# 2022 ANNUAL DRINKING WATER QUALITY REPORT

## DELAWARE VALLEY UNIVERSITY
## WATER SYSTEM
## PWS NO. 1090084

**FEBRUARY 2023**

***Prepared by:***

**CKS ENGINEERS**
**4259 W. SWAMP ROAD, SUITE 410**
**DOYLESTOWN, PA 18902**

**REFERENCE NO. 10409**

# DELAWARE VALLEY UNIVERSITY
# 2022 ANNUAL DRINKING WATER QUALITY REPORT

## PWSID #: 1090084

*Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, ó hable con alguien que lo entienda.* (This report contains important information about your drinking water. Have someone translate it for you or speak with someone who understands it.)

### *WATER SYSTEM INFORMATION:*

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 David Cell at david.cell@delval.edu.

Please be advised that during the periods of January 2022 to July 2022, Delaware Valley University supplied its own water to campus through operation of on-site groundwater wells. The remainder of the year, public water was supplied by Doylestown Township Municipal Authority (DTMA). The University will continue to be fully dependent on public water.

### *SOURCE(S) OF OUR WATER:*

Delaware Valley University owns and operates a public water supply system which serves the entirety of the campus and the student-faculty population. Our water comes from two (2) groundwater wells, located on campus.

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).

### *MONITORING YOUR WATER:*

We routinely monitor for contaminants in your drinking water according to federal and state laws. The following tables show the results of our monitoring for the period of January 1 to December 31, 2022. The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data is from prior years in accordance with the Safe Drinking Water Act. The date has been noted on the sampling results table.

***DEFINITIONS:***

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

*Minimum Residual Disinfectant Level (MinRDL)* - The minimum level of residual disinfectant required at the entry point to the distribution system.

*Level 1 Assessment* – A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

*Level 2 Assessment* – A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an *E. coli* MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

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

*Mrem/year* = millirems per year (a measure of radiation absorbed by the body)

*pCi/L* = picocuries per liter (a measure of radioactivity)

*ppb* = parts per billion, or micrograms per liter (µg/L)

*ppm* = parts per million, or milligrams per liter (mg/L)

*ppq* = parts per quadrillion, or picograms per liter

*ppt* = parts per trillion, or nanograms per liter

## *DETECTED SAMPLE RESULTS:*

| *Inorganic Contaminants* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Contaminant** | **MCL in CCR Units** | **MCLG** | **Level Detected** | **Range of Detections** | **Units** | **Sample Date** | **Violation Y/N** | **Sources of Contamination** |
| Arsenic (2021) | 10 ppb | 0 ppb | 1.00 | 1.00 | ppb | 10/18/2021 | N | Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes. |
| Barium (2021) | 2 ppm | 2 ppm | 0.372 | 0.372 | ppm | 10/18/2021 | N | Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits. |
| Chromium (2021) | 100 ppb | 100 ppb | 2.00 | 2.00 | ppb | 10/18/2021 | N | Discharge from steel and pulp mills; Erosion of natural deposits. |
| Nickel (2021) | 100 ppb | 100 ppb | 3.00 | 3.00 | ppb | 10/18/2021 | N | Erosion of natural deposits; Discharge from fertilizer and aluminum factories. |
| Nitrate | 10 ppm | 10 ppm | 2.81 | 2.81 | ppm | 3/07/2022 | N | Runoff from fertilizer use. |

**Items which were not sampled in 2022 are shown with the most recent year of sampling by Delaware Valley University.*

| *Disinfection Byproducts* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Contaminant** | **MCL in CCR Units** | **MCLG** | **Level Detected** | **Range of Detections** | **Units** | **Sample Date** | **Violation Y/N** | **Sources of Contamination** |
| Haloacetic Acids (HAA5) | 60 ppb | NA | 4.30 | 4.30 | ppb | 7/11/2022 | N | By-product of drinking water disinfection. |
| Total Trihalomethanes (TTHM) | 80 ppb | NA | 56 | 8.80-16.1 | ppb | 7/11/2022 | N | By-product of drinking water chlorination. |

| *Entry Point Disinfectant Residual* | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Contaminant** | **Minimum Disinfectant Residual** | **Lowest Level Detected** | **Range of Detections** | **Units** | **Sample Date** | **Violation Y/N** | **Sources of Contamination** |
| Free Chlorine (Entry Point) | 0.40 | 0.51 | 0.51-1.40 | ppm | 2022 | N | Water additive used to control microbes. |

| *Radioactive Contaminants* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Contaminant** | **MCL in CCR Units** | **MCLG** | **Level Detected** | **Range of Detections** | **Units** | **Sample Date** | **Violation Y/N** | **Sources of Contamination** |
| Gross Alpha (2016) | 15 pCi/L | 0 | 0.868 | 0.868 | pCi/L | 2/11/2016 | N | Erosion of natural deposits. |
| Combined Uranium (2016) | 30 ug/L | 0 | 1.84 | 1.84 | ug/L | 2/11/2016 | N | Erosion of natural deposits. |

| *Lead and Copper* | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Contaminant** | **Action Level (AL)** | **MCLG** | **90th Percentile Value** | **Units** | **# of Sites Above AL of Total Sites** | **Violation Y/N** | **Sources of Contamination** |
| Lead | 15 | 0 | 0 | ppb | 0 of 15 Samples | N | Corrosion of household plumbing. |
| Copper | 1.3 | 1.3 | 0.339 | ppm | 0 of 15 Samples | N | Corrosion of household plumbing. |

| *Microbial* | | | | | |
|---|---|---|---|---|---|
| **Contaminants** | **MCL** | **MCLG** | **Positive Sample(s)** | **Violation Y/N** | **Sources of Contamination** |
| Total Coliform Presence | Routine and repeat samples are total coliform-positive **and** either is *E. coli*-positive **or** system fails to take repeat samples following *E. coli*-positive routine sample **or** system fails to analyze total coliform-positive repeat sample for *E. coli.* | 0 | 1<br>8/08/2022 | N | Human and animal fecal waste. |

The U.S. Safe Drinking Water Act requires that we routinely monitor for a variety of possible contaminants. The frequency of contaminant testing varies depending on the contaminant and specific conditions presented by the local area and industry. The results reported here are the most up-to-date information available. In addition, Delaware Valley University monitors numerous other contaminants beyond what is presented in the above. Non-detected contaminants (or "0" results) are *not* included in any of the detected contaminant's tables. Non-detected contaminants (ND) for the previous 5 years of reporting, are provided below.

# *UNDETECTED CONTAMINANTS TESTED FOR BY DELAWARE VALLEY UNIVERSITY*

## *Inorganic Contaminants*

**Antimony (2021)**
**Asbestos (2021)**
**Beryllium (2021)**
**Cadmium (2021)**
**Cyanide (2021)**
**Fluoride (2021)**
**Mercury (2021)**
**Selenium (2021)**
**Thallium (2021)**

## *Organic Contaminants*

**1,1,1-TRICHLOROETHANE**
**1,1,2-TRICHLOROETHANE**
**1,1-DICHLOROETHYLENE**
**1,2,4-TRICHLOROBENZE**
**1,2-DIBROMO,3-CHLOROPROP (2020)**
**1,2-DICHLOROETHANE**
**1,2-DICHLOROPROPANE**
**2,3,7,8-TCDD (DIOXIN) (2020)**
**2,4 – D (2020)**
**2,4,5 - TP SILVEX (2020)**
**2,4,5 - TP SILVEX (2020)**
**ALACHLOR (2020)**
**ATRAZINE (2020)**
**BENZENE**
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**CARBOFURAN (2020)**
**CARBON TETRACHLORIDE**
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**cis-1,2-DICHLOROETHYLENE**
**DALAPON (2020)**
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**DINOSEB (2020)**
**DIQUAT (2020)**
**ENDOTHALL (2020)**
**ENDRIN (2020)**
**ETHYLBENZENE**
**ETHYLENE DIBROMIDE (2020)**
**GLYPHOSATE (2020)**
**HEPTACHLOR (2020)**
**HEPTACHLOR EPOXIDE (2020)**
**HEXACHLOROBENZENE (2020)**
**HEXACHLOROCYCLOPENTADIENE (2020)**
**LINDANE (2020)**
**METHOXYCHLOR (2020)**
**o-DICHLOROBENZENE**
**OXYMAL (2020)**
**PARA-DICHLOROBENZENE**
**PCBS (2020)**
**PENTACHLOROPHENOL (2020)**
**PICLORAM (2020)**
**SIMAZINE (2020)**
**STYRENE**
**TETRACHLOROETHYLENE**
**TOLUENE**
**TOXAPHENE (2020)**
**trans-1,2-DICHLOROETHYLENE**
**TRICHLOROETHYLENE**
**VINYL CHLORIDE**
**XYLENES**

**** Note: Not all items are required to be sampled every year according to PA DEP regulations. Items are shown with the most recent year of sampling by Delaware Valley University***

***DETECTED CONTAMINANTS HEALTH EFFECTS:***

***Nitrate:*** *Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.*

***Arsenic:*** *While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.*

***Total Coliform Presence:*** *Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially-harmful, bacteria may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.*

***OTHER VIOLATIONS:***

*- During 2022, Delaware Valley University failed to report all required Chlorine monthly distribution samples. Following a Violation Notice issued 07/26/2022, the samples were reported, and compliance was achieved.*

*- During 2022, Delaware Valley University failed to properly report Entry Point Disinfectant Residual sampling to the DEP. Following a Violation Notice issued 8/23/2022, a report was submitted, and compliance was achieved.*

***EDUCATIONAL INFORMATION:***

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. 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 stormwater run-off, 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.
- 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.
- Radioactive contaminants, which 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 and DEP prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA and DEP regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

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 Environmental Protection Agency's *Safe Drinking Water Hotline* (800-426-4791).

***Information about Lead***

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. Delaware Valley University 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.*

***OTHER INFORMATION:***

An independent, State-certified laboratory analyzed all samples. The testing results are reported to all required State regulatory agencies by the laboratory in compliance with State requirements. All water that reaches you has gone through disinfection treatment and contaminant removal processes to reach the desired level of purity and safety for your water.

As you can see by the table included in this report, our system had no violations of drinking water contaminant limits during 2022. We are proud that your drinking water meets or exceeds all Federal and State requirements.

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## *DETECTED SAMPLE RESULTS:*

| *Inorganic Contaminants* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Contaminant** | **MCL in CCR Units** | **MCLG** | **Level Detected** | **Range of Detections** | **Units** | **Sample Date** | **Violation Y/N** | **Sources of Contamination** |
| Arsenic (2021) | 10 ppb | 0 ppb | 1.00 | 1.00 | ppb | 10/18/2021 | N | Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes. |
| Barium (2021) | 2 ppm | 2 ppm | 0.372 | 0.372 | ppm | 10/18/2021 | N | Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits. |
| Chromium (2021) | 100 ppb | 100 ppb | 2.00 | 2.00 | ppb | 10/18/2021 | N | Discharge from steel and pulp mills; Erosion of natural deposits. |
| Nickel (2021) | 100 ppb | 100 ppb | 3.00 | 3.00 | ppb | 10/18/2021 | N | Erosion of natural deposits; Discharge from fertilizer and aluminum factories. |
| Nitrate | 10 ppm | 10 ppm | 2.81 | 2.81 | ppm | 3/07/2022 | N | Runoff from fertilizer use. |

**Items which were not sampled in 2022 are shown with the most recent year of sampling by Delaware Valley University.*

| *Disinfection Byproducts* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Contaminant** | **MCL in CCR Units** | **MCLG** | **Level Detected** | **Range of Detections** | **Units** | **Sample Date** | **Violation Y/N** | **Sources of Contamination** |
| Haloacetic Acids (HAA5) | 60 ppb | NA | 4.30 | 4.30 | ppb | 7/11/2022 | N | By-product of drinking water disinfection. |
| Total Trihalomethanes (TTHM) | 80 ppb | NA | 56 | 8.80-16.1 | ppb | 7/11/2022 | N | By-product of drinking water chlorination. |

| *Entry Point Disinfectant Residual* | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Contaminant** | **Minimum Disinfectant Residual** | **Lowest Level Detected** | **Range of Detections** | **Units** | **Sample Date** | **Violation Y/N** | **Sources of Contamination** |
| Free Chlorine (Entry Point) | 0.40 | 0.51 | 0.51-1.40 | ppm | 2022 | N | Water additive used to control microbes. |

| *Radioactive Contaminants* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Contaminant** | **MCL in CCR Units** | **MCLG** | **Level Detected** | **Range of Detections** | **Units** | **Sample Date** | **Violation Y/N** | **Sources of Contamination** |
| Gross Alpha (2016) | 15 pCi/L | 0 | 0.868 | 0.868 | pCi/L | 2/11/2016 | N | Erosion of natural deposits. |
| Combined Uranium (2016) | 30 ug/L | 0 | 1.84 | 1.84 | ug/L | 2/11/2016 | N | Erosion of natural deposits. |

| *Lead and Copper* | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Contaminant** | **Action Level (AL)** | **MCLG** | **90th Percentile Value** | **Units** | **# of Sites Above AL of Total Sites** | **Violation Y/N** | **Sources of Contamination** |
| Lead | 15 | 0 | 0 | ppb | 0 of 15 Samples | N | Corrosion of household plumbing. |
| Copper | 1.3 | 1.3 | 0.339 | ppm | 0 of 15 Samples | N | Corrosion of household plumbing. |

| *Microbial* | | | | | |
|---|---|---|---|---|---|
| **Contaminants** | **MCL** | **MCLG** | **Positive Sample(s)** | **Violation Y/N** | **Sources of Contamination** |
| Total Coliform Presence | Routine and repeat samples are total coliform-positive **and** either is *E. coli*-positive **or** system fails to take repeat samples following *E. coli*-positive routine sample **or** system fails to analyze total coliform-positive repeat sample for *E. coli.* | 0 | 1<br>8/08/2022 | N | Human and animal fecal waste. |

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### *Inorganic Contaminants*

**Antimony (2021)**
**Asbestos (2021)**
**Beryllium (2021)**
**Cadmium (2021)**
**Cyanide (2021)**
**Fluoride (2021)**
**Mercury (2021)**
**Selenium (2021)**
**Thallium (2021)**

### *Organic Contaminants*

**1,1,1-TRICHLOROETHANE**
**1,1,2-TRICHLOROETHANE**
**1,1-DICHLOROETHYLENE**
**1,2,4-TRICHLOROBENZE**
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**HEPTACHLOR (2020)**
**HEPTACHLOR EPOXIDE (2020)**
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**LINDANE (2020)**
**METHOXYCHLOR (2020)**
**o-DICHLOROBENZENE**
**OXYMAL (2020)**
**PARA-DICHLOROBENZENE**
**PCBS (2020)**
**PENTACHLOROPHENOL (2020)**
**PICLORAM (2020)**
**SIMAZINE (2020)**
**STYRENE**
**TETRACHLOROETHYLENE**
**TOLUENE**
**TOXAPHENE (2020)**
**trans-1,2-DICHLOROETHYLENE**
**TRICHLOROETHYLENE**
**VINYL CHLORIDE**
**XYLENES**

**** Note: Not all items are required to be sampled every year according to PA DEP regulations. Items are shown with the most recent year of sampling by Delaware Valley University***

***DETECTED CONTAMINANTS HEALTH EFFECTS:***

***Nitrate:*** *Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.*

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***OTHER VIOLATIONS:***

*- During 2022, Delaware Valley University failed to report all required Chlorine monthly distribution samples. Following a Violation Notice issued 07/26/2022, the samples were reported, and compliance was achieved.*

*- During 2022, Delaware Valley University failed to properly report Entry Point Disinfectant Residual sampling to the DEP. Following a Violation Notice issued 8/23/2022, a report was submitted, and compliance was achieved.*

***EDUCATIONAL INFORMATION:***

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. 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 stormwater run-off, 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.
- 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.
- Radioactive contaminants, which 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 and DEP prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA and DEP regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

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 Environmental Protection Agency's *Safe Drinking Water Hotline* (800-426-4791).

***Information about Lead***

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. Delaware Valley University 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*.

***OTHER INFORMATION:***

An independent, State-certified laboratory analyzed all samples. The testing results are reported to all required State regulatory agencies by the laboratory in compliance with State requirements. All water that reaches you has gone through disinfection treatment and contaminant removal processes to reach the desired level of purity and safety for your water.

As you can see by the table included in this report, our system had no violations of drinking water contaminant limits during 2022. We are proud that your drinking water meets or exceeds all Federal and State requirements.