



# Survey of drinking water options at Brookhaven National Laboratory

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## Introduction

At Brookhaven, there are 3 ways employees are able to obtain drinking water on site. This can be through a faucet which provides water from Long Island wells, water fountains or through water cooler deliveries. All three water options are regulated in the US, however there are differences in the way they are maintained. The drinking water is up to the Environmental Protection Agency (EPA) standard of healthy drinking water, according to the Safe Drinking Water Act (1), however there are people that prefer bottled water. This is a law that was passed by congress to protect the public health by regulating the public drinking water. Brookhaven National Lab's (BNL) drinking water is taken from the Long Island aquifer which is made of 3 different formations. This aquifer is considered one of the 78 "sole source" aquifers in the United States (2). Drinking water has a requirement to sample for copper and lead at 20 consumer taps every three years and to notify the employees of the results of this test (2). BNL completes testing on potential contaminants in the water which can be found in the Consumer Commerce Report (2). On the other hand, bottled water is regulated by the Food and Drug Administration (FDA). Bottled water is regulated in New York state under the New York State Department of Health Sanitary Chapter 1: Bottled and Bulk Water Standards ,(4) as well as, by the FDA. The FDA regulates the bottled water industry as a packaged food product in which they can collect samples for testing from the water facility at any time. The FDA has also established Current Good Manufacturing Practice (CGMP) (4). Some practices that are addressed by the CGMP are protection of the water source from contamination, sanitation at the bottling facility, quality control to avoid bacterial and chemical growth and sampling and testing of the source water. Though these water options have different regulations and rules, both standards are used to ensure the safety of water for the public. Some complications that can arise include: buildup of bacteria growth on the bottled water cooler, lengthened exposure to UV light, which can cause the plastics to leach chemicals into the water, or lack of EPA oversight of water coolers.

## Methods

The first step to analyzing these concerns was to construct an inventory survey of BNL building which have sinks, bottled water coolers and water fountains which can be seen in Figure 1. This survey will verify how these 3 water options are maintained and the frequency of the maintenance. The survey results will be evaluated against an existing spreadsheet which encompasses all of the maintenance requests for water options at BNL. The comparison between these two data files will provide evidence into how many of these water options are being tracked throughout the year. BNL can use this information to make informed decisions regarding water options in the work place.

## Conclusion

The results of the survey have not been completed to date because of the global pandemic and employees working remotely. Despite no results from the survey, there are concerns surrounding the lack of tracking of these water options. One indicator is the PM spreadsheet, created by BNL, which shows all of the water bottle deliveries for each building. By looking at the share number of the deliveries for the water coolers it was apparent that there are more water coolers that exist at BNL then in the system. Without regulation, healthy drinking water can not be guaranteed. This type of system needs to be regulated and tracked throughout the year to assure clean water for BNL employees. Further research needs to be completed to find an economical and environmentally friendly way to provide healthy drinking water for BNL employees. With advancements in technology, other options such as Elkay bottle filling stations or other types of advanced filtration systems should be considered.

## References cited

- 1.) Environmental Protection Agency. " The Safe Drinking Water Act." *Office of Water*. 2004
- 2.) Environmental Protection Division and the Energy & Utilities Division. "2019 Consumer Commerce Report" *Brookhaven National Lab*. 2019
- 3.) Department of Health Sanitary . "Bottled and Bulk Water Standards ." *State Sanitary Code*. Chapter 1, May 1991
- 4.) Food and Drug Administration. "Current Good Manufacturing Practice." March 2018



## Abstract

At Brookhaven National Lab, employees can obtain water onsite through sinks, water fountains, or bottled water coolers. All of these water options must be tracked and monitored to assure healthy drinking water. Complications can arise if some of these water options are not maintained on a regular basis or lack of EPA following. The objective is to create an inventory survey to provide data to analyze whether these water options are being tracked and monitored on a regular basis. These tests will be accounting for sinks, water fountains and water coolers. These tests will include the last date this water station was cleaned, whether it has a filter attached (if filter has been changed) and pictures of these water options. This survey will give a great insight into how many of these water options are tracked and monitored on a regular basis and also if these water stations are clean. Another piece of research area is to find alternative options for drinking water at BNL. This can be the water bottle filling stations or other types of filters that help remove harmful contaminants, are more economical and environmentally friendly.

## Alternative Options

### Elkay Bottle Filling Stations



This is a hands free function that provides your water bottle to fill itself without touching anything. This feature makes this process very sanitary and also these have filters installed in them. Stations reduce lead and other harmful contaminants.

### Reverse Osmosis



This water filter removes contaminants from water by using pressure to force water molecules through a semipermeable membrane. During this process, the contaminants are filtered out and flushed away.

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