2021 Virtual Information Session Ridgewood Water: Per- and Polyfluoroalkyl Substances (PFAS)







Agenda

- Introduction Dan Timmeny, Business Manager, Ridgewood Water
- How the System Works Bill Bierwas, Assistant Superintendent, Ridgewood Water
- □ What are PFAS? Bill Bierwas, Assistant Superintendent, Ridgewood Water
- How RW Plans to Treat/PFAS Master Plan Earl Schneider, Mott MacDonald
- Health Effects, Safety, and Filtration Danielle Pagani, Village of Ridgewood Department of Health
- What is RW Doing from a Legal Perspective to Hold Certain Parties
 Responsible and Attempt to Recoup Costs? Stephanie Biehl, Sher Edling LLP
- □ Q & A
- Closing Remarks Richard Calbi, Director, Ridgewood Water

How the RW System Works

Summary of RW System

- □ ~60,000 customers
- 52 wells across 4 towns

Ridgewood Water

- 1,751 fire hydrants
- 5,794 valves
- 10 water storage tanks
- 295 miles of water main
- 2 active interconnections,10 emergency interconnections
- □ 2021 is RW's 100th anniversary







Background – Sources of Supply

52 Groundwater Wells

 RW's groundwater wells account for more than 90% of the water in the system



2 current, 1 future source of purchased water

- Currently, purchased water from Suez and Hawthorne accounts for 10% of the water in the system
- An interconnection with Passaic Valley
 Water Commission will be operational
 ~fall 2022



Per- and Polyfluoroalkyl Substances (PFAS)



- Per- and poly-fluoroalkyl substances, of which there are hundreds of compounds including PFOA, PFOS & PFNA.
- Man-made chemicals that have been used for fire fighting and to make carpets, clothing, fabrics for furniture, paper packaging for food, and other materials that are resistant to water, grease, or stains.
- Widespread and extremely persistent in the environment.
- PFAS-related Notification Supplements mailed to all customers in 2018 and 2021, along with several in-person and virtual Open Houses to discuss the issue.









- US EPA Sets Health Advisory at 70 parts per trillion (ppt) for PFOA and PFOS combined in May 2016
 - Federal standard remains the same today
- NJDEP has established much more conservative Maximum Contaminant Levels (MCLs) for 3 individual PFAS compounds:
 - Perfluorononanoic acid (PFNA) standard of 13 parts per trillion (ppt) adopted September 2018
 - Perfluorooctanoic acid (PFOA) standard of 14 parts per trillion (ppt) adopted June 2020
 - Perfluorooctanesulfonic acid (PFOS) standard of 13 parts per trillion (ppt) adopted June 2020

Recent Notice of PFAS Levels Above Drinking Water Standards







IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Ridgewood Water Has Levels of Perfluorooctanoic Acid (PFOA) Above Drinking Water Standards

What does this mean?

According to information from the New Jersey Department of Health, some people who drink water containing PFOA in excess of the MCL over many years could experience problems with their blood serum cholesterol levels, liver, kidney, immune system, or, in males, reproductive system. Drinking water containing PFOA in excess of the MCL over many years may also increase the risk of testicular and kidney cancer. For females, drinking water containing PFOA in excess of the MCL over many years may cause developmental delays in a fetus and/or an infant.

For more information refer to https://www.nj.gov/health/ceohs/documents/pfas_drinking%20water.pdf.

What should I do?

- If you have a severely compromised immune system, have an infant, are pregnant, or are elderly, you
 may be in a risk group and we recommend that you seek advice from your health care providers about
 drinking this water.
- · If you have specific health concerns, consult your doctor.
- Boiling your water will not remove PFOA.

What is being done?

Ridgewood Water has been aware of PFAS, and PFOA specifically, and has sought to ducate our customers for several years about their presence in our water, as well as the utility's plan to remove these contaminants through public forums and governmental action. Ridgewood Water completed its Master Treatment Plan for addressing PFAS in mid-May 2020. The plan details an operational strategy of blending water sources, and cost-efficient installation of additional treatments and maintenance to ensure water usily is the best it can be into the future. The plan was developed by a state licensed engineering firm and based on expert evaluation of all available treatment methods for PFAS and assessment of our current resources. One of the twelve recommended treatment plants for PFAS removal has already been built and is fully operational, one is out to bid for construction, and the remainder are all under engineering design. A copy of the Master Plan can be found on the Ridgewood Water website PFAS page: https://water.ridgewoodnj.net/pfas-resources/ We anticipate resolving the violations as each new treatment plant comes online, with completion of the last plant scheduled for 2026.

For more system specific information, please contact Ridgewood Water at (201) 670-5520 or (201) 670-5526.

This notice is being sent to you by Ridgewood Water. State Water System ID#: NJ0251001.

Date distributed: 8/29/21.

*Please note that PFAS concentrations are measured in parts per trillion (ppt), not parts per billion (ppb), as was specified in this notice.

POSTAL CUSTOMER

ECRWSSEDDM

Ridgewood

Water

RIDGEWOOD WATER - PWSID 0251001 - DRINKING WATER NOTICE

We have been informed that our water system is in violation of a recently adopted New Jersey drinking water standard, and as our customers, you have a right to know what happened, what you should do, and what we are doing to correct this situation. Beginning June 1, 2020, the New Jersey standard for Perfluorooctanoic Acid (PFOA) is 14 parts per billion (ppb) and is based on a running annual average (RAA).

We routinely monitor for the presence of contaminants in drinking water. On August 3rd, 2021, we received notice stating that the RAA for PFOA at eleven (11) of thirty-one (31) of the system's treatment plants exceed the standard, or maximum contaminant level (MCL), for the third quarter 2021. PFOA is one specific compound within the class of contaminants known as Per- and polyfluoroalkyl substances, or PFAS.

The RAA levels of PFOA in the system's treated drinking water for the third quarter 2021 are from 15.2 – 18.9 ppb in the 11 system's treatment plants.

For more information on all PFAS Results, refer to Ridgewood Water's 2018 & 2021 PFAS Supplements at: https://water.ridgewoodnj.net/pfas-resources/. You may also find the additional posted Ridgewood Water resources and summaries helpful.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

PFAS Master Plan



PFAS Master Plan

- Ridgewood Water retained engineering firm Mott MacDonald to prepare a master plan to proactively evaluate how treatment could be provided cost-effectively and on an accelerated schedule.
- As part of the master plan, an interim strategy was developed to reduce the amount of PFAS in the water supply while treatment is being designed and constructed. Two main drivers of this operational strategy:
 - Prioritizing the use of wells with lowest levels of PFAS
 - Purchased water from Suez and Passaic Valley Water Commission (PVWC), primarily surface water sources, contain lower levels of PFAS
- Master plan evaluated installation of treatment at existing 31 points of entry versus centralizing the installation of treatment at 12 points of entry
- Master plan was completed by Mott MacDonald in May 2020 and adopted by the Village Council as governing strategy for PFAS remediation in November 2020

PFAS Master Plan – **Ridgewood Evaluating GAC vs. Resin**

- Many full-scale drinking water installations
- Good PFAS capacity, removal by adsorption
- Removes organics (e.g. VOCs) and other co-contaminants
- GAC can be reactivated or incinerated
- GAC source materials

Water

- Bituminous coal
- Coconut shell
- Lignite
- Wood



- Newer technology for PFAS removal/faster kinetics, limited full-scale installations
- Higher PFAS capacity, removal by ion exchange and adsorption
- PFAS selective, limited co-contaminant removal
- Resins are single use (for drinking water) and is incinerated









- 1 of 12 new treatment plants currently in operation, producing 1 million gallons per day (mgd) of PFAS-free water
- □ 1 treatment plant has recently been awarded for construction
- Design of the remaining 10 treatment plants underway, with 6 of the largest plants expected to begin construction in 2022
- By end of 2022, RW will have 60% (3.5 mgd) of the system average daily demand treated and 50% (6.5 mgd) of max daily demand
- By end of 2023, RW will have 85% (5 mgd) of average daily demand treated and 75% (10 mgd) of max daily demand
- By end of 2024, RW will have 166% (10 mgd) of average daily demand treated and 100% of max daily demand
- Completion of all remaining treatment by 2026

PFAS Health Effects, Safety & Filtration



- PFAS: Increased serum cholesterol, some liver enzymes, and uric acid levels
- PFOS: Increased serum cholesterol and uric acid levels
- PFOA and PFOS have been associated with decreased antibody response following vaccinations
- In a community with extensive exposure to PFOA through drinking water, PFOA exposure was associated with higher rates of kidney and testicular cancers.

(New Jersey Department of Health, 2020)



- Exposure to PFAS before birth or in early childhood may result in decreased birth weight, decreased immune responses, and hormonal effects later in life
- Infants and children consume more water per body weight than older individuals, so their exposures may be higher than adults in communities with PFAS in drinking water
- When PFAS are high in a drinking water supply, it is encouraged to use bottled water to prepare infant formula for bottle-fed babies
 - This includes other beverages (i.e., juice made from concentrate)
- Pregnant, nursing, and women considering having children may choose to use home water filters or bottled water for drinking and cooking to reduce exposure to PFAS in their water

(New Jersey Department of Health, 2020)



- New Jersey Drinking Water Quality Institute develops the standards for hazardous contaminants in drinking water and for recommending those standards to the New Jersey Department of Environmental Protection (NJDEP)
- Within the Institute:
 - Health Effects Subcommittee
 - Testing Subcommittee
 - Treatment Subcommittee
- In 2014, NJDEP Commissioner requested that the Institute recommend Maximum Contaminant Levels (MCLs) for perfluorooctanoic acid (PFOA), perfluorononanoic acid (PFNA), and perfluorooctanesulfonic acid (PFOS)
- In 2018, NJ became the first state to establish a drinking water standard for a PFAS chemical when it set a MCL for PFNA, at 13 parts per trillion (ppt)
- NJDEP also established MCLs for PFOA (14 ppt) and PFOS (13 ppt)

(New Jersey Drinking Water Quality Institute, 2017)



Health Effects Committee

- A Health-based MCL for PFOA was developed using a risk assessment approach in order to protect the public for their lifetime drinking water exposure
- Both non-cancer and cancer causing effects were evaluated for Healthbased MCL development
 - Delayed mammary gland development and increased liver weight
- □ Mice were exposed to PFOA for 14 days
 - A Health-based MCL protective for increased relative liver weight was developed based on this study
- A cancer risk factor was developed based on an increased number of testicular tumors found in a chronic rat study
- Due to these studies, a health-based MCL of 14 parts per trillion (ppt) became the standard

(New Jersey Drinking Water Quality Institute, 2017)



- Exposure to PFAS is primarily through consumption
- Exposure to PFAS through other household uses like showering, bathing, laundry and dishwashing is not significant
- □ If tap or well water is found to contain PFAS, options at home include:
 - Install home water filters
 - Use bottled water for drinking and cooking
- PFAS CANNOT be removed from water by boiling!
- For any questions about health concerns potentially associated with PFAS levels measured in the water, please consult your healthcare provider

(New Jersey Department of Health, 2020)



In-Home Filtration Techniques

- Granular activated carbon (GAC) filtration, reverse osmosis, or a combination of the two reduce levels of PFAS
- NSF International (National Sanitation Foundation) has certified certain home use drinking water treatment units that reduce PFOA and PFOS, but keep in mind that certifications of PFAS reductions may only be to EPA Health Advisory level of 70 ppt
- To learn more:
 - http://info.nsf.org/Certified/DWTU/Listings.asp?ProductFunctio n=P473%7CP
 - http://www.nsf.org/consumer-resources

What is RW Doing to **Hold Certain Parties Responsible & to Attempt to Recoup** Costs?



Ridgewood Water v. 3M Co. et al.

Litigation counsel: Stephanie Biehl, Sher Edling LLP



SHER EDLING LLP



- Defendants
 - PFAS manufacturers
 - AFFF manufacturers
- Cost recovery
- The litigation landscape
 - Case progress

References

GENERAL PFAS INFO:

- <u>https://www.nj.gov/health/ceohs/documents/pfas_drinking%20water.pdf</u>
- https://www.epa.gov/pfas/basic-information-pfas
- https://www.nj.gov/dep/srp/emerging-contaminants/

HEALTH EFFECTS:

- https://www.atsdr.cdc.gov/pfas/health-effects/index.html
- https://www.atsdr.cdc.gov/pfas/health-effects/talk-to-your-doctor.html
- https://www.atsdr.cdc.gov/pfas/resources/index.html

FILTRATION TECHNIQUES:

- http://info.nsf.org/Certified/DWTU/Listings.asp?ProductFunction=P473%7CP
- http://www.nsf.org/consumer-resources
- https://www.nsf.org/consumer-resources/drinking-water

Questions?

THANK YOU!

