



PUBLIC WORKS

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May 1, 2014

Dear Moehlman Bottoms Water User:

The Riley County Public Works Department is pleased to provide you with this Consumer Confidence Report for 2013. 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 2013 Water Quality Reports are from testing performed within the Hunters 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 EPA's web site at <http://www.epa.gov/safewater/sdwa/sdwa.html>.

For more information you can contact the people listed on the City's Report or contact me at 785-537-6330 or email at lhobson@rileycountyks.gov.

Respectfully,

A handwritten signature in blue ink that reads "Leon Hobson".

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 – 2014 Covering Calendar Year – 2013



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. It is important that customers be aware of the efforts that are made continually to improve their water systems. For more information please contact, Leon Hobson at 785-537-6330.

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

Buyer Name	Seller Name
Hunters Island 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 2013 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, 2013. 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.

Testing Results for: Moehlman Bottoms Water District

Microbiological	Result	MCL	MCLG	Typical Source
No Detected Results were Found in the Calendar Year of 2013				

Lead and Copper	Monitoring Period	90 th Percentile	Range (low/high)	Unit	AL	Sites Over AL	Typical Source
COPPER, FREE	2011 - 2013	0.011	0.0014 - 0.012	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 2013 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 2013 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	3/9/2011	City of Manhattan	1.3	1.3	ppb	10	0	Erosion of natural deposits
BARIUM	3/9/2011	City of Manhattan	0.05	0.05	ppm	2	2	Discharge from metal refineries
CHROMIUM	3/9/2011	City of Manhattan	2.2	2.2	ppb	100	100	Discharge from steel and pulp mills
FLUORIDE	3/4/2013	City of Manhattan	0.8	0.68 - 0.8	ppm	4	4	Natural deposits; Water additive which promotes strong teeth.
SELENIUM	3/9/2011	City of Manhattan	1.3	1.3	ppb	50	50	Erosion of natural deposits

Secondary Contaminants	Collection Date	Water System	Your Highest Value	Range (low/high)	Unit	SMCL
ALKALINITY, TOTAL	3/9/2011	City of Manhattan	44.6	44.6	MG/L	300
CALCIUM	3/9/2011	City of Manhattan	28	28	MG/L	200
CHLORIDE	3/9/2011	City of Manhattan	35	35	MG/L	250
CONDUCTIVITY @ 25 C UMHOS/CM	3/9/2011	City of Manhattan	390	390	UMHO/CM	1500
CORROSIONITY	3/9/2011	City of Manhattan	0.39	0.39	LANG	0
HARDNESS, TOTAL (AS CaCO ₃)	3/9/2011	City of Manhattan	110	110	MG/L	400
IRON	3/9/2011	City of Manhattan	0.046	0.046	MG/L	0.3
MAGNESIUM	3/9/2011	City of Manhattan	8.6	8.6	MG/L	150
MANGANESE	3/9/2011	City of Manhattan	0.005	0.005	MG/L	0.05
METOLACHLOR	1/19/2010	City of Manhattan	0.44	0.35 - 0.44	ppb	
PH	3/9/2011	City of Manhattan	8.9	8.9	PH	8.5
PHOSPHORUS, TOTAL	3/9/2011	City of Manhattan	0.2	0.2	MG/L	5
POTASSIUM	3/9/2011	City of Manhattan	7.1	7.1	MG/L	100
SILICA	3/9/2011	City of Manhattan	15	15	MG/L	50
SODIUM	3/9/2011	City of Manhattan	30	30	MG/L	100
SULFATE	3/9/2011	City of Manhattan	76	76	MG/L	250
TDS	3/9/2011	City of Manhattan	230	230	MG/L	500

During the 2013 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 our water tested?

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

In addition to manual testing, the City uses online analyzers that continuously test the water before, during and after the treatment process for pH, conductivity, turbidity, free chlorine, total chlorine and other physical properties.

Water from six storage reservoirs is tested weekly by the City's 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 at the City's in-house laboratory:

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

City personnel 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, the Water and Wastewater Division of the City of Manhattan Public Works Department delivers on a promise to local residents to provide safe and reliable drinking water.

This promise demands foresight, investment and long-range planning. Monitoring and treatment are key methods by which the City of Manhattan protects the public water supply.

The Big Blue and Kansas rivers constitute two of Manhattan's most important natural resources. With the City's 20 public water supply wells near their confluence, protecting the City's wellfield is a vital public service that remains a top priority.

Since 1999, the City has participated in a voluntary wellfield water quality monitoring program, testing the untreated water directly from the 20 public water supply wells.

Public Works Department
Water and Wastewater Division
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2013 Water Quality Report



CITY OF MANHATTAN, KANSAS

PUBLIC WORKS DEPARTMENT

WATER AND WASTEWATER DIVISION

Be an educated water consumer

Did you know that very little of Manhattan's drinking water is actually used for drinking?

Bathing, laundry, cooking and especially lawn irrigation account for more than 90 percent of Manhattan's water use each year. The graph below shows average monthly consumption for years 1997 through 2013.

Note the significant increase in water use during summer months due to increased irrigation. The average monthly use in July and August is approximately twice the average use in December through February.

By using thoughtful irrigation practices and with just a few easy adjustments in your home, you can help to conserve water and ensure that we will always have a plentiful supply.

Monthly Average Water Consumption

(in million gallons)



Compare the value of your water



Bottled Water
\$12/gallon



Beer
\$24/gallon



Coffee
\$33/gallon



Gasoline
\$3.65/gallon

City of Manhattan Drinking Water
\$0.01/gallon



Ideas for water conservation

- Invest in water saving showerheads, toilets, faucets and appliances.
- Check all faucets, pipes and toilets frequently for leaks. Fix any leaks.
- Maximize the dishwasher and clothes washer loads and always use the water saver cycles.
- Cool drinking water in the refrigerator rather than at the tap.
- Defrost food in the refrigerator rather than under the tap or in a sink full of water.
- Deep soak your lawn once or twice a week rather than watering daily. Your plants will grow hardier and have deeper roots.
- Add xeriscape landscaping to your garden. By introducing drought resistant plants and shrubs, you will give your garden unique visual interest.
- Mulch and compost your garden and flower beds.
- Find more information about water conservation at www.epa.gov and www.kwo.org.

Activity	Gallons used
Leaky faucet	50-350+/day
Leaky toilet	100+/day
5 minute shower	10-50
Brush teeth	1/2-10
Wash clothes	15-25
Tub bath	15-40
Dishwasher	7-30
Wash hands	1-10

CITY OF MANHATTAN, KANSAS

PUBLIC WORKS DEPARTMENT

WATER AND WASTEWATER DIVISION

THERE WERE NO VIOLATIONS OF DRINKING WATER STANDARDS IN 2013

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, 2013. Of the 87 contaminants regulated by the Environmental Protection Agency (EPA), only ten (10) were detected in the compliance monitoring samples. However, two (2) of the detected contaminants (chloramines and fluoride) are added during the treatment process. 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)	1.3	1.3	10	0	No	March 9, 2011	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production waste
Barium (ppm)	0.050	0.050	2	2	No	March 9, 2011	Erosion of natural deposits; discharge from metal refineries; discharge of drilling wastes
Chloramines ¹ (ppm)	2.66	1.21 - 3.35	4	4	No	January - December 2013	Water additive used to control microbes
Chromium (ppb)	2.2	2.2	100	100	No	March 9, 2011	Erosion of natural deposits; discharge from steel and pulp mills
Fluoride ² (ppm)	0.76	0.68 - 0.80	4	4	No	January - December 2013	Water additive that promotes strong teeth
Selenium (ppb)	1.3	1.3	50	50	No	March 9, 2011	Erosion of natural deposits; discharge from petroleum and metal refineries; discharge from mines

MICROBIOLOGICAL

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. Coliform bacteria were not detected in any of the samples collected in 2013.

DISINFECTION BY-PRODUCTS

BY-PRODUCT	HIGHEST RAA ³	RANGE	MCL	MCLG	VIOLATION	SAMPLE DATE	LIKELY SOURCE
Haloacetic Acids (HAA5s) (ppb)	13.1	11.0 - 16.0	60	N/A	No	January - December 2013	By-product of drinking water disinfection
Total Trihalomethanes (TTHMs) (ppb)	25.7	19.0 - 35.0	80	N/A	No	January - December 2013	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 2014. 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)	0.014	0.002 - 0.027	AL = 1.3	AL = 1.3	No	July - September 2011	Corrosion of household plumbing systems; corrosion of natural deposits; leaching of wood preservatives
Lead (ppb)	1.1	1.0 - 5.3	AL = 15	AL = 15	No	July - September 2011	Corrosion of household plumbing systems; erosion of natural deposits

DETECTED UNREGULATED CONTAMINANTS

Unregulated contaminants are tested every three years. These samples were collected on March 9, 2011.

PARAMETER	LEVEL DETECTED	SMCL
Alkalinity as CaCO ₃ (ppm)	44.6	300
Calcium (ppm)	28	200
Chloride (ppm)	35	250
Conductivity, Specific (µmhos/cm)	390	1500
Corrosivity (LI)	0.39	0
⁵ Hardness, Total (ppm)	110	400
Iron (ppm)	0.046	0.3
Magnesium (ppm)	8.6	150
Manganese (ppm)	0.005	0.05
pH (pH units)	8.9	8.5
Phosphorous, Total (ppm)	0.2	5
Potassium (ppm)	7.1	100
Silica (ppm)	15	50
Sodium (ppm)	30	100
Solids, Total Dissolved (ppm)	230	500
Sulfate (ppm)	76	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=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 which 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.

Source Water Assessment Report

The City of Manhattan's water originates in 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.

¹ Compliance is based on a Running Annual Average (RAA) of the most recent 12 months of testing. The RAA was 2.66 ppm for 2013. 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 2013. The highest TTHMs and HAA5s RAAs occurred in the third quarter of 2013.

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).