

Annual Drinking Water Quality Report January-December 2016




Turnerville Water and Fire Protection District

We are pleased to present to you this year's Annual Water Quality Report. This report is designed to inform you about the quality water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water. Our water sources are four (4) groundwater wells, located on Celeste Road producing from the Miocene Aquifer. We are pleased to announce that Tank 5 went online the 1st week of December. No special treatment is required; however, chlorine is added to the water for disinfection purposes.

In compliance with the Alabama Department of Environmental Management (ADEM), Turnerville Water and Fire Protection District has developed a Source Water Assessment that will assist in protecting our water sources. This plan provides additional information such as potential sources of contamination. It includes a susceptibility analysis, which classifies potential contaminants as high, moderate, or non-susceptible to contaminating the water source. This report has been completed and approved by ADEM. A copy of the report is available for review in our office, or you may purchase a copy upon request for a nominal reproduction fee. Please help us make this effort worthwhile by protecting our source water. Carefully follow instructions on pesticides and herbicides you use for your lawn and garden, and properly dispose of household chemicals, paints and waste oil.

If you have questions about this report or concerning your water utility, please contact Joel Manley or Justin James at (251) 679-8364 at the Turnerville Water Office during regular working hours. We want our valued customers to be informed about their water utility. If you want to learn more, please attend our regularly scheduled meetings held every month on the second Monday at 6:00 pm at the Turnerville Community Center.

BOARD MEMBERS

 Alvin Middleton, *Chairman*  Howard Hill, *Vice Chairman*  Diane Williams, *Secretary*
 Jerry Willis, *Member*  William Hoven, *Member*

Important Drinking Water Definitions:

Action Level (AL) - The concentration of a contaminant that triggers treatment or other requirements that a water system shall follow.

Maximum Contaminant Level (MCL) - 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.

Maximum Contaminant Level Goal (MCLG) - 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.

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.

Maximum Residual Disinfectant Level Goal (MRDLG) - 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.

Millirems per year (mrem/yr) - Measure of radiation absorbed by the body.

Nephelometric Turbidity Unit (NTU) - Nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Non-Detects (ND) - Laboratory analysis indicates that the constituent is not present.

Parts per million (ppm) or Milligrams per liter (mg/L) - One part per million corresponds to one minute in two years or a single penny in \$10,000.

Parts per billion (ppb) or Micrograms per liter (µg/L) - One part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

Parts per trillion (ppt) or Nanograms per liter (ng/L) - One part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.

Parts per quadrillion (ppq) or Picograms per liter (pg/L) - One part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in \$10,000,000,000,000.

Picocuries per liter (pCi/L) - Picocuries per liter is a measure of the radioactivity in water.

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

Threshold Odor Number (T.O.N.) - The greatest dilution of a sample with odor-free water that still yields a just-detectable odor.

Variations & Exemptions - ADEM or EPA permission not to meet an MCL or a treatment technique under certain conditions.

Explanation of reasons for variance/exemptions

Based on a study conducted by ADEM with the approval of the EPA a statewide waiver for the monitoring of asbestos and dioxin was issued. Thus monitoring for these contaminants was not required.

Turnerville Water and Fire Protection District routinely monitors for contaminants in your drinking water according to Federal and State laws. Unless otherwise noted, the data presented in the following tables show the results of our monitoring period of January 1st to December 31st, 2016.

Table of Primary Contaminants

At high levels some primary contaminants can pose certain health risks to humans. This table provides a quick glance of any primary contaminant detections.

| CONTAMINANT | MCL | AMOUNT DETECTED | CONTAMINANT | MCL | AMOUNT DETECTED | CONTAMINANT | MCL | AMOUNT DETECTED |
|--------------------------------|--------|-----------------|---------------------------------|-----|-----------------|--------------------------------|-----|-----------------|
| Bacteriological | | | | | | | | |
| Total Coliform Bacteria | < 5% | ND | Selenium(ppb) | 50 | ND | Epichlorohydrin | TT | ND |
| Turbidity | TT | 0.26 | Thallium(ppb) | 2 | ND | Ethylbenzene(ppb) | 700 | ND |
| Fecal Coliform & E. coli | 0 | ND | Organic Chemicals | | | Ethylene dibromide(ppt) | 50 | ND |
| Radical | | | | | | | | |
| Beta/Photon emitters (mrem/yr) | 4 | ND | Acrylamide | TT | ND | Glyphosate(ppb) | 700 | ND |
| Alpha emitters (pci/l) | 15 | 3.90 | Alachlor(ppb) | 2 | ND | Haloacetic Acids(ppb) | 60 | 13.10 |
| Combined radium (pci/l) | 5 | 1.80 | Atrazine(ppb) | 3 | ND | Heptachlor(ppt) | 400 | ND |
| Uranium(pci/l) | 30 | ND | Benzene(ppb) | 5 | ND | Heptachlor epoxide(ppt) | 200 | ND |
| Inorganic | | | | | | | | |
| Antimony (ppb) | 6 | ND | Benzo(a)pyrene[PHAs](ppt) | 200 | ND | Hexachlorobenzene(ppb) | 1 | ND |
| Arsenic (ppb) | 10 | ND | Carbofuran(ppb) | 40 | ND | Hexachlorocyclopentadiene(ppb) | 50 | ND |
| Asbestos (MFL) | 7 | ND | Carbon Tetrachloride(ppb) | 5 | ND | Lindane(ppt) | 200 | ND |
| Barium (ppm) | 2 | ND | Chlordane(ppb) | 2 | ND | Methoxychlor(ppb) | 40 | ND |
| Beryllium (ppb) | 4 | ND | Chlorobenzene(ppb) | 100 | ND | Oxamyl [Vydate](ppb) | 200 | ND |
| Bromate(ppb) | 10 | ND | 2,4-D | 70 | ND | Pentachlorophenol(ppb) | 1 | ND |
| Cadmium (ppb) | 5 | ND | Dalapon(ppb) | 200 | ND | Picloram(ppb) | 500 | ND |
| Chloramines(ppm) | 4 | ND | Dibromochloropropane(ppt) | 200 | ND | PCBs(ppt) | 500 | ND |
| Chlorine(ppm) | 4 | 1.50 | 0-Dichlorobenzene(ppb) | 600 | ND | Simazine(ppb) | 4 | ND |
| Chlorine dioxide(ppb) | 800 | ND | p-Dichlorobenzene(ppb) | 75 | ND | Styrene(ppb) | 100 | ND |
| Chlorite(ppm) | 1 | ND | 1,2-Dichloroethane(ppb) | 5 | ND | Tetrachloroethylene(ppb) | 5 | ND |
| Chromium (ppb) | 100 | ND | 1,1-Dichloroethylene(ppb) | 7 | ND | Toluene(ppm) | 1 | ND |
| Copper (ppm) (2011) | AL=1.3 | 0.21 | Cis-1,2-Dichloroethylene(ppb) | 70 | ND | TOC | TT | ND |
| Cyanide (ppb) | 200 | ND | trans-1,2-Dichloroethylene(ppb) | 100 | ND | TTHM(ppb) | 80 | 20.00 |
| Fluoride (ppm) | 4 | ND | Dichloromethane(ppb) | 5 | ND | Toxaphene(ppb) | 3 | ND |
| Lead (ppb) | AL=15 | ND | 1,2-Dichloropropane(ppb) | 5 | ND | 2,4,5-TP (Silvex)(ppb) | 50 | ND |
| Mercury (ppb) | 2 | ND | Di-(2-ethylhexyl)adipate(ppb) | 400 | ND | 1,2,4-Trichlorobenzene(ppb) | 70 | ND |
| Nitrate (ppm) | 10 | 0.18 | Di(2-ethylhexyl)phthalates(ppb) | 6 | ND | 1,1,1-Trichloroethane(ppb) | 200 | ND |
| Nitrite (ppm) | 1 | ND | Dinoseb(ppb) | 7 | ND | 1,1,2-Trichloroethane(ppb) | 5 | ND |
| Total Nitrate & Nitrite | 10 | 0.18 | Dioxin[2,3,7,8-TCDD](ppq) | 30 | ND | Trichloroethylene(ppb) | 5 | ND |
| | | | Diquat(ppb) | 20 | ND | Vinyl Chloride(ppb) | 2 | ND |
| | | | Endothall(ppb) | 100 | ND | Xylenes(ppm) | 10 | ND |
| | | | Endrin(ppb) | 2 | ND | | | |

Table of Secondary and Unregulated Contaminants

Secondary Drinking Water Standards are guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. ADEM has Secondary Drinking Water Standards established in state regulations applicable to water systems required to monitor for the various components. **Unregulated contaminants** are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.

| CONTAMINANT | MCL | DETECT | CONTAMINANT | MCL | DETECT | CONTAMINANT | MCL | DETECT |
|---------------------------|------|--------|------------------------------|------|--------|---------------------------|-----|--------|
| Secondary | | | | | | | | |
| Aluminum | 0.2 | ND | Foaming Agents | 0.5 | ND | Silver | 7 | ND |
| Chloride | 250 | 7.97 | Iron | 0.3 | ND | Sulfate | 70 | 2.88 |
| Color (PCU) | 15 | 5.00 | Magnesium | 75 | ND | Total Dissolved Solids | 500 | 164 |
| Copper | 1 | ND | Odor (T.O.N.) | 5 | 1.00 | Zinc | 5 | ND |
| Special | | | | | | | | |
| Calcium | N/A | 0.51 | pH (SU) | N/A | 7.49 | Temperature (*C) | N/A | ND |
| Carbon Dioxide | N/A | ND | Sodium | N/A | 56.40 | Total Alkalinity | N/A | 124 |
| Manganese | 0.05 | ND | Specific Conductance (umhos) | <500 | 267.00 | Total Hardness (as CaCO3) | N/A | 1.6 |
| Unregulated | | | | | | | | |
| 1,1 - Dichloropropene | N/A | ND | Bromobenzene | N/A | ND | Hexachlorobutadiene | N/A | ND |
| 1,1,2,2-Tetrachloroethane | N/A | ND | Bromochloromethane | N/A | ND | Isopropylbenzene | N/A | ND |
| 1,1-Dichloroethane | N/A | ND | Bromodichloromethane | N/A | 0.00 | M-Dichlorobenzene | N/A | ND |
| 1,2,3 - Trichlorobenzene | N/A | ND | Bromoform | N/A | ND | Methomyl | N/A | ND |
| 1,2,3 - Trichloropropane | N/A | ND | Bromomethane | N/A | ND | Metolachlor | N/A | ND |
| 1,2,4 - Trimethylbenzene | N/A | ND | Butachlor | N/A | ND | Metribuzin | N/A | ND |
| 1,2,4-Trichlorobenzene | N/A | ND | Carbaryl | N/A | ND | MTBE | N/A | ND |
| 1,3 - Dichloropropane | N/A | ND | Chloroethane | N/A | ND | N - Butylbenzene | N/A | ND |
| 1,3 - Dichloropropene | N/A | ND | Chlorodibromomethane | N/A | ND | Naphthalene | N/A | ND |
| 1,3,5 - Trimethylbenzene | N/A | ND | Chloroform | N/A | 1.25 | N-Propylbenzene | N/A | ND |
| 2,2 - Dichloropropane | N/A | ND | Chloromethane | N/A | ND | O-Chlorotoluene | N/A | ND |
| 3-Hydroxycarbofuran | N/A | ND | Dibromochloromethane | N/A | ND | P-Chlorotoluene | N/A | ND |
| Aldicarb | N/A | ND | Dibromomethane | N/A | ND | P-Isopropyltoluene | N/A | ND |
| Aldicarb Sulfone | N/A | ND | Dichlorodifluoromethane | N/A | ND | Propachlor | N/A | ND |
| Aldicarb Sulfoxide | N/A | ND | Dieldrin | N/A | ND | Sec - Butylbenzene | N/A | ND |
| Aldrin | N/A | ND | Fluorotrichloromethan | N/A | ND | Tert - Butylbenzene | N/A | ND |

All drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some contaminants. It's important to remember that the presence of these contaminants does not necessarily pose a health risk. The EPA or ADEM requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently.

The table below lists all of the drinking water contaminants that we detected.

Table of Detected Drinking Water Contaminants

| CONTAMINANT | MCLG | MCL | Range | | | Amount Detected | | Likely Source of Contamination |
|---|---------|--------------------|--------------------------------------|---|----------|-----------------|-------|--|
| Bacteriological Contaminants January - December 2016 | | | | | | | | |
| Turbidity | 0 | TT | | | | 0.26 | NTU | Soil runoff |
| Radiological Contaminants January - December 2015 | | | | | | | | |
| Alpha emitters | 0 | 15 | | | | 3.90 | pCi/L | Erosion of natural deposits |
| Combined Radium 226 & 228 | 0 | 5 | | | | 1.80 | pCi/L | Erosion of natural deposits |
| Inorganic Contaminants January - December 2014-2016 | | | | | | | | |
| Chlorine | MRDLG 4 | MRDL 4 | 1.10 | - | 1.50 | 1.50 | ppm | Water additive used to control microbes |
| Copper | 1.3 | 10 Sites AL=1.3 | No. of Sites above action level 0 | | | 0.21 | ppm | Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives |
| Fluoride | 4 | 4 | ND | - | ND | ND | ppm | Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories |
| Nitrate (as N) | 10 | 10 | ND | - | 0.18 | 0.18 | ppm | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits |
| Total Nitrate & Nitrite | 10 | 10 | ND | - | 0.18 | 0.18 | ppm | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits |
| Organic Contaminants January - December 2016 | | | | | | | | |
| Haloacetic Acids (HAA5) | 0 | 60 | 11.70 | - | 14.60 | 13.10 | ppb | By-product of drinking water chlorination |
| Total trihalomethanes (TTHM) | 0 | 80 | 21.60 | - | 24.50 | 20.00 | ppb | By-product of drinking water chlorination |
| Secondary Contaminants January - December 2016 | | | | | | | | |
| Chloride | N/A | 250 | ND | - | 7.97 | 7.97 | ppm | Naturally occurring in the environment or as a result of agricultural runoff |
| Sulfate | N/A | 250 | ND | - | 2.88 | 2.88 | ppm | Naturally occurring in the environment |
| Total Dissolved Solids | N/A | 500 | ND | - | 164.00 | 164.00 | ppm | Erosion of natural deposits |
| Special Contaminants January - December 2016 | | | | | | | | |
| Calcium | N/A | N/A | ND | - | 0.51 | 0.51 | ppm | Erosion of natural deposits |
| pH | N/A | N/A | ND | - | 7.49 | 7.49 | SU | Naturally occurring in the environment or as a result of treatment with water additives |
| Sodium | N/A | N/A | ND | - | 56.40 | 56.40 | ppm | Naturally occurring in the environment |
| Specific Conductance | N/A | <500 | ND | - | 267.00 | 267.00 | umhos | Naturally occurring in the environment or as a result of treatment with water additives |
| Total Alkalinity | N/A | N/A | ND | - | 124.00 | 124.00 | ppm | Erosion of natural deposits |
| Total Hardness (as CaCO3) | N/A | N/A | ND | - | 1.60 | 1.60 | ppm | Naturally occurring in the environment or as a result of treatment with water additives |
| Unregulated Contaminants January - December 2016 | | | | | | | | |
| Bromodichloromethane | N/A | N/A | ND | - | ND | ND | ppb | Naturally occurring in the environment or as a result of industrial discharge or agricultural runoff; by-product of chlorination |
| Chloroform | N/A | N/A | 0.890000 | - | 1.610000 | 1.250000 | ppb | Naturally occurring in the environment or as a result of industrial discharge or agricultural runoff; by-product of chlorination |

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 radioactive material, and it can pick up substances resulting from the presence of animals or from human activities.

General Information

As you can see by the tables, our system had no violations. We have learned through our monitoring and testing that some constituents have been detected. We are pleased to report that our drinking water is safe and meets federal and state requirements. This report shows our water quality and what it means.

Total Coliform: The Total Coliform Rule requires water systems to meet a stricter limit for coliform bacteria. 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 by newspaper, television or radio. To comply with the stricter regulation, we have increased the average amount of chlorine in the distribution system.

Lead in Drinking Water: “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. Turnerville Water and Fire Protection District 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>.”

Some people may be more vulnerable to contaminants in drinking water than the general population. People who are immuno-compromised such as cancer patients undergoing chemotherapy, organ transplant recipients, HIV/AIDS positive or other immune system disorders, some elderly, and infants can be particularly at risk from infections. People at risk should seek advice about drinking water from their health care providers. EPA (Environmental Protection Agency)/CDC (Center of Disease Control) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline. All Drinking water, including bottled drinking water, may reasonably be expected to contain at least small amounts of some contaminants. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency’s Safe Drinking Water Hotline (800-426-4791).

In our continuing efforts to maintain a safe and dependable water supply it may be necessary to make improvements in your water system. The costs of these improvements may be reflected in the rate structure. Rate adjustments may be necessary in order to address these improvements.

Thank you for allowing us to continue providing your family with clean, quality water this year. In order to maintain a safe and dependable water supply we sometimes need to make improvements that will benefit all of our customers. These improvements are sometimes reflected as rate structure adjustments. Thank you for understanding.

We at Turnerville Water and Fire Protection District work around the clock to provide top quality water to every tap. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life and our children’s future.

Turnerville Water and Fire Protection District
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2016 Annual Water Quality Report Enclosed