



PUBLIC WORKS

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June 1, 2017

Dear Konza Valley Water User:

The Riley County Public Works Department is pleased to provide you with this Consumer Confidence Report for 2016. The Federal Safe Drinking Water Act of 1974 and subsequent amendments requires the Konza Valley Water Benefit District to provide you with a "Consumer Confidence Report".

The Konza Valley Water District purchases the water they supply to you from the City of Manhattan. The attached 2016 Water Quality Reports are from testing performed within the Konza Valley Water system, and from the City of Manhattan, both 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: Konza Valley Water Benefit District File
www.rileycountyks.gov

Attachments: Konza Valley Water Benefit District CCR
City of Manhattan CCR

KONZA VALLEY WATER BENEFIT DISTRICT

Consumer Confidence Report – 2017

Covering Calendar Year – 2016



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
KONZA VALLEY WATER BENEFIT 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 2016 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, 2016. 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 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): Average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters.

Testing Results for: KONZA VALLEY WATER BENEFIT DISTRICT

Disinfection Byproducts	Monitoring Period	Your Highest RAA	Range (low/high)	Unit	MCL	MCLG	Typical Source
TOTAL HALOACETIC ACIDS (HAA5)	2014	15	15	ppb	60	0	By-product of drinking water disinfection
TTHM	2014	20	20	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	0.013	0.0081 - 0.014	ppm	1.3	0	Corrosion of household plumbing
LEAD	2012 - 2014	1.6	1.2 - 3.1	ppb	15	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 2016 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 2016 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	8/23/2016	CITY OF MANHATTAN	0.73	0.54 - 0.73	ppm	4	4	Natural deposits; Water additive which promotes strong teeth.
NITRATE	4/27/2016	CITY OF MANHATTAN	0.3	0.3	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
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

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

During the 2016 calendar year, the water systems that we purchase water from had no violation(s) of drinking water regulations.

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 also 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.

Finished water that has been through the water treatment process is regularly tested. Water samples are collected weekly by the environmental staff from the City's six storage tanks and tested for pH, chlorine, ammonia and other parameters.

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: Fluoride
- Annually: Trihalomethanes/haloacetic acids, 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 20 public water supply wells.

Find more information at CityofMHK.com/Water.

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2016 Water Quality Report



A multi-barrier approach to ensuring water quality

The City of Manhattan is dedicated to providing water customers with a reliable, high quality product each and every time a faucet is turned on. To accomplish this, we use a multi-barrier approach, weaving

together layers of managerial and technical decision-making, protecting the source of our water and investing in the infrastructure used to move, treat and store it. Water is tested, and then retested, at every step as it makes its

way from the ground, through the treatment process, into the distribution system, and finally into your tap. Each refreshing glass is the product of the City's tireless pursuit for purity.

Source Water Protection and Monitoring

Water travels great distances. As a result, our drinking water can be affected by actions taking place far away. By completing a source water assessment, educating people of how their actions can impact drinking water, and conducting a wellfield water quality monitoring program, we strive to minimize contamination of this valuable resource.



Water Treatment

As our water demand has increased and new technologies have become available, the water plant has been upgraded to boost efficiency. Increased treatment and storage capacity along with a network of automated water quality monitors have been critical in allowing us to meet the challenges of today while preparing for tomorrow.



Distribution System

Water lines and storage tanks are vital in delivering quality water to every corner of our distribution system. As Manhattan grows, new water lines are constructed while older lines are repaired and replaced. Water storage tanks are maintained by being cleaned, painted, inspected and repaired when needed.



Customer Taps

Our commitment to delivering quality water extends to every tap we serve. Water quality parameters are monitored by our staff as well as a system of automated analyzers located throughout the distribution system.



There were no violations of drinking water standards in 2016

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, 2016. 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 ¹ (ppm)	2.62	1.26-3.38	4	4	No	January - December 2016	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)	0.66	0.54 - 0.73	4	4	No	January - December 2016	Water additive that promotes strong teeth
Nitrate (ppm)	0.30	0.30	10	10	No	April 27, 2016	Runoff from fertilizer use

Microbiological

BY-PRODUCT	RESULT	MCL	MCLG	TYPICAL SOURCE
Coliform (TCR)	In November 2016, 3% 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 November 2016, Coliform bacteria were found in two samples. However, no bacteria were found in any follow-up tests. There was no violation, and no public notice was required.

Disinfection By-Products

BY-PRODUCT	HIGHEST RAA3	RANGE	MCL	MCLG	VIOLATION	SAMPLE DATE	LIKELY SOURCE
Haloacetic Acids (HAA5s) (ppb)	13.0	8.6-18.0	60	N/A	No	January - December 2016	By-product of drinking water disinfection
Total Trihalomethanes (TTHMs) (ppb)	26.0	17.0-29.0	80	N/A	No	January - December 2016	By-product of drinking water disinfection

Metals in Drinking Water from Home Taps

The City of Manhattan is required to monitor for lead and copper every three years. With the cooperation of local homeowners, City staff will be collecting samples again in the summer of 2017. 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. The City of Manhattan 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>.

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 (LANG)	0.89	0
5 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

LANG=Langelier'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

SMCL=Secondary Maximum Contaminant Level

µmhos/cm=micromhos per centimeter

Message from the Environmental Protection Agency

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.

¹ Compliance is based on a Running Annual Average (RAA) of the most recent 12 months of testing. The RAA was 2.62 ppm for 2016. 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 Locational Running Annual Average (RAA) from 2016. The highest TTHMs RAA occurred in the second quarter, and the highest HAA5s RAA occurred in the fourth quarter of 2016.

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).