



City Of Beatrice

Annual Water Quality Report For January 1 to December 31, 2015

This report is intended to provide you with important information about your drinking water and the efforts made by the City Of Beatrice water system to provide safe drinking water.

Para Clientes Que Hablan Español: Este informe contiene información muy importante sobre el agua que usted bebe. Tradúzcalo ó hable con alguien que lo entienda bien.

For more information regarding this report, contact:

STEVE KELLEY
402-228-5217

If you would like to observe the decision-making processes that affect drinking water quality, please attend the regularly scheduled meeting of the Village Board/City Council. If you would like to participate in the process, please contact the Village/City Clerk to arrange to be placed on the agenda of the meeting of the Village Board/City Council.

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).

Source Water Assessment Availability:

The Nebraska Department of Environmental Quality (NDEQ) has completed the Source Water Assessment. Included in the assessment are a Wellhead Protection Area map, potential contaminant source inventory, vulnerability rating, and source water protection information. To view the Source Water Assessment or for more information please contact the person named above on this report or the NDEQ at (402) 471-6988 or go to www.deq.state.ne.us.

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

Sources of Drinking Water:

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and

groundwater 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.

The source of water used by City Of Beatrice is ground water.

Contaminants that may be present in source water include:

- * Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural 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 agriculture, urban storm water runoff, and residential uses.
- * 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 storm water runoff, and septic systems.
- * Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

Drinking Water Health Notes:

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. 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).

Infants, young children, and pregnant women 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 the 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. Flushing your tap for 30 seconds to 2 minutes before using your tap water will clear the line of any lead that may have leached into the water while the line was idle. Additional information is available from the Safe Drinking Water Hotline (800-426-4791) or the DHHS/Division of Public Health/Office of Drinking Water (402-471-2541).

The City Of Beatrice is required to test for the following contaminants: Coliform Bacteria, Antimony, Arsenic, Asbestos, Barium, Beryllium, Cadmium, Chromium, Copper, Cyanide, Fluoride, Lead, Mercury, Nickel, Nitrate, Nitrite, Selenium, Sodium, Thallium, Alachlor, Atrazine, Benzo(a)pyrene, Carbofuran, Chlordane, Dalapon, Di(2-ethylhexyl)adipate, Dibromochloropropane, Dinoseb, Di(2-ethylhexyl)phthalate, Diquat, 2,4-D, Endothall, Endrin, Ethylene dibromide, Glyphosate, Heptachlor, Heptachlor epoxide, Hexachlorobenzene, Hexachlorocyclopentadiene, Lindane, Methoxychlor, Oxamyl (Vydate), Pentachlorophenol, Picloram, Polychlorinated biphenyls, Simazine, Toxaphene, Dioxin, Silvex, Benzene, Carbon Tetrachloride, o-Dichlorobenzene, Para-

Dichlorobenzene, 1,2-Dichloroethane, 1,1-Dichloroethylene, Cis-1,2-Dichloroethylene, Trans-1,2-Dichloroethylene, Dichloromethane, 1,2-Dichloropropane, Ethylbenzene, Monochlorobenzene, 1,2,4-Trichlorobenzene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, Trichloroethylene, Vinyl Chloride, Styrene, Tetrachloroethylene, Toluene, Xylenes (total), Gross Alpha (minus Uranium & Radium 226), Radium 226 plus Radium 228, Sulfate, Chloroform, Bromodichloromethane, Chlorodibromomethane, Bromoform, Chlorobenzene, m-Dichlorobenzene, 1,1-Dichloropropene, 1,1-Dichloroethane, 1,1,2,2-Tetrachloroethane, 1,2-Dichloropropane, Chloromethane, Bromomethane, 1,2,3-Trichloropropane, 1,1,1,2-Tetrachloroethane, Chloroethane, 2,2-Dichloropropane, o-Chlorotoluene, p-Chlorotoluene, Bromobenzene, 1,3-Dichloropropene, Aldrin, Butachlor, Carbaryl, Dicamba, Dieldrin, 3-Hydroxycarbofuran, Methomyl, Metolachlor, Metribuzin, Propachlor.

How to Read the Water Quality Data Table:

The EPA and State Drinking Water Program establish the safe drinking water regulations that limit the amount of contaminants allowed in drinking water. The table shows the concentrations of detected substances in comparison to the regulatory limits. Substances not detected are not included in the table. The state requires monitoring of certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Therefore, some of this data may be older than one year. **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.

AL (Action Level) – The concentration of a contaminant which, if exceeded triggers treatment or other requirements which a water system must follow.

MRDL (Maximum Residual Disinfectant Level) – The highest level of a disinfectant allowed in drinking water.

N/A – Not applicable.

Units in the Table:

ND – Not detectable.

ppm (parts per million) = mg/L (milligrams per liter) – One ppm or one mg/L corresponds to 1 gallon of water in 1,000,000 gallons of water.

ppb (parts per billion) – One ppb corresponds to 1 gallon of water in 1,000,000,000 gallons of water.

pCi/L (Picocuries per liter) – Radioactivity concentration unit.

ug/L (micrograms per liter) – Measurement of radioactivity.

RAA (Running Annual Average) – An ongoing annual average calculation of data from the most recent four quarters.

90th Percentile – Represents the highest value found out of 90% of the samples taken in a representative group. If the 90th percentile is greater than the action level, it will trigger a treatment or other requirements that a water system must follow.

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

| Microbiological | Highest No. of Positive Samples | MCL | MCLG | Likely Source Of Contamination | Violations Present |
|---|---------------------------------|-----|------|--------------------------------|--------------------|
| No Detected Results were Found in the Calendar Year of 2015 | | | | | |

| Lead and Copper | Monitoring Period | 90 th Percentile | Range | Unit | AL | Sites Over AL | Likely Source Of Contamination |
|-----------------|-------------------|-----------------------------|---------------|------|-----|---------------|---|
| COPPER, FREE | 2011 - 2013 | 0.322 | 0.013 - 0.894 | ppm | 1.3 | 0 | Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing. |
| LEAD | 2011 - 2013 | 1.78 | 1.02 - 5.41 | ppb | 15 | 0 | Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing. |

| Regulated Contaminants | Collection Date | Highest Value | Range | Unit | MCL | MCLG | Likely Source Of Contamination |
|------------------------|-----------------|---------------|--------------|------|-----|------|---|
| ARSENIC | 09/02/2014 | 2.85 | 2.85 | ppb | 10 | 0 | Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes. |
| BARIUM | 01/13/2014 | 0.18 | 0.114 - 0.18 | ppm | 2 | 2 | Discharge from drilling wastes; Discharge from metal refineries; Erosion of natural deposits. |
| CHROMIUM | 01/13/2014 | 4.37 | 1.85 - 4.37 | ppb | 100 | 100 | Discharge from steel and pulp mills; Erosion of natural deposits. |
| FLUORIDE | 01/13/2014 | 0.26 | 0.243 - 0.26 | ppm | 4 | 4 | Erosion of natural deposits; water additive which promotes strong teeth; Fertilizer discharge. |
| NITRATE-NITRITE | 10/19/2015 | 17.1 | 0.579 - 17.1 | ppm | 10 | 10 | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits |
| SELENIUM | 01/13/2014 | 6.2 | 6.2 | ppb | 50 | 50 | Erosion of natural deposits |

| Disinfection Byproducts | Monitoring Period | Highest RAA | Range | Unit | MCL | MCLG | Likely Source Of Contamination |
|-------------------------------|-----------------------|-------------|-------------|------|-----|------|--|
| TOTAL HALOACETIC ACIDS (HAA5) | 1/1/2015 - 12/31/2015 | 1.02217 | 0.55 - 1.71 | ppb | 60 | 0 | By-product of drinking water disinfection. |
| TTHM | 1/1/2015 - 12/31/2015 | 7.79417 | 3.44 - 16.4 | ppb | 80 | 0 | By-product of drinking water disinfection. |

| Radiological Contaminants | Collection Date | Highest Value | Range | Unit | MCL | MCLG | Likely Source Of Contamination |
|-------------------------------|-----------------|---------------|-------|-------|-----|------|--------------------------------|
| COMBINED RADIUM (-226 & -228) | 04/07/2014 | 3.34 | 3.34 | pCi/L | 5 | 0 | Erosion of natural deposits |
| RADIUM-226 | 04/07/2014 | 2.06 | 2.06 | pCi/L | 5 | 0 | Erosion of natural deposits |
| RADIUM-228 | 04/07/2014 | 1.28 | 1.28 | pCi/L | 5 | 0 | Erosion of natural deposits |

| Unregulated Water Quality Data | Collection Date | Highest Value | Range | Unit | Secondary MCL |
|--------------------------------|-----------------|---------------|-------------------|------|---------------|
| NICKEL | 08/10/2015 | 0.00165 | 0.00126 - 0.00165 | mg/L | 0.1 |
| SULFATE | 08/10/2015 | 42.7 | 39.1 - 42.7 | mg/L | 250 |

During the 2015 calendar year, we had the below noted violation(s) of drinking water regulations.

| Type | Category | Analyte | Compliance Period |
|---|----------|---------|-------------------|
| No Violations Occurred in the Calendar Year of 2015 | | | |

The City Of Beatrice has taken the following actions to return to compliance with the Nebraska Safe Drinking Water Act:

The nitrate level listed above that exceeds the MCL of 10 is before treatment. There were no nitrate violations in 2015

Additional Required Health Effects Language:

Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.

Our water system has sampled for a series of unregulated contaminants during the 2015 sampling year. Unregulated contaminants are those that don't yet have a drinking water standard set by the EPA. The purpose for monitoring for these contaminants is to help the EPA decide whether the contaminants should have a standard. As our customers, you have the right to know this data is available. If you are interested in examining the results please contact Steve Kelley Beatrice Water Department Superintendant at (402) 228-5211, or at skelley@beatrice.ne.gov.

Water sample results are typically measured with one of two levels of detection,

- Milligrams per liter (mg/L), which equals parts per million. This means there is 1 part contaminant for every 1,000,000 parts of water, or
- Micrograms per liter (ug/L), which equals parts per billion. This means there is 1 part contaminant for every 1,000,000,000 parts of water.

The water was sampled at four points in the system on February 10, 2015 and again on August 4, 2015.

1. The point where it enters the system from wellfield #1 (POE 010)
2. A point at the edge of the distribution system served from wellfield #1 with the maximum retention time (DSMRT POE 010)
3. The point where the combined water from wellfield #1 and wellfield #2 enter the system (POE 012)
4. A point at the edge of the distribution system served by the combined well fields with the maximum retention time (DSMRT 012)

The water was tested for the following contaminants, but none were detected.

1,2,3-trichloropropane, 1,3-butadiene, chloromethane (methyl chloride), 1,1-dichloroethane, bromomethane (methyl bromide), chlorodifluoromethane (HCFC-22), bromochloromethane (halon 1011), 1,4-dixane, molybdenum, cobalt, perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), perfluorononanoic acid (PFNA), perfluorohexanesulfonic acid (PFHxA), perfluoroheptanoic acid (PFHpA), perfluorobutanesulfonic acid (PFBS).

The following contaminants were detected in the point of entry samples, (POE010 and POE012).

| <u>Contaminant</u> | <u>Date</u> | <u>Average</u> | <u>Range</u> |
|---------------------------|--------------------|-----------------------|---------------------|
| Chromium | 2/10/15 | 0.90ug/L | 0.83ug/L – 0.97ug/L |
| Chromium | 8/4/15 | 0.865ug/L | 0.78ug/L – 0.95ug/L |
| Hexavalent Chromium | 2/10/15 | 0.925ug/L | 0.85ug/L – 1.00ug/L |
| Hexavalent Chromium | 8/4/15 | 0.78ug/L | 0.76ug/L – 0.80ug/L |
| Molybdenum | 2/10/15 | 1.00ug/L | 1.00ug/L |
| Strontium | 2/10/15 | 335ug/L | 320ug/L – 350ug/L |
| Strontium | 8/4/15 | 410ug/L | 380ug/L – 440ug/L |
| Vanadium | 2/10/15 | 4.7ug/L | 4.5ug/L – 4.9ug/L |
| Vanadium | 8/4/15 | 5.3ug/L | 4.9ug/L – 5.7ug/L |

The following contaminants were detected in the max retention time samples (DSMRT010 & DSMRT012).

| <u>Contaminant</u> | <u>Date</u> | <u>Average</u> | <u>Range</u> |
|---------------------------|--------------------|-----------------------|---------------------|
| Chromium | 2/10/15 | 0.825ug/L | 0.79ug/L – 0.86ug/L |
| Chromium | 8/4/15 | 0.725ug/L | 0.70ug/L – 0.75ug/L |
| Hexavalent Chromium | 2/10/15 | 0.90ug/L | 0.83ug/L – 0.97ug/L |
| Hexavalent Chromium | 8/4/15 | 0.775ug/L | 0.74ug/L – 0.81ug/L |
| Molybdenum | 2/10/15 | 1.50ug/L | 1.50ug/L |
| Strontium | 2/10/15 | 340ug/L | 320ug/L – 360ug/L |
| Strontium | 8/4/15 | 375ug/L | 350ug/L – 400ug/L |
| Vanadium | 2/10/15 | 4.7ug/L | 4.6ug/L – 4.8ug/L |
| Vanadium | 8/4/15 | 5.1ug/L | 4.6ug/L – 5.6ug/L |