

## **Important Information About A Non-Emergency Water Quality Alert**

The City of Lancaster Public Works Water Bureau staff works diligently to produce the highest quality drinking water and have achieved one of the highest awards from the Partnership for Safe Drinking Water. Over the past ten years, the city has invested heavily in replacing and upgrading our aging infrastructure and making operational improvements in response to newer and more stringent environmental testing and reporting standards.

Some residents may have questions about the Public Notice of non-emergency violations for disinfection byproducts (DBPs) that was mailed out on January 20, 2017 and recently reported by the media. Below are answers to frequently asked questions.

### **Am I in the area affected by this public notice?**

If you receive the public notification that was mailed out January 20th, 2017 and is [attached here](#), then you are within the affected area. This notice will be received by both residents and property owners within 2 – 7 days from the date of mailing. Furthermore, you can use the map linked below to locate your address to also find out if you are in the affected area.

<https://lancaster-pa.maps.arcgis.com/apps/StoryMapBasic/index.html?appid=d97c767b8b774269b36893b9c1f88b5d>

### **Why am I receiving a drinking water violation notice?**

Haloacetic acids (HAAs) and total trihalomethanes (TTHMs) levels in drinking water are required by Pennsylvania DEP and the Federal EPA to be tested and reported on a Running Annual Average, meaning four quarters of testing results are averaged to determine compliance with the maximum contaminant level for compliance. A high result from a previous quarter will impact the average for the year of reporting, possibly causing a violation, even if levels are below during certain times of the reporting year.

For the last quarter of 2016, the annual average for HAAs levels were above the MCL for samples collected from areas of our system that receive Susquehanna River water. Source river water conditions are contributors to the higher levels such as increased river turbidity (cloudiness—an indicator of organic matter that causes DBPs) caused by the current drought status of the Susquehanna River basin. City water operations staff continue to monitor and report DBPs on a regular basis and follow an extensive testing, reporting, and treatment protocol.

### **What are Haloacetic Acids?**

Haloacetic Acids (HAAs) are disinfectant byproducts (DBPs) that form during the water treatment disinfection process to kill bacteria and viruses. When a disinfectant such as chlorine is used to treat the water from a surface source (i.e. rivers, streams, creeks) or ground source (well), the organic materials that naturally exists from nature in the water (i.e. algae, decaying leaves and plant matter), reacts with the disinfectants to form organic chemicals that are known as DBPs. One type of these chemicals are HAAs which are monitored by the state and federal regulations.

### **What are the limits for DBPs such as HAAs and THMs?**

The EPA's standard or maximum contaminant level (MCL) for THMs is 0.080mg/L and for HAAs is 0.060mg/L.

### **How is the running annual average calculated?**

The EPA's MCL for THMs and HAAs, is based on a locational running annual average (LRAA). Samples are taken at various locations throughout the distribution system on a quarterly basis. Each location's results are used individually to calculate that location's running annual average. The running annual average is calculated using the results from four consecutive quarters. This calculation makes it possible to exceed the MCL in one quarter of the year but be in compliance the other 3 quarters of the year.

### **Are DBP and HAA violations unique to the City's water system?**

No. Many water systems in the country are dealing with HAA violations due to more stringent EPA standards and changes in testing/reporting requirements. Complying with these standards requires older water systems, like Lancaster City, to make long term capital improvements. We continue to make these improvements by annually replacing approximately 3 miles of water mains at a cost of approximately \$3.5 million and cleaning and relining approximately 6,000 feet of water mains at a cost of approximately \$200,000.

### **Why do disinfection byproducts like HAAs occur in our water?**

Virtually all water systems have disinfection byproducts of some level due to the fact that chlorine remains the most widely used chemical for water disinfection in the world. According to the Center for Disease Control, "Chlorine revolutionized water purification, reduced the incidence of waterborne diseases across the western world," and "chlorination and/or filtration of drinking water has been hailed as the major public health achievement of the 20th century." It is necessary to chlorinate water to eliminate bacteria and viruses that causes immediate emergency, life-threatening health risks. Even bottled water is chlorinated to achieve disinfection.

While chlorination kills harmful bacteria and viruses in water (the primary concern of water treatment facilities), the process of chlorine interacting with organic material in water creates what are known as disinfection byproducts, primarily Trihalomethanes and Haloacetic Acids. Factors such as temperature, pH, turbidity (cloudiness of source water), and hardness influence the amount of organic matter found in the raw water and, as a result, the amount of disinfection byproducts formed during treatment.

However, it is recognized that the removal of immediate pathogenic threats in water through chlorination takes first priority. Higher levels of disinfection byproducts are considered a Tier II non-acute violation (like the one enclosed). A lack of chlorination and the resulting microbial pathogens that would be present in water, represent a Tier I emergency violation.

### **How might I be exposed to HAAs?**

The main exposure to HAAs is through the consumption of chlorinated drinking water. The human body's skin acts as a protectant and helps prevent HAAs from being readily absorbed through the skin when you are washing or swimming.

### **What are their health effects in drinking water at levels above the maximum contaminant level?**

The EPA has indicated that some people who drink water containing HAAs in excess of the Maximum Contaminant Limit (MCL) over many years may have an increased risk of getting cancer. It is important to note that for this exposure to have significant effects two things must occur: the MCL must be over the limit and a person must consume a steady amount of it at this higher level over many years. Studies and testing for effects on human cells and reproduction show that for viable testing and reaction the concentrations of HAAs used can be factors greater than the MCL, some of which are a factor of thousands more before a response is seen. These articles can be seen in the links immediately below.

[ehp.niehs.nih.gov/123-a159/](http://ehp.niehs.nih.gov/123-a159/)

[www.ncbi.nlm.nih.gov/pmc/articles/PMC4455591/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4455591/)

### **Am I required to buy bottled water?**

No. The Department of Environmental Protection and EPA clearly state that you do not need to change your source of water. The drinking water is still safe for every day, normal consumption. Bottled water is regulated at a much lower standard than municipal drinking water systems.

### **How will I know if disinfection byproducts, like HAAs, are in my drinking water?**

Disinfection byproducts are always present in drinking water that has been disinfected with chlorine, ozone or chlorine dioxide. When routine monitoring indicates that disinfection byproduct levels are above the MCLs running annual average, your water supplier must take steps to reduce the amount of disinfection byproducts so that they are below that level. Water suppliers must notify their customers as soon as practical, but no later than 30 days after the system learns of the violation.

### **What is my water company doing to correct this issue?**

Upon notification of the violation there has been changes made to treatment and to operations to reduce the formation of HAAs from the early and late stages of its life through the system. The City of Lancaster will be sampling weekly until the data shows a reduced level as well as continually monitor to meet compliance quickly and effectively.

### **How will I know when my water supplier has taken steps to correct the problem?**

If you are reading this, or the public notification form that has been sent out, then the steps have been and are well underway. Updates for the water quality and testing will be posted on a link supplied below for residents in affected areas. The City of Lancaster takes water quality very seriously and will keep you, our affected consumers, updated and informed of progress until the issue has been officially resolved.

### **What if I have concerns about long term health risks associated with HAAs?**

Please consult your physician if you have any concerns about health risks associated with HAAs.

**What if I have additional questions?**

If you have any additional questions about disinfection by-products or what the City is doing to reduce the levels of HAA to ensure your drinking water is safe, please feel free to contact the Water Quality Lab at 717-291-4818.

Please know that we have worked—and continue to work—diligently to provide the safest drinking water possible.

***Issued by Charlotte Katzenmoyer, Director of Public Works***

[Click to Read the Tier II Notification](#)