

# **Annual Drinking Water Quality Report for 2017 for Johnson City Water Department**

## **Why Are You Getting This Report?**

To comply with New York State regulations, the Johnson City Water Department will be annually issuing a report describing the quality of your drinking water. The purpose of this report is to raise your understanding of drinking water and your awareness of the need to protect our drinking water sources. This report provides an overview of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to New York State standards. A detailed summary of any analytical results is available at the Johnson City Water Department which is located at 44 Camden Street, Johnson City, New York. A copy of this report is available at Johnson City Municipal Services, 243 Main Street, Johnson City, New York. Additional information may also be obtained by calling the Johnson City Water Department at 607-797-2523.

## **Where Does Your Water Come From?**

In general, all drinking water sources include rivers, lakes, streams, ponds, reservoirs, springs and wells. Johnson City's water is produced from an abundant underground aquifer using five wells located throughout the Village. These wells are located on North Broad Street, Olive Street, and at our main plant on Camden Street in Westover. The total pumping capacity of these wells is 12,000,000 gallons per day. In addition, the Village has four reservoir tanks with a holding capacity of 5,000,000 gallons and additional booster stations are used to serve three different elevation zones. The water produced by these wells supplies all of the Village of Johnson City, Airport Road in the Town of Maine, Westover and Fairmont Park in the Town of Union, and parts of the Town of Dickinson and the Village of Endicott. There are approximately 5,650 homes and businesses connected to 70 miles of water main, bringing safe drinking water to 15,174 (as taken from the 2010 census) people. We also provide water to 525 fire hydrants to help protect you and your home should the need arise. The Village of Johnson City wells are disinfected with liquid chlorination which is introduced at each well site. At our Camden Street treatment plant, Calciquest (a sequestering agent) is added to stabilize the water being pumped through air strippers. Air stripping is a process to remove any volatile contaminant that may be present in the raw water. In addition, the NYS Department of Health has completed a source water assessment for our system showing possible and actual threats to the safety of our drinking water. The ratings, as shown in the **Susceptibility Table**, determine how susceptible each of our wells is to certain contaminants and range from low to very high. This information is used to implement a plan for disinfection and treatment long before a problem arises.

## **What Are Some Potential Problems ?**

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 human activities. It should be noted that drinking water, including bottled water, may be reasonably expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. A major disadvantage with groundwater supply is that that the water may be excessively hard and contain minerals such as iron and manganese due to the leaching of minerals from the soil. On a positive note, groundwater is less susceptible to microbial contamination such as Cryptosporidium.

## **Is Your Water Safe?**

YES! In order to ensure your tap water is safe to drink, New York State and the EPA put regulations in place that limit the amount of certain contaminants in the water provided by public water systems. As these regulations require, we routinely test your drinking water for numerous contaminants. These contaminants include: total coliform, inorganic compounds, nitrate, lead and copper, volatile organic compounds, total trihalomethanes, haloacetic acids, radiological and synthetic organic compounds. The table presented below depicts which compounds were detected in your drinking water. The State allows us to test for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791) or the Broome County Health Department at 607-778-2887.

During 2017, the Johnson City Water Department was required to take a minimum of 20 bacteriological samples from the water distribution system per month. As you can see by the **Table of Detected Contaminants**, we have learned through our testing that some contaminants have been detected. However, these contaminants were below New York State requirements and resulted in no violations.

In addition, during 2017 New York State conducted sampling of perfluorinated compounds (PFCs) at many water systems around the state. PFCs were detected in our water at Camden Street and Well #6 at levels well below the USEPA health advisory level of 70 ng/l.

Information about water conservation ideas can be found at:

[www.epa.gov/safewater/publicoutreach/index.html](http://www.epa.gov/safewater/publicoutreach/index.html)

## **Is Our Water System Meeting Other Rules That Govern Operations?**

During 2017, our system was in compliance with applicable State drinking water operating, monitoring and reporting requirements except the following: Due to a laboratory error, the inorganic samples were not collected during 2017. The error was quickly identified and the inorganic samples were collected in January of 2018 at all the wells.

# Why Save Water and How to Avoid Wasting It

## Are Water Leaks Costing You Money? Periodically You Should:



Check all faucets for drips. Replace worn and leaking washers, gaskets, pipes or defective fixtures.

Check for leaks on outside faucets, and make sure the valve closes properly.

Check toilets for leaks--they are the most common cause of high bills! Check the

overflow of the tank to make sure no water is running over (float level may be set too high) The flapper valve in the bottom of the tank is also a location of a possible leaking toilet. To check for a flapper valve leak, put a small amount of food coloring in the toilet tank after it has filled. Do not flush the toilet for at least an hour, or overnight if possible. If the food coloring shows up in the bowl without flushing, you probably have a leaking flapper or plunger ball valve. Further information is available from the Billing Office by calling 797-2523.

## How Much Water Do I Use?

Many customers ask the question "how much water does the average person use each day? The answer to this question requires a definition of the "average person". In general, per capita water use ranges from about 40 to 80 gallons per day (gpd). The following chart shows estimates of personal water use:

USE	Average / Person (gpd)
Bathing	15 - 25
Sink	3 - 5
Toilet	5 - 15
Washing Clothes	10 - 20
Washing Dishes	5 - 10
Cooking	1 - 2
Miscellaneous	1 - 3
Total	40 -80

## How to Check for Leaks



Studies show that dripping faucets and leaking toilets account for as much as 14% of all indoor water use, equivalent to 10 gallons per person of water lost per day.

**Read Your Water Meter** - Use your water meter to check for leaks in your home. Start by turning off all faucets and water-using appliances and make sure no one uses water during the test period. Take a reading on your water meter, wait for about 30 minutes, and then take a second reading. If the dial has moved, you have a leak.

**Check for Leaky Toilets** - The most common source of leaks is the toilet. Check toilets for leaks by placing a few drops of food coloring in the tank. If after 15 minutes the dye shows up in the bowl, the toilet has a leak.

Leaky toilets can usually be repaired inexpensively by replacing the flapper.

- Toilets can account for almost 30% of all indoor water use, more than any other fixture or appliance.
- Older toilets (installed prior to 1994) use 3.5 to 7 gallons of water per flush and as much as 20 gallons per person per day.
- Replacing an old toilet with a new model can save the typical household 7,900 to 21,700 gallons of water per year, cutting both your water and wastewater bills.


## An average of 20% of all toilets leak!!

**Check for Leaky Faucets** - The next place to check for a leak is your sink and bathtub faucets. Replacing the rubber O-ring or washer inside the valve can usually repair dripping faucets.

The following table at the bottom of this page shows the amount of water that can be lost (and billed to your account) for various size leaks.

## How Can I Check My Water Usage?

To determine your average daily use or to check your appliance usage, you can read your meter on an hourly, daily, or weekly basis. Simply record your meter reading at the beginning of a measurement period and again at the end of a period. The difference between these two meter readings will be the water used during that period. [Note that your water meter reads in cubic feet](#) and can easily be converted to gallons by multiplying the reading by 7.48 gallons per cubic foot.

Leak Size		Gallons Per Day	Gallons Per Month	Cubic Feet per Quarter
	A dripping leak consumes:	15 gallons	450 gallons	180 Cubic Feet
.	A 1/32 in. leak consumes:	264 gallons	7,920 gallons	3,168 Cubic feet
•	A 1/16 in. leak consumes:	943 gallons	28,300 gallons	11,319 Cubic Feet
•	A 1/8 in. leak consumes:	3,806 gallons	114,200 gallons	45,681 Cubic Feet
•	A 1/4 in. leak consumes:	15,226 gallons	456,800 gallons	182,721 Cubic feet
•	A 1/2 in. leak consumes:	60,900 gallons	1,827,000 gallons	730,800 Cubic Feet

Information about water conservation ideas can be found at [www.epa.gov/safewater/publicoutreach/index.html](http://www.epa.gov/safewater/publicoutreach/index.html)

### What Does Your Water Cost You?

<u>Amount of Water Used Per</u>	<u>Inside the Village</u>	<u>Outside the Village</u>
First 1,000 cubic feet	\$40.00 minimum	\$50.00 minimum
After 1,000 cubic feet	\$4.25 per 100 cu.ft.	\$5.00 per 100 cu.ft.

**THIS EQUATES TO LESS THAN ONE CENT PER GALLON**

### What Improvements Are We Making?

- ❖ The new flood proof Material Storage & Maintenance building at 44 Camden St. will begin June 2018.
- ❖ The fire hydrant program is continuing (12 new).
- ❖ New Water Main – New York Ave. (Arlington Ave to Floral Ave).
- ❖ New Water Main-Baldwin St. (Corliss Ave. to Main Street).
- ❖ New Water Main-Grand Ave (Cook St to Helen St)
- ❖ New Water Main-Farr Ave (Grand Ave to Floral Ave)
- ❖ New roofs for the Booster Stations.
- ❖ New Variable Frequency Drives (VFD) for the Air-Stripper Towers
- ❖ New Variable Frequency Drive (VFD) for Hi-Lift Pump #2.

VILLAGE OF JOHNSON CITY MUNICIPAL SERVICES 607-798-7861 243 Main Street, Johnson City, NY 13790					RETURN STUB WITH PAYMENT		PRESORTED FIRST CLASS MAIL U.S. POSTAGE PAID BINGHAMTON, NY 13905 Permit No. 219	
ACCOUNT NUMBER 012345		SERVICE I. D. 012345			DUE DATE 04/30/2012		25.96 TEMP RETURN SERVICE REQUESTED	
PREV. READ DATE 11/15/2012		CUR. READ DATE 02/15/2012			NET AMOUNT 216.32		AFTER DUE DATE 216.32	
SERVICE		PREVIOUS READING	PRESENT READING	CONSUMPTION	AMOUNT	ACCOUNT NUMBER 012345		SERVICE I. D. 012345
WATER		1551	1585	3400	60.32			
SEWER				3400	94.00			
REFUSE					62.00			
SEND PAYMENTS TO: 243 Main Street, Johnson City, NY 13790								
PAST DUE AMOUNT 0.00		CURRENT CHARGES 216.32			NET AMOUNT 216.32			
DUE DATE 04/30/2012		AFTER DUE DATE 216.32			NET AMOUNT 216.32			
100 Main Street								
SERVICE ADDRESS								
25.96								

Ray Jones  
200 Oak Street  
Anywhere, USA  
67890

The bill shows the **account number** assigned to the property as well as the **services** that the address is using. The difference between the **previous** and **present reading** is the **consumption** for that quarter. The **amount** to the right of each **service** is the charge (**amount**) for that quarter. **Water** and **sewer** are based on **consumption**, but the rates are different, that is why the **amounts** are different. **Refuse** is a set fee based on the type of property it is. If there is a **past due amount**, it will be noted in the **past due** box. The **past due** plus the **current charges** will give you the **net amount**. The **net amount** is the amount you owe on your bill. The **previous** and **current read dates** will tell you the period of service the bill covers. The **due date** is the date the bill needs to be paid by in order to avoid the 12% penalty charge. The **service address** reflects the property the bill refers to. Sometimes the **mailing address** is different from the **service address**, which is why this is listed on the bill.

As long as there is a meter installed in a property, a bill for a minimum charge will be sent even if no water is used (per Village code). If you don't want to be charged because you won't be using a vacant property, the meter must be removed. This will also stop the refuse service. To have the meter re-installed there is a \$150.00 fee.

This diagram should help you understand your new water meter. Using a flashlight, shine it on the top of the meter. This will bring out the numbers and LCD display so you can read your meter and the other indicators explained below.

<p>Solar Cell <b>(1)</b>          Leak Icon <b>(f)</b>          Flow Indicators <b>(0)</b>          Date of Manufacture <b>(C)</b>          LCD Display <b>(0)</b></p>											
	<p><b>SOLAR CELL</b>          Located at the top of the E-Coder, supplies power for the LCD panel (light activated.)</p>										
	<p><b>FLOW INDICATOR</b>          Shows the direction of flow through the meter:</p> <table border="0"> <tr> <td><b>ON</b></td> <td>Water in use.</td> </tr> <tr> <td><b>OFF</b></td> <td>Water not in use.</td> </tr> <tr> <td><b>FLASHING</b></td> <td>Water is running slowly.</td> </tr> <tr> <td><b>(-)</b></td> <td>Reverse flow.</td> </tr> <tr> <td><b>(+)</b></td> <td>Forward flow.</td> </tr> </table>	<b>ON</b>	Water in use.	<b>OFF</b>	Water not in use.	<b>FLASHING</b>	Water is running slowly.	<b>(-)</b>	Reverse flow.	<b>(+)</b>	Forward flow.
<b>ON</b>	Water in use.										
<b>OFF</b>	Water not in use.										
<b>FLASHING</b>	Water is running slowly.										
<b>(-)</b>	Reverse flow.										
<b>(+)</b>	Forward flow.										
	<p><b>LEAK INDICATOR</b>          Displays a possible leak:</p> <table border="0"> <tr> <td><b>OFF</b></td> <td>No leak indicated.</td> </tr> <tr> <td><b>FLASHING</b></td> <td>Intermittent leak indicates that water has been used for at least 50 of the 96 15-minute intervals during a 24-hour period.</td> </tr> <tr> <td><b>N CONTINUOUSLY</b></td> <td>Indicates water use for all 96 15-minute intervals during a 24-hour period.</td> </tr> </table>	<b>OFF</b>	No leak indicated.	<b>FLASHING</b>	Intermittent leak indicates that water has been used for at least 50 of the 96 15-minute intervals during a 24-hour period.	<b>N CONTINUOUSLY</b>	Indicates water use for all 96 15-minute intervals during a 24-hour period.				
<b>OFF</b>	No leak indicated.										
<b>FLASHING</b>	Intermittent leak indicates that water has been used for at least 50 of the 96 15-minute intervals during a 24-hour period.										
<b>N CONTINUOUSLY</b>	Indicates water use for all 96 15-minute intervals during a 24-hour period.										



## TABLE OF DETECTED CONTAMINANTS - Village of Johnson City 2017

Contaminant	Violation Yes/No	Sample Location	Date of Sample	Level Detected (range)	Unit Measurement	MCLG	MCL	Likely Source of Contamination
<b>Microbiological Contaminants</b>								
Total Coliform Bacteria <sup>1</sup>	No	Distribution	2/6/2017 3/20/2017 8/14/2017	Positive	N/A	0	Any positive sample	Naturally present in the environment.
<b>Inorganic Contaminants</b>								
Arsenic	No	Camden St. Well #7	12/16/2014 12/16/2014	1.2 1.4	ug/l	N/A	10	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes.
Barium	No	Camden St. Well #6 Well #7	12/16/2014 9/23/2014 12/16/2014	0.0889 0.0840 0.0754	mg/l	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Lead <sup>2</sup>	No	Distribution	8/1-3/2016	1.19 (ND-7.17)	ug/l	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits.
Copper <sup>2</sup>	No	Distribution	8/1-3/2016	0.191 (ND-0.311)	mg/l	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Nitrate (as Nitrogen)	No	Camden St. Well #6 Well #7	2/7/2017 2/7/2017 2/7/2017	1.14 1.10 1.08	mg/l	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Sodium <sup>3</sup>	No	Camden St. Well #6 Well #7	2/7/2017 2/7/2017 2/7/2017	113 114 104	mg/l	N/A	See Health Effects	Naturally occurring; Road salt; Water softeners; Animal waste.
<b>Disinfection Byproducts</b>								
Total Trihalomethanes <sup>4</sup>	No	Distribution	8/18/2017 8/18/2017	12.0 44.3	ug/l	N/A	80	By-product of drinking water chlorination.
Haloacetic Acids <sup>5</sup>	No	Distribution	8/18/2017 8/18/2017	2.64 4.74	ug/l	N/A	60	By-product of drinking water chlorination.
<b>Perfluorinated Compounds</b>								
Perfluorooctinoic Acid (PFOA)	No	Camden St. Well #6	10/23/2017 10/23/2017	1.92 2.12	ng/l	N/A	70	Used to make materials (e.g., cookware) that are resistant to water, grease or stains. They are also used for firefighting at airfields.
<b>Radiological Contaminants</b>								
Gross Alpha	No	Well #7	2013-2015	1.29	pCi/L	0	15	Erosion of natural deposits.
Radium-226 & Radium-228	No	Well #7	2013-2015	0.95	pCi/L	0	5	Erosion of natural deposits.

### Notes:

- 1 All required repeat samples were negative for coliform.
- 2 The level presented represents the 90<sup>th</sup> percentile of the sites tested. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90<sup>th</sup> percentile is equal to or greater than 90% of the lead/copper values detected at your water systems.

3	Water containing more than 20 mg/l of sodium should not be used for drinking by people on severely restricted sodium diets. Water containing more than 270 mg/l of sodium should not be used for drinking by people on moderately restricted sodium diets.
4	These levels represent the Locational Running Annual Average levels (annual sampling) of the following contaminants: chloroform, bromodichloromethane, dibromochloromethane, bromoform.
5	These levels represent the Locational Running Annual Average levels (annual sampling) of the following contaminants: dibromoacetic acid, dichloroacetic acid, monochloroacetic acid, monobromoacetic acid, and trichloroacetic acid.

### Definitions:

<u>Maximum Contaminant Level (MCL)</u> : The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible.
<u>Maximum Contaminant Level Goal (MCLG)</u> : 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.
<u>Action Level (AL)</u> : The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
<u>Non-Detects (ND)</u> : Laboratory analysis indicates that the constituent is not present.
<u>Milligrams per liter (mg/l)</u> : Corresponds to one part of liquid in one million parts of liquid (parts per million - ppm).
<u>Micrograms per liter (ug/l)</u> : Corresponds to one part of liquid in one billion parts of liquid (parts per billion - ppb).
<u>Nanograms per liter (ng/l)</u> : Corresponds to one part of liquid to one trillion parts of liquid (parts per trillion - ppt).
<u>Picocuries per liter (pCi/L)</u> : A measure of the radioactivity in water.

## UNREGULATED CONTAMINANT MONITORING

The 1996 amendments to the Safe Drinking Water Act (SDWA) require that once every five years, the U.S. Environmental Protection Agency (EPA) issue a new list of no more than 30 unregulated contaminants monitored by public water systems (PWSs).

The Unregulated Contaminant Monitoring Rule (UCMR) provides EPA and other interested parties with scientifically valid data on the occurrence of contaminants in drinking water.

Unregulated contaminants are those that don't yet have a drinking water standard set by US EPA. The purpose of monitoring for these contaminants is to help EPA decide whether the contaminants should have a standard. The following unregulated contaminants were detected in our water system during 2014 and 2015:

Strontium	180-228 ug/l	Source is erosion of natural deposits.
Chromium	0.45-0.63 ug/l	Discharge from steel and pulp mills, pigments, leather tanning; Erosion of natural deposits.
Chromium-6	ND-0.31 ug/l	Discharge from steel and pulp mills, pigments, leather tanning; Erosion of natural deposits.
Chlorate	ND-308 ug/l	Disinfection byproduct; Used in the production of chlorine dioxide
1,4-dioxane	ND-0.73 ug/l	Primarily used as a stabilizer for trichloroethane. Also used in a variety of applications as a solvent such as in inks and adhesives.



Johnson City Water Works  
 NY0301668  
 AWQR Source Water Assessment Summary

The NYS DOH has completed a source water assessment for this system, based on available information. Possible and actual threats to this drinking water source were evaluated. The state source water assessment includes a susceptibility rating based on the risk posed by each potential source of contamination and how easily contaminants can move through the subsurface to the wells, called the well sensitivity. The susceptibility rating is an estimate of the potential for contamination of the source water, it does not mean that the water delivered to consumers is, or will become contaminated. See section “Are there contaminants in our drinking water?” for a list of the contaminants that have been detected. While inorganic and organic contaminants were detected in our water, it should be noted that all drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some contaminants from natural sources. The presence of contaminants does not necessarily indicate that the water poses a health risk.

As mentioned before, our water is derived from four active drilled wells and one emergency well (not evaluated in this assessment). The source water assessment has rated wells #2, #3 (Camden St.) and #6 (Burns St.) as highly sensitive to both chemical and microbial contaminants. The wells rate a high sensitivity because of historic detections of chemical contaminants and because the wells are located in a very productive, unconfined aquifer where the subsurface soils allow large volumes of water to move through the aquifer. Well #7 (North Broad St.) is in an area where the aquifer is somewhat protected with a low permeability layer above and has rated a medium sensitivity to microbials but a high sensitivity to chemical contaminants, also due to historic chemical detections.

Potential contaminant sources were then evaluated and given a contaminant prevalence rating. The sensitivity and contaminant prevalence then determine the susceptibility of a particular well. The source water assessment has rated the Johnson City Water Works wells as having a low to high susceptibility to microbials, such as enteric bacteria and enteric viruses, and a medium-high to very high susceptibility to various chemical contaminants as noted in the table below. While significant sources of some types of contamination have not been identified in the assessment area, wells may have been given an elevated susceptibility rating for other chemicals because of high well sensitivities.

SUSCEPTIBILITY TABLE				
CONTAMINANT	Well #2	Well #3	Well #6	Well #7
Cations/Anions (Salts)	High	High	High	High
Enteric Bacteria	High	High	Medium-High	Low
Enteric Viruses	High	High	Medium-High	Low
Halogenated Solvents	Very High	Very High	Very High	Very High
Herbicides/Pesticides	High	High	Medium-High	Medium-High
Metals	High	High	High	High
Nitrate	High	High	High	High
Other Industrial Organics	High	High	High	High
Petroleum Products	Very High	Very High	High	High
Protozoa	High	High	Medium-High	Low

While the source water assessment rates our wells as being susceptible to microbials, please note that our water is disinfected to ensure that that the finished water delivered into your home meets New York State’s drinking water standards for microbial contamination.

The Village of Johnson City currently has an active wellhead and watershed protection plan in place to ensure drinking water safety. The source water assessment is another tool that can help direct further refinements to the plan. County and state health departments will also use this information to direct future source water protection activities. These may include water quality monitoring, resource management, planning, and education programs.

