

# Aberdeen Water System Overview

## Water Source

Aberdeen's water supply begins in the headwaters of the Maple and Elm Rivers south of Jamestown, ND. Five water storage dams, including Elm Lake Dam and Willow Creek Dam were built in the 1930's to hold back 6.5 billion gallons of water for the City of Aberdeen. The Elm River is well known throughout the region for its fickle flow rates and ever changing water quality. This makes the surface water the most complex water supply in South Dakota.

The watershed contributing to the Elm River and its tributaries is obviously influenced by agricultural practices. The City of Aberdeen was one of the first the public water supplies in the state to develop a source water protection program to safeguard against sources of agricultural waste and other pollution in our surface water supply.

Aberdeen's surface water supply is occasionally supplemented by water pumped from the Elm Aquifer at the Eyestone Pit well field. With a \$2 million HUD grant, the city is developing 6 additional wells in the Elm Aquifer for 3 million gallons-per-day additional capacity for next summer.

Aberdeen is offering WEB Water Development a contract to purchase up to 2.5 million-gallons of water per day to secure the city an additional source of water during drought periods. The city will continue to operate its water treatment plant year-round and expects to periodically blend about 25% of its water from the WEB system.

## The Water Treatment Plant

The treatment plant uses a three-stage clarification process including lime and soda ash softening. Clarification is a physical and chemical process which causes the suspended particles found in untreated water to collect together and settle to the bottom of the tanks. Clarification is followed by filtration, and disinfection

is achieved through the use of chloramines and occasionally, chlorine dioxide. Fluoride is added for strong teeth, and a stabilizing compound is included to prevent the corrosion of water pipes.

Pilot testing of new treatment techniques at the water treatment plant proved that new clarification will more efficiently produce a finer quality of water from the Elm River than ever thought possible. The inclusion of membrane technology is also planned for advanced improvements in 2012. Engineering is already under way, and completion of the new \$12 million clarification process upgrade is slated for 2005. An offer by WEB Water Development to take over operation of the Aberdeen Water Treatment Plant without upgrading the facility proved impractical and would actually cost the city more money than constructing a new facility.



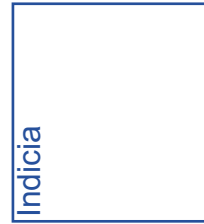
Cross section of membrane filter for drinking water

## What You Need to Know About Drinking Water Regulations

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

### Drinking Water and Water Use Information On-Line

[www.epa.gov/safewater](http://www.epa.gov/safewater)  
[www.awwa.org](http://www.awwa.org)  
[www.h2o4u.org](http://www.h2o4u.org)



City of Aberdeen Water Treatment  
12668 391st Ave  
Aberdeen, SD 57401



\*\*\*\*\*ECRWSS\*\*  
Residential Customer  
Local



City of  
Aberdeen



Find out about your tap water—and if it's safe!

Since the depression, the citizens of Aberdeen have been drinking safe tap water produced at the Aberdeen Water Works 1 3/4 miles south of Ordway. This annual water quality report will provide you, the consumer, a summary of the results of the many stringent water quality tests required by the Environmental Protection Agency (EPA). These water quality tests are frequently performed on water samples taken from locations throughout the community to ensure the citizens of Aberdeen are receiving safe, quality water.

The 1996 amendments to the Safe Drinking Water Act contain extensive provisions for consumer involvement and right-to-know that herald a new era of public participation in drinking water protection. These provisions are founded on the principle that consumers have the right to know what is in their drinking water and where it comes from before they turn on their tap.

If you have questions regarding your drinking water or the Aberdeen water system, please contact the Aberdeen Public Works Department at 626-7011.

LARGE COPIES OF THIS REPORT ARE AVAILABLE AT CITY HALL.

# DRINKING WATER TESTING RESULTS

## ABERDEEN DRINKING WATER 2001

► **Water Monitoring** In accordance with Environmental Protection Agency (EPA) and State of South Dakota regulations, our drinking water is regularly tested—as it is pumped from the source as well as from homes throughout the city. Results for this testing during 2001 are shown on the facing page. Items listed were the only ones detected; dozens of other substances were monitored but not detected. Monitoring for some substances is not required annually; if they were detected in previous years' testing, the test date is listed in the table.

► **Regulated Substances** Limits have been set for about 80 substances that have been designated as potential contaminants to drinking water sources nation-wide. These limits are known as Maximum Contaminant Levels (MCLs). **Water provided by the City of Aberdeen did not violate any of these MCLs during the 2001 reporting year.**

► **Unregulated Substances** EPA also requires monitoring of selected unregulated substances. They do not have established MCLs. EPA uses data from this monitoring to assess the need for future drinking water regulations.

► **Water Sources** Drinking water sources (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 can pick up substances resulting from the presence of animals or humans. 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 (800-426-4791).



► **Water information for At-Risk Individuals** Some people may be more vulnerable to contaminants found 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/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).*

► **Water Testing** Your water is thoroughly tested as it is pumped from the source, during treatment, and from locations throughout the city. Contaminants that may be present in source water are divided into five basic testing categories:

**Microorganisms**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agriculture, and wildlife.

**Inorganic contaminants**, like salts and metals, which occur naturally or come from stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

**Pesticides and herbicides**, which may come from agriculture, urban stormwater runoff, and residential uses.

**Organic chemicals**, 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.

**Radioactive contaminants**, which can occur naturally or result from oil and gas production and mining.



Detected Substance (units) <i>MCL or AL (highest level allowed in water by EPA)</i> <i>MCLG (level where there is no known health risk)</i>	Amount Found in Aberdeen Drinking Water		Typical Source of Substance in Drinking Water
	Compliance Level	Range of Detections	

**Inorganic Substances: salts, minerals, and metals with natural and man-made sources**

Fluoride (ppm) <i>MCL: 4.0 MCLG: 4.0</i>	1.50	—	Water additive for strong teeth, erosion of natural deposits; aluminum and fertilizer factory discharge.
Nitrate as Nitrogen (ppm) <i>MCL: 10 MCLG: 10</i>	0.1	—	Fertilizer runoff; leaching from septic tanks and sewage; erosion of natural deposits
Antimony (ppb) <i>MCL: 6.0 MCLG: 6.0</i>	0.5	—	Discharge from petroleum factories; fire retardants; ceramics; electronics; solder
Barium (ppm) <i>MCL: 2.0 MCLG: 2.0</i>	0.0215	—	Erosion of natural deposits; drilling waste and metal refinery discharge
Chromium (ppb) <i>MCL: 100 MCLG: 100</i>	1.5	—	Erosion of natural deposits; discharge from steel and pulp mills
Selenium (ppb) <i>MCL: 50 MCLG: 50</i>	2.0	—	Discharge from petroleum and metal refineries; erosion of natural deposits; mining discharge
Lead (ppb) <b>1999</b> <i>Action Level (AL): 15 MCLG: 0</i>	No samples exceeded AL	90% of samples were below 2.5	Corrosion of household plumbing systems; erosion of natural deposits
Copper (ppm) <b>1999</b> <i>Action Level: 1.3 MCLG: 0</i>	No samples exceeded AL	90% of samples were below 0.12	Corrosion of household plumbing systems; erosion of natural deposits; wood preservative leachate
Sulfate (ppm) <i>no established MCL or MCLG</i>	425	—	Erosion of natural deposits

**Radiological Substances: materials that emit radiation as they decay**

Alpha Emitters (pCi/L) <i>MCL: 15 MCLG: 0</i>	1.1	—	Erosion of natural deposits
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**Disinfection by-products: organic and inorganic substances formed during disinfection of water**

Total Trihalomethanes (ppb) <i>MCL: 80 MCLG: not established</i>	28	14.8-28.1	By-products of drinking water chlorination
Bromodichloromethane (ppb) <i>no established MCL or MCLG</i>	8.3	5.1-8.3	By-product of drinking water chlorination
Dibromochloromethane (ppb) <i>no established MCL or MCLG</i>	7.0	1.9-7.0	By-product of drinking water chlorination
Chloroform (ppb) <i>no established MCL or MCLG</i>	19.5	7.5-19.5	By-product of drinking water chlorination

**Turbidity: water clarity; a measure of the effectiveness of the filtration system**

Turbidity (NTU) <i>MCL: TT; 5.0 and water must be &lt;0.5 NTU 95% of the time.</i> <i>MCLG: not established</i>	98% of samples less than 0.5	No samples exceeded 5.0	Soil runoff. Turbidity is a measure of water cloudiness. We monitor it continuously at the treatment plant as a measure of the effectiveness of the filtration system.
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**Abbreviations and Definitions for Table**

**ppm:** parts per million. **ppb:** parts per billion. **pCi/L:** pico curies per liter, a measure of radioactivity. **NTU:** Nephelometric Turbidity Units. **AL:** Action Level, the concentration of a contaminant which, if exceeded, triggers treatment or other requirement which a water system must follow. 90% of samples tested must be below the AL. **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. **TT:** Treatment Technique, a required process intended to reduce turbidity in drinking water.