



PUBLIC WORKS

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May 16, 2016

Dear Moehlman Bottoms Water User:

The Riley County Public Works Department is pleased to provide you with this Consumer Confidence Report for 2015. The Federal Safe Drinking Water Act of 1974 and subsequent amendments requires the Moehlman Bottoms Water Benefit District to provide you with a "Consumer Confidence Report".

The Moehlman Bottoms Water Benefit District purchases the water they supply you from the City of Manhattan. The attached 2015 Water Quality Reports are from testing performed within the Hunter's Island and Moehlman Bottoms systems, and from the City of Manhattan, all which will serve as your "Consumer Confidence Report". The drinking water provided continues to meet or exceed all Federal and State standards.

Drinking water may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate the 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).

If you are interested in more detail regarding the Federal Safe Drinking Water Act of 1974 and subsequent amendments, I suggest you go to the EPA's website at <http://www.epa.gov/safewater/sdwa/sdwa.html>.

For more information you may contact me by phone at 785-537-6330, or by email at lhobson@rileycountyks.gov.

Respectfully,

A handwritten signature in blue ink that reads "Leon Hobson". The signature is written in a cursive, flowing style.

Leon Hobson, P.E.
Director of Public Works

Copy: Moehlman Bottoms Water Benefit District File
www.rileycountyks.gov

Attachments: Moehlman Bottoms Water Benefit District CCR
City of Manhattan CCR

MOEHLMAN BOTTOMS WATER DISTRICT

Consumer Confidence Report – 2016 Covering Calendar Year – 2015



This brochure is a snapshot of the quality of the water that we provided last year. Included are the details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and state standards. We are committed to providing you with information because informed customers are our best allies. If you would like to observe the decision-making process that affect drinking water quality, please call LEON HOBSON at 785-537-6330.

Our drinking water is supplied from another water system through a Consecutive Connection (CC). Your water comes from :

Buyer Name	Seller Name
MOEHLMAN BOTTOMS WATER DISTRICT	CITY OF MANHATTAN

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as those 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/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 (800-426-4791).

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).

The sources of drinking water (both tap water and bottled water) included 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 from human activity.

Contaminants that may be present in sources water before we treat it include:
Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, livestock operations and wildlife.
Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water 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 storm water run-off, agriculture, and residential users.
Radioactive contaminants, which can be naturally occurring or the result of mining activity.
Organic contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and also come from gas stations, urban storm water run-off, and septic systems.

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

Our water system is required to test a minimum of 2 samples per month in accordance with the Total Coliform Rule for microbiological contaminants. Coliform bacteria are usually harmless, but their presence in water can be an indication of disease-causing bacteria. When coliform bacteria are found, special follow-up tests are done to determine if harmful bacteria are present in the water

supply. If this limit is exceeded, the water supplier must notify the public.

Water Quality Data

The following tables list all of the drinking water contaminants which were detected during the 2015 calendar year. The presence of these contaminants does not necessarily indicate the water poses a health risk. Unless noted, the data presented in this table is from the testing done January 1- December 31, 2015. The state requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old. **The bottom line is that the water that is provided to you is safe.**

Terms & Abbreviations

Maximum Contaminant Level Goal (MCLG): the "Goal" is the level of a contaminant in drinking water below which there is no known or expected risk to human health. MCLGs allow for a margin of safety.

Maximum Contaminant Level (MCL): 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.

Secondary Maximum Contaminant Level (SMCL): recommended level for a contaminant that is not regulated and has no MCL.

Action Level (AL): the concentration of a contaminant that, if exceeded, triggers treatment or other requirements.

Treatment Technique (TT): a required process intended to reduce levels of a contaminant in drinking water.

Maximum

Maximum Residual Disinfectant Level (MRDL): the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Non-Detects (ND): lab analysis indicates that the contaminant is not present.

Parts per Million (ppm) or milligrams per liter (mg/l)

Parts per Billion (ppb) or micrograms per liter (µg/l)

Picocuries per Liter (pCi/L): a measure of the radioactivity in water.

Millirems per Year (mrem/yr): measure of radiation absorbed by the body.

Monitoring Period Average (MPA): An average of sample results obtained during a defined time frame, common examples of monitoring periods are monthly, quarterly and yearly.

Nephelometric Turbidity Unit (NTU): a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person. Turbidity is not regulated for groundwater systems.

Running Annual Average (RAA): an average of sample results obtained over the most current 12 months and used to determine compliance with MCLs.

Locational Running Annual Average (LRAA):

Testing Results for: MOEHLMAN BOTTOMS WATER DISTRICT

Microbiological	Result	MCL	MCLG	Typical Source
No Detected Results were Found in the Calendar Year of 2015				

Disinfection Byproducts	Monitoring Period	Your Highest RAA	Range (low/high)	Unit	MCL	MCLG	Typical Source
TOTAL HALOACETIC ACIDS (HAA5)	2015	16	16	ppb	60	0	By-product of drinking water disinfection
TTHM	2015	21	21	ppb	80	0	By-product of drinking water chlorination

Lead and Copper	Monitoring Period	90 th Percentile	Range (low/high)	Unit	AL	Sites Over AL	Typical Source
COPPER, FREE	2012 - 2014	0.01	0.0014 - 0.013	ppm	1.3	0	Corrosion of household plumbing

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Your water system is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

During the 2015 calendar year, we had no violation(s) of drinking water regulations.

Some or all of our drinking water is supplied from another water system. The table below lists all of the drinking water contaminants, which were detected during the 2015 calendar year from the water systems that we purchase drinking water from.

Regulated Contaminants	Collection Date	Water System	Your Highest Value	Range (low/high)	Unit	MCL	MCLG	Typical Source
ARSENIC	5/7/2014	CITY OF MANHATTAN	2.5	2.5	ppb	10	0	Erosion of natural deposits
BARIUM	5/7/2014	CITY OF MANHATTAN	0.053	0.053	ppm	2	2	Discharge from metal refineries
CHROMIUM	5/7/2014	CITY OF MANHATTAN	1.8	1.8	ppb	100	100	Discharge from steel and pulp mills
FLUORIDE	1/12/2015	CITY OF MANHATTAN	0.86	0.63 - 0.86	ppm	4	4	Natural deposits; Water additive which promotes strong teeth.
NITRATE	4/29/2015	CITY OF MANHATTAN	0.27	0.27	ppm	10	10	Runoff from fertilizer use

Secondary Contaminants	Collection Date	Water System	Your Highest Value	Range (low/high)	Unit	SMCL
ALKALINITY, TOTAL	5/7/2014	CITY OF MANHATTAN	59	59	MG/L	300
CALCIUM	5/7/2014	CITY OF MANHATTAN	23	23	MG/L	200
CHLORIDE	5/7/2014	CITY OF MANHATTAN	53	53	MG/L	250
CONDUCTIVITY @ 25 C UMHOS/CM	5/7/2014	CITY OF MANHATTAN	470	470	UMHO/CM	1500
CORROSIVITY	5/7/2014	CITY OF MANHATTAN	0.89	0.89	LANG	0
HARDNESS, TOTAL (AS CaCO3)	5/7/2014	CITY OF MANHATTAN	110	110	MG/L	400
MAGNESIUM	5/7/2014	CITY OF MANHATTAN	14	14	MG/L	150
MANGANESE	5/7/2014	CITY OF MANHATTAN	0.0033	0.0033	MG/L	0.05
PH	5/7/2014	CITY OF MANHATTAN	9.4	9.4	PH	8.5
PHOSPHORUS, TOTAL	3/9/2011	CITY OF MANHATTAN	0.2	0.2	MG/L	5
POTASSIUM	5/7/2014	CITY OF MANHATTAN	7.2	7.2	MG/L	100
SILICA	5/7/2014	CITY OF MANHATTAN	22	22	MG/L	50
SODIUM	5/7/2014	CITY OF MANHATTAN	45	45	MG/L	100
SULFATE	5/7/2014	CITY OF MANHATTAN	74	74	MG/L	250
TDS	5/7/2014	CITY OF MANHATTAN	280	280	MG/L	500

During the 2015 calendar year, the water systems that we purchase water from had no violation(s) of drinking water regulations.

Please Note: Because of sampling schedules, results may be older than 1 year.

How often is your water tested?

The City of Manhattan tests water throughout the treatment process, when it reaches the water towers and at various locations throughout the distribution system.

In addition to manual testing, we use automated analyzers that continuously test the water before, during and after the treatment process for pH, conductivity, turbidity, free chlorine, total chlorine and other water quality parameters.

Water from six storage reservoirs is tested weekly by environmental staff for pH, chlorine, ammonia and other parameters. Finished water, or water that has been through the water treatment process, is regularly tested.

The following tests are conducted by certified Water Treatment Plant operators:

- Every 4 hours: Hardness, pH, total chlorine, and turbidity
- Every 8 hours: Total dissolved solids
- Every 24 hours: Fluoride and free ammonia

We also collect the following samples and submit them to the KDHE laboratory in Topeka:

- Monthly: Coliform bacteria (60 samples from the distribution system)
- Quarterly: Trihalomethanes/haloacetic acids, fluoride
- Annually: Nitrate, synthetic organic compounds and volatile organic compounds
- Tri-Annually: Lead, copper, regulated and unregulated inorganic contaminants

Our commitment to our customers

Year after year, we deliver on a promise to provide safe and reliable drinking water. This promise demands foresight, investment and long-range planning. Monitoring and treatment are key methods by which we protect the public water supply.

The source of the City's drinking water is 20 public water supply wells located near the confluence of the Big Blue and Kansas rivers. Protecting the wellfield is a vital public service that remains a top priority.

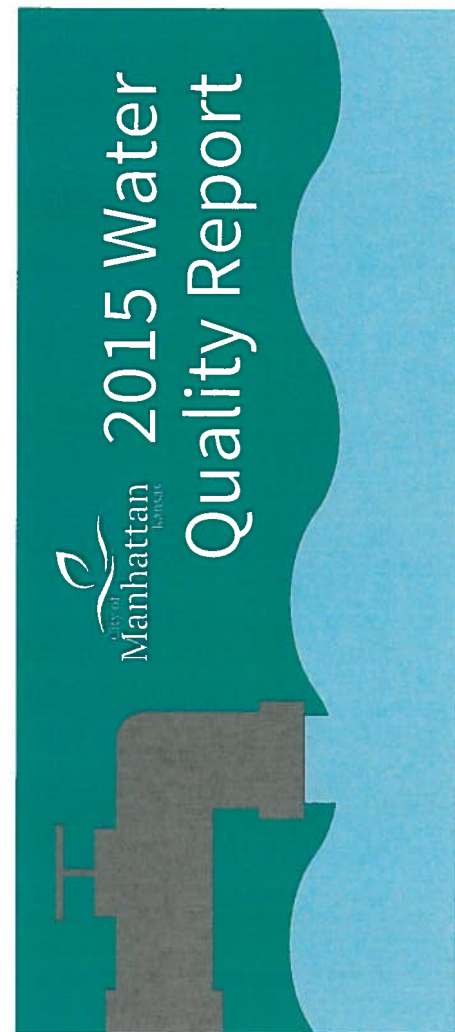
In 1999, we initiated a voluntary wellfield water quality monitoring program, testing the untreated water directly from the wells.

Find more information at CityofMHK.com/Water.

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How do we prevent lead contamination in Manhattan?

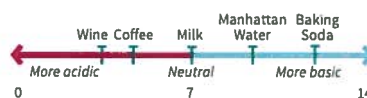
Lead contaminated water has been making headlines recently, leading many people to question the safety of their drinking water. The City of Manhattan would like to assure you the City's drinking water meets all federal and state drinking water standards. City staff, their spouses, children, friends and neighbors drink Manhattan water every day, and it's critical that we can all do so without concern. Our goal is to provide water of the highest quality, and we take steps to ensure we meet that goal every minute of every day.

How does lead contamination occur?

Lead isn't found in Manhattan's source water, and it is not introduced during our treatment process. Most often, lead contamination originates in the plumbing of private residences when corrosive water (water with a low pH) sits in lead pipes, galvanized pipes, pipes with lead-based solder, or old plumbing fixtures made of brass that may be found in some older homes.

How does the City prevent contamination?

Lime is added during the treatment process to reduce hardness and raise pH. As a result, Manhattan's finished water is basic and not corrosive. The City also adds hexametaphosphate to the water, which inhibits corrosion by creating a coating on the inside of pipes, acting as a barrier between the water and the pipe material, whatever that material may be.



What does pH mean?

pH is a measurement of how acidic or basic water is. The scale is 0-14, with 0 being the most acidic and 14 being the most basic. Manhattan's water has a pH of approximately 9.40 pH units making it about as corrosive as hand soap.

How does the City monitor the water?

We monitor all aspects of water quality closely, including online analyzers that test pH levels constantly throughout the treatment process and manual pH testing performed every four hours by Water Treatment Plant operators.

Every three years, 30 of our customers living in older homes throughout Manhattan collect samples for lead and copper analysis. Collection of these samples simulates a worst case scenario with collection occurring only after water has sat undisturbed in the customer's water lines for at least 6 hours. The samples are tested at Kansas Department of Health and Environment labs. The results of these tests continue to be far below Environmental Protection Agency health advisory levels.

Is there lead in the system?

Thanks to a 1986 amendment to the Safe Drinking Water Act, the use of lead in public water supply systems and private plumbing was banned nationwide. We are not aware of any lead pipe being used to supply drinking water in Manhattan.



More questions or concerns?

If you do have concerns about lead in your water, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. You may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (800-426-4791) or at EPA.gov/SafeWater/Lead.

WATER QUALITY DATA

This report is based upon tests conducted by the Kansas Department of Health and Environment (KDHE) on the finished water produced by the City of Manhattan's Water Treatment Plant. Unless otherwise noted, the data represent tests conducted between January 1 and December 31, 2015. Of the 87 contaminants regulated by the Environmental Protection Agency (EPA), only eleven (11) were detected in the compliance monitoring samples. However, two (2) of the detected contaminants (chloramines and fluoride) are added as part of the treatment process to improve water quality. All detected contaminants were below the Maximum Contaminant Level (MCL).

The following tables list the name of each substance, unit, MCLs, the amount detected and Maximum Contaminant Level Goal (MCLG). All regulated and some unregulated contaminants that were detected in the water collected, even in the most minute traces, are included. The footnotes explain the findings, and there is also a key to the units of measurement. MCL is defined as "the highest level of a contaminant that is allowed in drinking water." MCLG is "the level of a contaminant in drinking water below which there is no known or expected risk to health." MCLs are set as close to the MCLGs as feasible. MCLGs allow for a margin of safety.

DETECTED REGULATED CONTAMINANTS

PARAMETER	AVERAGE LEVEL DETECTED	RANGE	MCL	MCLG	VIOLATION	SAMPLE DATE	LIKELY SOURCE
Arsenic (ppb)	2.5	2.5	10	0	No	May 7, 2014	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production waste
Barium (ppm)	0.053	0.053	2	2	No	May 7, 2014	Erosion of natural deposits; discharge from metal refineries; discharge of drilling wastes
Chloramines ² (ppm)	2.46	1.28 - 3.31	4	4	No	January - December 2015	Water additive used to control microbes
Chromium (ppb)	1.8	1.8	100	100	No	May 7, 2014	Erosion of natural deposits; discharge from steel and pulp mills
Fluoride ² (ppm)	0.73	0.63 - 0.86	4	4	No	January - December 2015	Water additive that promotes strong teeth
Nitrate (ppm)	0.27	0.27	10	10	No	May 1, 2015	Runoff from fertilizer use

MICROBIOLOGICAL

BY-PRODUCT	RESULT	MCL	MCLG	TYPICAL SOURCE
Coliform (TCR)	In August, 1.6% of samples tested positive	No more than 5% of samples can test positive	0	Naturally present in the environment

In compliance with the Total Coliform Rule (TCR), the City of Manhattan is required to collect a minimum of 60 samples per month (720 per year) for bacteriological water monitoring. Coliform bacteria are usually harmless but their presence in water can be an indication of disease-causing bacteria. When Coliform bacteria are found, special follow-up tests are done to determine if harmful bacteria are present in the water supply. Any violation of drinking water microbiological standards requires issuing a public notice. In August 2015, Coliform bacteria were found in one sample. However, no bacteria were found in any follow-up tests. There was no violation and no public notice required.

DISINFECTION BY-PRODUCTS

BY-PRODUCT	HIGHEST RAA ¹	RANGE	MCL	MCLG	VIOLATION	SAMPLE DATE	LIKELY SOURCE
Haloacetic Acids [HAA5s] (ppb)	15.5	9.5 - 21.0	60	N/A	No	January - December 2015	By product of drinking water disinfection
Total Trihalomethanes (TTHMs) (ppb)	29.0	19.0 - 36.0	80	N/A	No	January - December 2015	By product of drinking water disinfection

METALS IN DRINKING WATER FROM HOME TAPS

The City of Manhattan is required to monitor corrosion of household plumbing systems by sampling in homes for lead and copper. KDHE requires these tests be performed every three years. With the cooperation of local homeowners, City staff will be collecting samples again in the summer of 2017. For more information on metals in drinking water, call the Safe Drinking Water Hotline at (800) 426-4791 or visit www.epa.gov/safewater/lead.

ANALYTE	90TH PERCENTILE ⁴	RANGE	MCL	MCLG	VIOLATION	SAMPLE DATE	LIKELY SOURCE
Copper (ppm)	0.010	0.001 - 0.019	AL = 1.3	AL = 1.3	No	July - September 2014	Corrosion of household plumbing systems; corrosion of natural deposits; leaching of wood preservatives
Lead (ppb)	0.0	0.0 - 2.1	AL = 15	AL = 15	No	July - September 2014	Corrosion of household plumbing systems; erosion of natural deposits

DETECTED UNREGULATED CONTAMINANTS

Unregulated contaminants are tested every three years. These samples were collected on May 7, 2014.

PARAMETER	LEVEL DETECTED	SMCL
Alkalinity as CaCO ₃ (ppm)	59.0	300
Calcium (ppm)	23	200
Chloride (ppm)	53	250
Conductivity, Specific (µmhos/cm)	470	1500
Corrosivity (LI)	0.89	0
³ Hardness, Total (ppm)	110	400
Magnesium (ppm)	14	150
Manganese (ppm)	0.0033	0.05
pH (pH units)	9.4	8.5
Potassium (ppm)	7.2	100
Silica (ppm)	22	50
Sodium (ppm)	45	100
Solids, Total Dissolved (ppm)	280	500
Sulfate (ppm)	74	250

KEY TO TABLES

AL=Action Level: Any samples that contain over this amount of a contaminant require corrosion control action by the utilities

LI=Langlier's index: Used to reflect corrosion or deposition of scale deposits

N/A=Not Available

ppb=parts per billion or micrograms per liter (µg/L): One part per billion equals one penny per \$10,000,000

ppm=parts per million or milligrams per liter (mg/L): One part per million equals one penny per \$10,000

µmhos/cm=micromhos per centimeter

FOOTNOTES

¹ Compliance is based on a Running Annual Average (RAA) of the most recent 12 months of testing. The RAA was 2.46 ppm for 2015. Since chloramines are added disinfectants, MCLs do not apply. The highest level allowed in drinking water is the Maximum Residual Disinfectant Level (MRDL). For chloramines, the highest level allowed is 4 ppm.

² Fluoride occurs naturally in very low concentrations. It is added at the Water Treatment Plant to promote dental health.

³ KDHE regulations require the City to report the highest Running Annual Average (RAA) from 2015. The highest TTHMs RAA occurred in the third quarter, and the highest HAA5s RAA in the first quarter of 2015.

liter (mg/L). One part per million equals one penny per \$10,000

SMCL=Secondary Maximum Contaminant Level

µmhos/cm=micromhos per centimeter

⁴ In a ranking of 10 samples, the ninth highest sample is the value that represents the 90th percentile.

⁵ Hardness can also be expressed in grains per gallon. To convert ppm to grains per gallon, divide by 17.1. (110 ppm=6.43 grains per gallon).

SOURCE WATER ASSESSMENT REPORT

The City of Manhattan obtains its water from 20 groundwater wells. Raw water is treated to remove several contaminants, and disinfectants are added to protect against microbial contaminants. The Safe Drinking Water Act (SDWA) requires states to develop a Source Water Assessment (SWA) for each public water supply that

treats and distributes raw source water in order to identify potential contamination sources. The state of Kansas has completed an assessment of our source water. For results of the source water assessment, please contact us or view the results online at www.kdhe.state.ks.us/nps/swap/SWreports.html.

MESSAGE FROM THE EPA

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). The sources of drinking water (both tap 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 from human activity.

Contaminants that may be present in source water before treatment include microbial contaminants, such as viruses and bacteria, which may come from sewage treatment

plants, septic systems, agricultural livestock operations and wildlife; and inorganic contaminants, such as salts and metals. Inorganic contaminants may 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, can be found in source water. It is also possible to find radioactive contaminants in source water, which can be naturally occurring or be the result of oil and gas production and mining activities. 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, may be present in source water.

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, persons 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/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

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