet EPA's drinking water regulations. 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.

More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline.

SAFE DRINKING WATER HOTLINE:

1-800-426-4791

www.epa.gov/OGWDW

Treating It Right!

Water Treatment is a vital step to ensuring a safe high quality product is delivered to Des Moines Water Works' customers. A new 25 million gallons per day (mgd) treatment plant at Maffitt Reservoir was placed into operation in mid-2000 to supplement the 80 year old, 100 mgd plant on Fleur Drive.

The Maffitt plant's main water source is shallow groundwater collected from wells along the river which utilize the earth's natural filtering through coarse sands and gravels to deliver a water free from river sediment. The 1.3 billion gallon Maffitt Reservoir serves as an emergency supply for the new plant. The Fleur Drive plant has the flexibility to draw water from either the Raccoon or the Des Moines Rivers in addition to the infiltration gallery. Des Moines Water Works plant operators, in consultation with our laboratory staff, will select the river source that has the highest quality water. The gallery collects water from the same shallow groundwater formation as the Maffitt plant. Additionally, in an emergency situation, the Fleur plant can draw up to 6 billion gallons of water from Saylorville Reservoir.

Both the Fleur and Maffitt plants purify the water in a similar fashion. The Fleur plant has an added pretreatment process that removes silt and dirt from the river water. Powdered carbon is also used only with river water to reduce dissolved organic matter.

This organic matter results from the natural decay of leaves and vegetation in addition to agricultural and municipal wastewater discharges. The Maffitt plant does not need this pretreatment step because shallow groundwater and the water from Maffitt have no sediment to remove.

Lime softening is the second treatment process used at the Fleur plant and is the first step at Maffitt. Through lime softening, hardness minerals, germs, and bacteria are removed. Softening produces an excellent by-product, calcium residue, used in agriculture by applying to farm fields and gardens as a soil stabilizer.

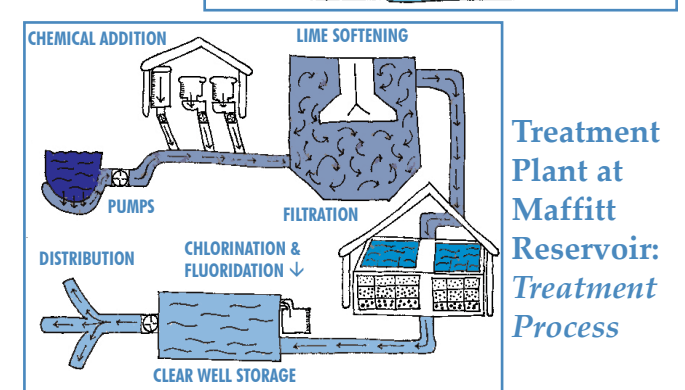
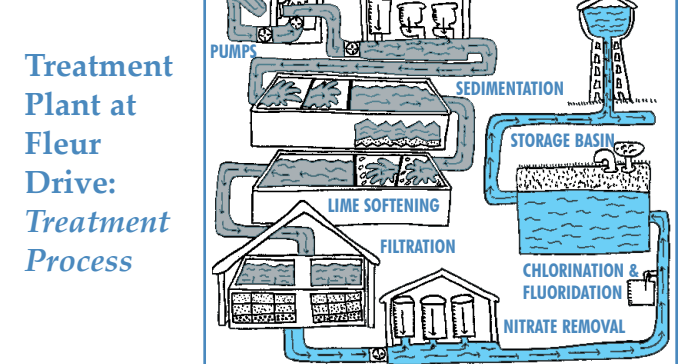
Following softening at both plants, the water is stabilized with carbon dioxide then filtered. During this process, all particles are removed as the water flows through the sand and gravel or anthracite coal and sand media. When necessary at the Fleur plant, a fraction of water receives nitrate removal through an ion exchange process and is blended with the rest of the post-filtered water to stay safely below the health standard for nitrate. The Maffitt plant water does not require nitrate removal since the shallow groundwater source contains reduced levels of nitrate compared with the rivers, and can be easily blended with nitrate-free water from Maffitt Reservoir to remain below the health standard. Once filtered, fluoride is added to help prevent dental cavities and chlorine is added to disinfect the water.

When the treatment process at both plants is completed, the treated water enters a storage tank prior to being pumped into the distribution network. Both plants have a sufficient number of pumps to provide a reliable supply of water in case one pump is down for repairs. Both plants also have emergency power supplies to maintain plant and pumping operation when electricity is interrupted.

The distribution system consists of more than 800 miles of pipe, 6,800 hydrants, 18,800 valves, 5 water storage tanks, and 3 booster pumping stations.

Throughout the treatment process, the laboratory staff performs tests to ensure the highest quality water is produced. Through a series of daily tests on the untreated water sources, the laboratory staff can also identify any necessary changes in the treatment process before the water enters the plant.

The laboratory also carries out a progressive research program and performs several research projects throughout the year.

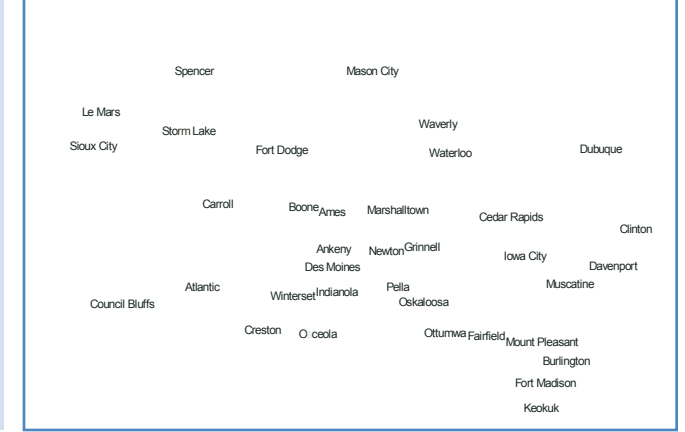


Shedding Light on Your Watershed

There are three sources of water fulfilling the needs of Des Moines Water Works customers. Approximately two-thirds is supplied by either the Raccoon or Des Moines River. The remaining one-third comes from the infiltration gallery system (shallow groundwater).

As rain and snow run across the slope of land in our watershed, they carry soil and pollution, depositing them in creeks leading to the Raccoon and Des Moines Rivers. Some precipitation sinks into the ground, dissolving substances that may enter our groundwater supplies. Everyone can contribute to improving watershed health by utilizing conservation practices that protect the land and the quality of water in our rivers. Improving environmental quality improves our quality of life now and in the future.

Des Moines and Raccoon River Watershed



A Defining Moment

ANSWERS TO "KIDS' CORNER" PUZZLES:
 Water Works Wonders: 1. K 2. C 3. A 4. M 5. P 6. E 7. N 8. L 9. T
 10. D 11. S 12. H 13. A 14. R 15. O 16. W 17. U
 Important Message: Clean DMWW tap water keeps you healthy.
 Water Adds Up! 1. 65 2. 125 3. 37 4. 2/5 5. 30 6. 7 7. 2 8. 70