**2013**

**Annual Drinking Water Quality Report**

**Rural Water District #5 Wagoner County**

We’re very pleased to provide you with this year's Annual Quality Water Report. We want to keep you informed about the excellent water and services we have delivered to you over the past year. Our goal is and always has been, to provide to you a safe and dependable supply of drinking water. Our water source is surface water drawn from the Verdigris River located 4½ miles east of Coweta. We also purchased water from the City of Broken Arrow and Wagoner County Rural Water #4. This report shows our water quality and what it means.

If you have any questions about this report or concerning your water utility, please contact Denette Hughes at 918-486-5458. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our monthly Board Meetings. They are held onthe first Tuesday night of each month at 7:00 p.m. in our office building located at 15078 South 305TH East Avenue in Coweta.

Rural Water District #5routinely monitors for constituents in your drinking water according to Federal and State laws. This table shows the results of our monitoring for the period of January 1st to December 31st,2013. All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some constituents. It is important to remember that the presence of these constituents does not necessarily pose a health risk. Some of our data may be more than one year old because the state allows us to monitor for some contaminants less often than once per year. In the table below you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions.

We have a source water protection plan available from our office that provides more information such as potential sources of contamination.

 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) 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 including: Microbial Contaminants-viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife. Inorganic Contaminants-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-comes from a variety of sources such as agriculture, urban storm water runoff, and residential uses. Organic Chemical Contaminants-includes 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-can be naturally occurring or be the result of oil and gas production and mining activities. In order to ensure that tap water is safe to drink EPA prescribes regulations that limit the amount of certain contaminants in the water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

 The table below lists all of the drinking water contaminants we detected for the calendar year report. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the date presented in the table is from the testing done in the calendar year of the report.

**Water Quality Data Table 2013**

**Rural Water District #5 Wagoner County**

The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently.

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| **Inorganic Contaminants** |
| **Contaminant** | **Collection****Date** | **Highest Level Detected** | **Range of Levels Detected** | **MCLG** | **MCL** | **Violation****Y/N** | **Likely Source of Contamination** |
| Barium(ppm) | 2013 | 0.0457 | 0.0457 - 0.0457 | 2 | 2 | N | Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits. |
| Fluoride(ppm) | 2013 | 0.2 | 0.2 – 0.2 | 4 | 4.0 | N | Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories. |
| Nitrate (measured as Nitrogen)(ppm) | 2013 | 0.15 | 0.15 – 0.15 | 10 | 10 | N | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits. |
| **Disinfectants and Disinfection By-Products** |
| **Contaminant** | **Collection** **Date** | **Highest Level Detected** | **Range of Levels Detected** | **MCLG** | **MCL** | **Violation****Y/N** | **Likely Source of Contamination** |
| Chlorine(ppm) | 2013 | 1 | 0 – 1 | MRDLG=4 | MRDL=4 | N | Water additive used to control microbes. |
| Chlorite(ppm) | 2013 | 0.527 | 0.228 – 0.527 | 0.8 | 1 | N | By-product of drinking water disinfection. |
| Haloacetic Acids(HAA5)(ppb) | 2013 | 24 | 12.6 – 40 | No goal for the total | 60 | N | By-product of drinking water disinfection. |
| Total Trihalomethanes(TTHM)(ppb) | 2013 | 42 | 28 – 60.6 | No goal for the total | 80 | N | By-product of drinking water disinfection. |

**Rural Water District #5 Wagoner County**

**(continued)**

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| **Radioactive Contaminants** |
| **Contaminant** | **Collection****Date** | **Highest Level Detected** | **Range of Levels****Detected** | **MCLG** | **MCL** | **Violation****Y/N** | **Likely Source of Contamination** |
| Beta/photon emitters(mrem/yr | 8/23/2011 | 4.554 | 4.554 – 4.554 | 0 | 4 | N | Decay of natural and man-made deposits.  |
| Combined Radium226/228(pCi/L) | 8/23/2011 | 0.493 | 0.493 – 0.493 | 0 | 5 | N | Erosion of natural deposits. |

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| **Lead and Copper** |
| **Contaminants** | **Date Sampled** | **MCLG** | **Action Level****(AL)** | **90th Percentile** | **Violation****Y/N** | **Likely Source of Contamination** |
| Copper(ppm) | 8/24/2011 | 1.3 | 1.3 | 0.207 | N | Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems. |

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| **Turbidity** |
|  | **Limit (Treatment Technique)** | **Level Detected** | **Violation****Y/N** | **Like Source of Contamination** |
| Highest Single measurement(NTU) | 1 NTU | 0.09 NTU | N | Soil runoff |
| Lowest monthly % meeting limit(NTU) | 0.3 NTU | 100% | N | Soil runoff |

Information Statement: Turbidity is a measurement of the cloudiness of the water caused by suspended particles. We monitor it because it is a good indicator of water quality and the effectiveness of our filtration system and disinfectants.

**Total Organic Carbon** – The percentage of Total Organic Carbon (TOC) removal was measured each month and the system met all TOC removal requirements set, unless a TOC violation is noted in the violations section.

For more information contact

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 **City of Broken Arrow 2013 Water Distribution System Water Quality Data [PWSID No. 1021508]**

**Regulated Contaminants**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Disinfectants andDisinfection ByProducts | CollectionDate | HighestLevelDetected | Range of LevelsDetected | MCLG | MCL | Units | Violation | Likely Source of Contamination |
| Chlorine | 2013 | 2 | 1-2 | MRDLG = 4 | MRDL = 4 | ppm | N | Water additive used to control microbes |
| Halocetic Acids(HAA5)\* | 2013 | 52 | 5.12 – 114 | No goal for the total | 60 | ppb | N | By product of drinking water disinfection |
| Total Trihalomethanes(TTHM) | 2013 | 61 | 25.9 – 119 | No goal for the total | 80 | ppb | N | By product of drinking water disinfection |
| Inorganic Contaminants | Collection Date | Highest level detected | Range of levels detected  | MCLG | MCL | Units | VIOLATION | Likely source of contamination |
| Fluoride | 11/08/2010 | 0.92 | 0.92 – 0.92 | 4 | 4.0 | ppm | N | Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories. |
| Nitrate [measured as Nitrogen] | 2013 | 1.45 | 1.45 -1.45 | 10 | 10 | ppm | N | Runoff from fertilizer use, Leaching from septic tanks, sewage; Erosion of natural deposits. |
| Radioactive Contaminants | Collection date | Highest Level Detected  | Range of levels detected | MCLG | MCL | Units | VIOLATION | Likely source of contamination |
| Beta/photon emitters | 8/23/2011 | 2.99 | 2.99 – 2.99 | 0 | 4 | mrem/yr | N | Decay of natural and man-made deposits |
| Combined Radium226/228 | 08/23/2011 | 0.6 | 0.6 – 0.6 | 0 | 5 | pCi/L | N | Erosion of natural deposits |
| Gross alpha excluding radon and uranium | 08/23/2011 | 0.12 | 0.12 – 0.12 | 0 | 15 | pCi/L | N | Erosion of natural deposits |

We were required by EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our water distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (eg HAA5s and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.

**City of Broken Arrow 2013 Water Distribution System Water Quality Date [PWSID No. 1021508] (continued)**

 **Turbidity**

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| --- | --- | --- | --- | --- |
|  | Limit (Treatment Technique) | Level Detected | Violation | Likely Source of Contamination |
| Highest single measurement | 1 NTU | 0 NTU | N | Soil runoff |
| Lowest Monthly per cent meeting limit | 0.3 NTU | 100% | N | Soil runoff |

 Information Statement: Turbidity is a measurement of the cloudiness of the water caused by suspended particles. We monitor it because it is a good indicator of water quality and the effectiveness of our filtration system and disinfectants.

 **Total Organic Carbon** - The percentage of Total Organic Carbon (TOC) removal was measured each month and the system met all TOC removal requirements set.

 **Coliform Bacteria**

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| --- | --- | --- | --- | --- | --- | --- |
| Maximum Contaminant Level Goal | Total Coliform Maximum Contaminant Level | Highest No. of Positive | Fecal Coliform or E. Coli Maximum Contaminant Level | Total No. of Positive E. Coli or Fecal Coliform Samples | Violation | Likely Source of Contamination |
| 0 | 5% of monthly samples are positive | 6.9 |  | 0 | Y | Naturally present in the environment |

 **Lead and Copper** (Tap water samples were collected for lead and copper from sample sites throughout the community.)

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Lead and Copper | Date Sampled | MCLG | Action Level (AL) | 90th Percentile | # Sites Over AL | Units | Violation | Likely Source of Contamination |
| Copper | 2013 | 1.3 | 1.3 | 0.371 | 0 | ppm | N | Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems |
| Lead | 2013 | 0 | 15 | 0 | 1 | ppb | N | Corrosion of household plumbing systems; Erosion of natural deposits. |

**About Our Violation (as listed in Table IV)**

The City of Broken Arrow was notified by the Oklahoma Department of Environmental Quality that we have violated a drinking water standard in the month of September 2013 for total Coliform bacteria.

In September 2013 we collected 116 samples to test for the presence of Coliform bacteria. Seven (7) or 6% of the samples showed the presence of total coliform bacteria. The standard is that no more than 5% of samples may do so. Whenever we detect coliform bacteria in any sample, we do follow-up testing to check to see if other bacteria of greater concern, such as fecal coliform or E. Coli are present. We did not find any of these bacteria in our subsequent testing, and further testing showed that this problem was resolved.

A public information notice was mailed out on November 6th, 2013, to all City of Broken Arrow water customers informing them of the violation and the corrective action taken.

**TABLE IV – VIOLATIONS TABLE**

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| **Total Coliform** |
| Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems. |
| **Violation Type** | **Violation Begin** | **Violation End** | **Violation Explanation** |
| MCL (TCR), Monthly | 09/01/2013 | 09/30/2013 | Total coliform bacteria were found in our drinking water during the period indicated in enough samples to violate a standard. |
| MONITORING (TCR), REPEAT MAJOR | 08/01/2013 | 08/31/2013 | We failed to collect follow-up samples in response to finding total coliform bacteria in a routine sample. Because of this failure, we cannot be sure of the quality of our drinking water during the period indicated. |
| MONITORING (TCR), REPEAT MAJOR | 09/01/2013 | 09/30/2013 | We failed to collect follow-up samples in response to finding total coliform bacteria in a routine sample. Because of this failure, we cannot be sure of the quality of our drinking water during the period indicated. |

**PUBLIC NOTIFICATION RULE VIOLATION EXPLANATION**

The City of Broken Arrow collected and tested the water samples from eight EPA approved sites for disinfection byproducts as part of the scheduled Stage 2 Disinfectants and Disinfection By-product Rule Operational Evaluation.

The test results for May 8, 2012 showed the City’s water system exceeded the normal levels of HAA5. Subsequent water samples tested in August 2012, November 2012 and February 2013 indicated City’s water supply tested within normal limits.

A public information notice was mailed out on February 20, 2013, to all City of Broken Arrow water customers informing them of the violation and the corrective action taken.

**TABLE IV – VIOLATIONS TABLE**

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| **Public Notification Rule** |
| The Public Notification Rule helps to ensure that consumers will always know if there is a problem with their drinking water. These notices immediately alert consumers if there is a serious problem with their drinking water (e.g., a boil water emergency) |
| Violation Type | Violation Begin | Violation End | Violation Explanation |
| PUBLIC NOTICE RULE LINKED TO VIOLATION | 01/28/2013 | 2013 | We failed to adequately notify you, our drinking water consumers, about a violation of the drinking water regulations. |

**2013**

**Wagoner County Rural Water District #4**

**Annual Water Quality Data Table**

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| **Disinfectants and Disinfectant By-Products** |
| **Contaminant** | **MCLG****or****MRDLG** | **MCL, TT** **or****MRDL** | **Your****Water** | **Range****Low/High** | **Sample** **Date** | **Violation** | **Typical****Source** |
| Haloacetic Acids(HAA5) (ppb) | NA | 60 | 26 | 12.2 – 50.4 | 2013 | N | By-product of drinking water chlorination |
| Chlorine (as C12)(ppm) | 4 | 4 | 4 | ND – 1 | 2013 | N | Water additive used to control microbes |
| TTHMs (Total Trihalomethanes) | NA | 80 | 81 | 36.4 – 88.3 | 2013 | Y | By-product of drinking water disinfection |

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| **Inorganic Contaminants** |
| **Contaminant** | **MCLG****or****MRDLG** | **MCL, TT** **or****MRDL** | **Your** **Water** | **Range****Low/High** | **Sample****Date** | **Violation** | **Typical****Source** |
| Barium(ppm) | 2 | 2 | 0.0481 | NA  | 2013 | N | Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits |
| Fluoride(ppm) | 4 | 4 | 4 | ND – 4 | 2013 | N | Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories |
| Nitrate (measured as Nitrogen)(ppm) | 10 | 10 | 0.76 | ND – 0.76 | 2013 | N | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits |

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| **Microbiological Contaminants** |
| **Contaminant** | **MCLG****or****MRDLG** | **MCL, TT****or****MRDL** | **Your****Water** | **Range****Low/high** | **Sample****Date** | **Violation** | **Typical** **Source** |
| Turbidity(NTU) | NA | 0.3 | 94.45 | NA | 2013 | Y | Soil Runoff |

94.45% of the samples were below the TT value of 0.3. A value less than 95% constitutes a TT violation. The highest single measurement was 0.46. Any measurement in excess of 1 is a violation unless otherwise approved by the state.

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| **Radioactive Contaminants** |
| **Contaminant** | **MCLG****or****MRDLG** | **MCL, TT****or****MRDL** | **Your****Water** | **Range****Low/High** | **Sample****Date** | **Violation** | **Typical** **Source** |
| Beta/photon Emitters (pCi/L) | 0 | 50 | 50 | ND – 50 | 2011 | N | Decay of natural and manmade deposits |

**Wagoner County Rural Water District #4**

**(continued)**

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| **Inorganic Contaminants** |
| **Contaminant** | **MCLG** | **AL** | **Your****Water** | **Sample****Date** | **# Samples****Exceeding AL** | **Exceeds** **AL** | **Typical****Source** |
| Copper-action level at consumer taps(ppm) | 1.3 | 1.3 | 0.661 | 2012 | 1 | N | Corrosion of household plumbing systems; Erosion of natural deposits |
| Lead-action level at consumer taps(ppb) | 0 | 15 | 6.8 | 2012 | 0 | N | Corrosion of household plumbing systems; Erosion of natural deposits |

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| **Violations and Exceedances** |
| **Turbidity**Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease causing organisms. These organisms include bacteria, viruses and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches. The violation occurred in the month of June 2013. The correction included a change of media and chemicals. |
| **TTHMs (Total Trihalomethanes)**Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys or central nervous system, and may have an increased risk of getting cancer. The violation occurred during the first quarter of 2013 and came back into compliance the following quarter. Changed media and adjusted chemical treatment. |

**Abbreviations and Definitions**

**AL (Action Level)**

The concentration of a contaminant that, if exceeded triggers treatment or other requirements that a system must follow.

**MCL (Maximum Contaminant Level)**

The highest level of a contaminant 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.

**MRDL (Maximum Residual Disinfectant Level)**

The highest level of a disinfectant allowed in the drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**MRDLG (Maximum Residual Disinfectant Level Goal)**

The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**NA (Not applicable)**

**ND (Not detected)**

**NTU (Nephelometric Turbidity Units)**

Measurement of the clarity, or turbidity, or water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**Parts per million (ppm) or milligrams per liter (mgpl)**

One part substance per million parts water.

**Parts per billion (ppb) or micrograms per liter (UG/L)**

One part substance per billion parts water.

**pCi/L (pico curies per liter)**

A measure of radioactivity.

**TT (Treatment technique)**

A required process intended to reduce the level of a contaminant in drinking water.

**Mrem/yr (Millograms per year)**

A measure of radiation absorbed by the body

**SU (Standard Units)**

**LRAA (Locational Running Annual Average)**

Average

**LT2ESWTR**

Long Term 2 Enhanced Surface Water Treatment Rule

**Stage 2 DBPR**

Stage 2 Disinfection By-Product Rule

**UCMR2**

Unregulated Contaminants Monitoring Rule 2