Addressing Water Quality Challenges for a Stronger Future

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SOLVING WATER QUALITY CHALLENGES

Across the nation, communities face growing challenges to water quality — from aging infrastructure and legacy contaminants like lead, to emerging concerns such as PFAS and microplastics

Protecting public health means staying ahead of new and evolving threats in our water systems through innovation, investment and vigilant monitoring

Veolia is addressing these challenges through science, technology and proactive management

SERVING NEW JERSEY
FOR 156 YEARS

Founded in 1869 as the Hackensack Water Company, we put the region at the forefront of modern water supply with a centralized system delivering cleaner, more reliable water.

These advancements **improved public health, strengthened fire protection** and laid the foundation for the region's growth.

Starting with just 5,000 residents, we've grown alongside our communities and today serve more than **1.1 million people statewide**

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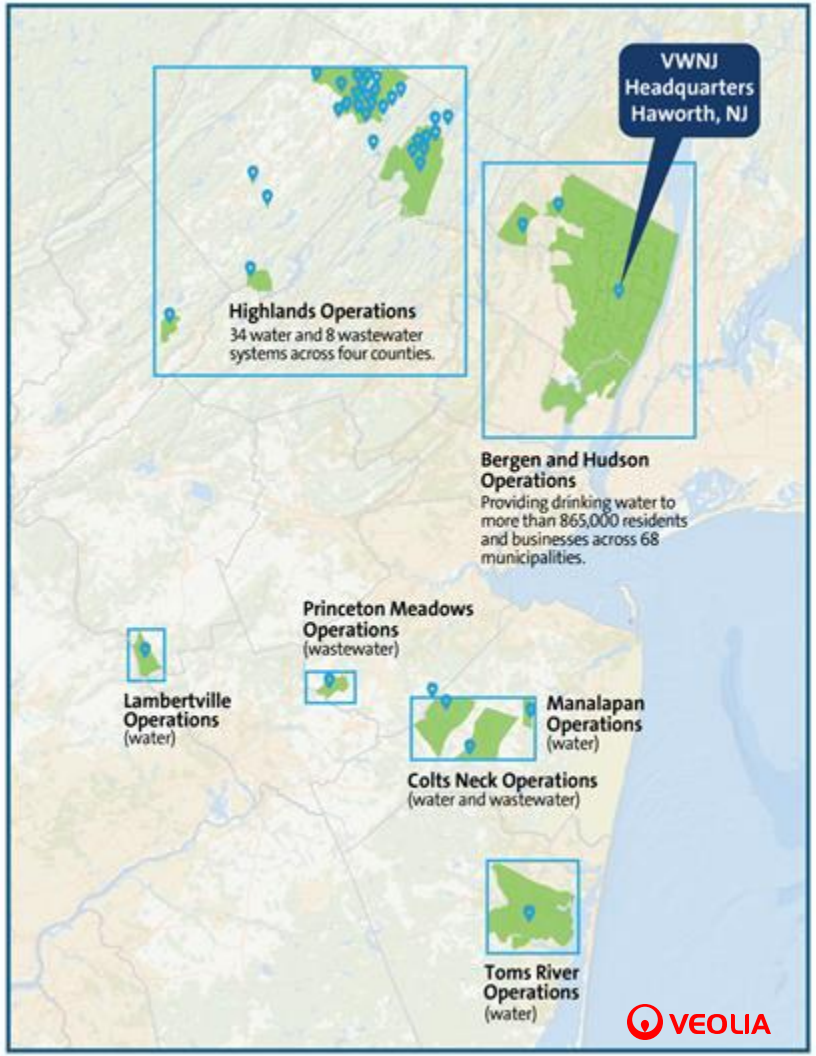
NEW JERSEY OPERATIONS

- $2 billion in managed assets
- Serving 1.1 million residents in 86 municipalities. Pumping an average of 128 MGD
- 95% water: 57 plants, 5 reservoirs, 86 wells
  5% wastewater: 9 plants
- 500 employees
- 2,968 miles of mains, 20,730 hydrants



HEALTHIER RESERVOIRS
CLEANER DRINKING WATER

By improving source water health, we're enhancing the quality of water entering treatment plants — reducing the need for chemicals and energy and to produce safe drinking water

Combating Harmful Algal Blooms

We've pioneered the use of **NASA satellites and AI** to predict harmful algal blooms in our reservoirs and to pinpoint areas to treat, instead of spreading chemicals widely across waterways

The result: A healthier ecosystem

Winner 2023 Governor's Award for Environmental Excellence

Floating Wetland Islands

As native plants grow, their roots extend into the water, acting as natural filters that remove nutrients, cleaning the water before it reaches the treatment facility. This nature-based solution also provides valuable habitat for fish and other local wildlife

Objective: Reduce biomass by 15,000 lbs annually

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A HOLISTIC APPROACH
TO SOURCE WATER MANAGEMENT

Remote Monitoring Buoy
Provides real-time water quality monitoring – and helps evaluate the effectiveness of various initiatives

Aeration System
Regulates Dissolved Oxygen Concentrations to improve Water quality and support aquatic life

Oscillating Blower
Reduces cyanobacterial growth and the need to chemically treat the reservoirs

Biochar Curtains
A charcoal-like substance mitigates nutrient load from stormwater discharges, Reducing risk of harmful algal blooms, Adsorbs PFAS

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HAWORTH
WATER TREATMENT PLANT

Veolia's largest drinking water facility in North America

*Highly trained and licensed treatment professionals use cutting-edge technology to **deliver water that meets or surpasses all drinking water standards**.*

A history of innovation & sustainability

- One of the largest plants in the U.S. to generate **ozone,** an environmentally friendly purification process
- Early use of **Dissolved Air Flotation**, an advanced, efficient purification technique that uses millions of tiny bubbles to lift particles in water
- State-of-the-art laboratory processes **90,000 water quality tests annually**
- Multi-million dollar **PFAS testing facility**

*Capacity of **200 million gallons per day***

*Serving nearly **900,000 residents in 68 communities***

2,200 miles of water mains

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GETTING THE LEAD OUT

Nearly 17,000 lead service lines have been replaced in 60 municipalities in a sweeping attack on lead across NJ

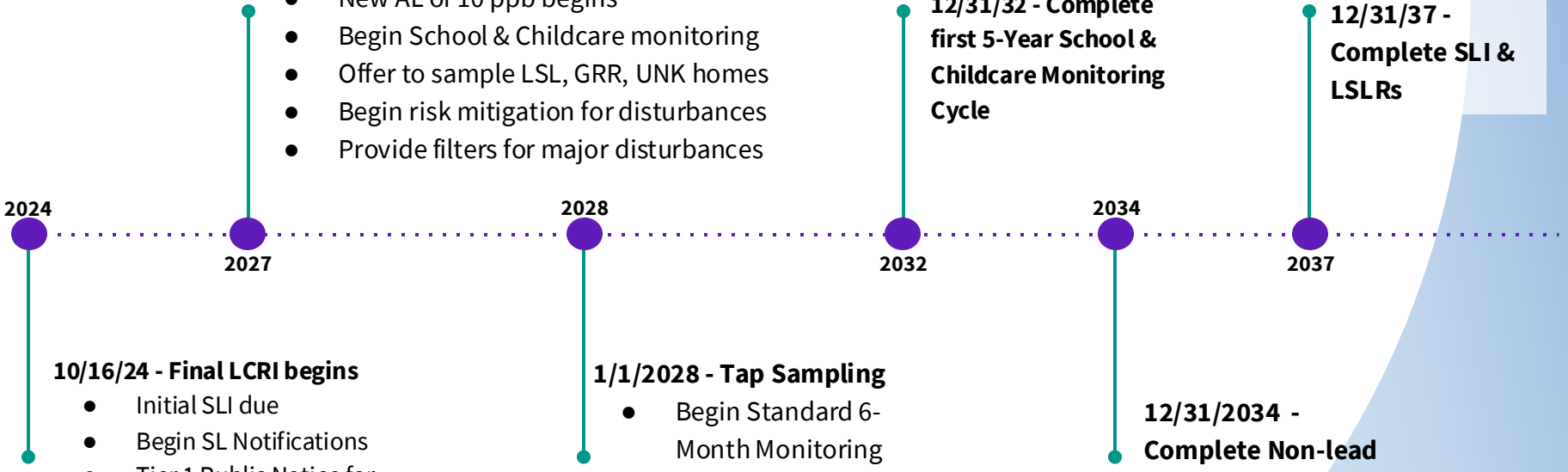
$235 million investment since 2019

Customer-owned lines are replaced at no cost to the property owner

Continued improvements to corrosion control at facilities statewide to maintain levels well below regularly limits

More requirements for Lead & Copper Rule Improvements (LCRI) are coming…

LCRI TIMELINE



HOW ARE WE PREPARING FOR LCRI?

- Launched an internal app to help staff identify service line materials during home visits
- Continuing our proactive program to replace lead and galvanized service lines and identify unknowns
- Partnering with Blue Conduit, the industry leader in predictive modeling, to help locate lead and galvanized service lines and reclassify unknowns
- Advancing our corrosion control treatment study to maintain lead levels below the upcoming 10 ppb action level

OUTREACH, OUTREACH, OUTREACH!

- Producing a customer video demonstrating how to collect 1st and 5th liter samples
- Asking customers with unknown service line materials to self-identify or contact us
- Building the list of schools and childcare facilities to prep for sampling
- Updating contact information for customers and public officials to ensure timely Tier 1 notification if an Action Level Exceedance (ALE) occurs

WATER QUALITY

The Haworth Laboratory processes more than **90,000 samples each year** to ensure drinking water meets or surpasses all water quality standards

First lab in the state to be certified for improved total coliform and E. coli testing that allow us to call and lift boil water advisories faster

Expansion underway for NJ Certification of Lead and PFAS analysis

PFAS
IMPACT ON DRINKING WATER

Per- and polyfluoroalkyl substances (PFAS) are a large group of man-made chemicals found in everyday products like nonstick cookware, water-resistant clothing, food packaging and firefighting foams

PFAS can enter the water supply when chemicals from industrial sites, firefighting foams, landfills and everyday products leach into soil and groundwater, eventually reaching drinking water sources

What is a PPT? The size of one postage stamp in a city the size of Dallas

Regulatory Timeline

- **June 2021 – NJDEP**: Requires corrective measures for water systems exceeding limits • PFNA: 13 ppt • PFOA: 14 ppt • PFOS: 13 ppt
- **April 2027 – EPA**: Deadline for all water systems to test for PFAS and report results
- **2029–2031 – EPA**: Deadline for treatment to be operational if PFAS exceed **4 ppt** (May be extended to 2031)

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TREATING PFAS

Technology	Pros	Cons
Granular Activated Carbon	Treats multiple water quality concerns Universally accepted Effective on long-chain PFAS	Availability/demand Competition from other contaminants Efficacy varies by type Less effective on short-chain PFAS Disposal/reactivation of spent media
Anion Exchange	Smaller footprint than GAC Designed specifically for PFAS, effective for more types Accepted by many	Single purpose Corrosion control impacts Disposal/regeneration of spent media
Reverse Osmosis/ Nanofiltration	Effective for wide range of PFAS as well as other water quality concerns	High CAPEX & OPEX Treatment/disposal of concentrated waste stream
Alternative Treatment (novel adsorbents, UV, water oxidation, foam fractionation, plasma)	Potential for complete destruction of PFAS, more efficient treatment	Scalability Process safety Environmental impacts Regulator acceptance More study needed

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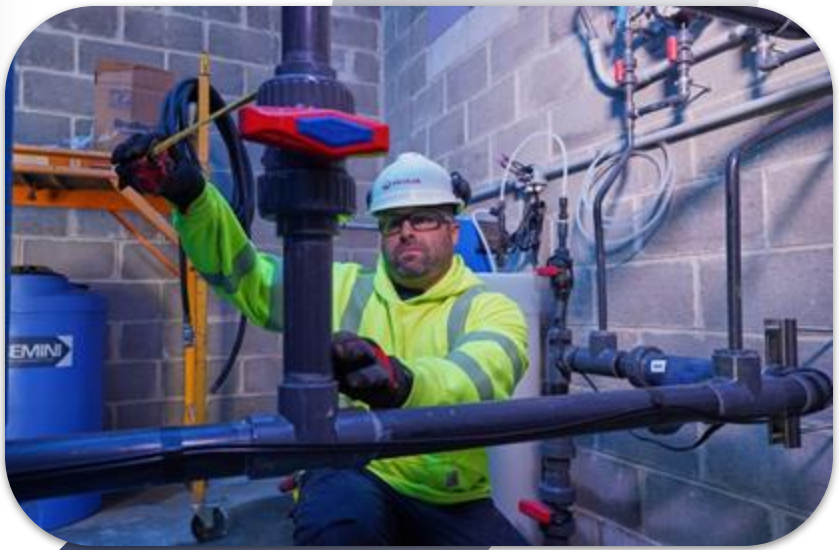
VEOLIA'S PROACTIVE APPROACH TO PFAS IN NEW JERSEY

Years before state PFAS regulations took effect, Veolia began extensively testing its systems and installing treatment where necessary

In New Jersey:

- **12** PFAS treatment systems are in operation
- **17** are in construction, permitting or design
- **$30 million** investment to date



PROTECTING OUR COMMUNITIES

★ Winner of the 2024 NJ American Water Works Association Utility Award for Veolia's Anion Exchange PFAS treatment plant in Franklin Lakes. Veolia Water NJ was recognized for its **"advancement of public health and reliable drinking water infrastructure."**

Our newest regulated PFAS Treatment Facility – **Veolia's 32nd in the U.S.** – went online in June 2025 in Sussex County.

ADDRESSING CONCERNS OF SMALLER SYSTEMS

Our leadership on PFAS removal was the driving reason Allendale residents voted to sell their water system to Veolia

Within 8 months of ownership, Veolia had one PFAS treatment system online in Allendale and a second under construction

More acquisitions are possible as municipalities realize they lack the expertise and capital to tackle PFAS and other water quality issues

"Veolia will make necessary investments and improvements in our water distribution system while maintaining low rates, and the residents of Allendale will continue to receive excellent service from Veolia,"

– Allendale Mayor Ari Bernstein

THE NEXT CHALLENGE: HAWORTH

Veolia's multi-million-dollar PFAS testing facility at Haworth

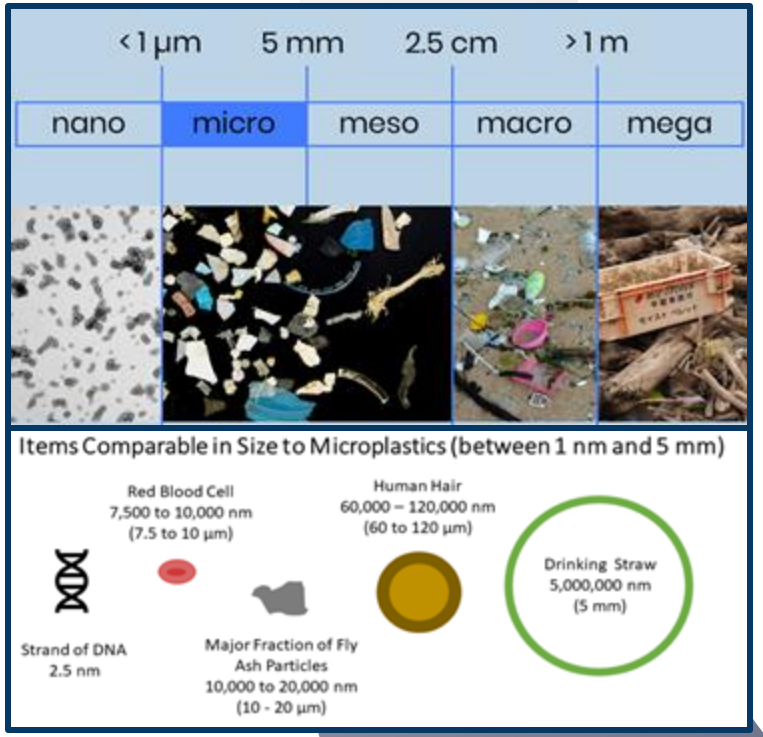
- Water quality experts spent a year testing more than a dozen treatment methods to determine the most effective solution for removing PFAS from drinking water
- Building a full-scale treatment facility of this magnitude will require a significant investment
- Conceptual design for PFAS treatment at Haworth by end of year, with more testing to refine design
- Testing facility to remain to study new approaches

Our mission is to ensure Haworth meets current and proposed regulations – and is prepared to tackle emerging and unregulated contaminants. What we learn here will guide our treatment decisions at systems across the nation.

MICROPLASTICS

Plastic waste and Microplastics (MP) are found ubiquitously throughout the world, in **soils**, **sediments**, **waters** (oceans, lakes, rivers, groundwater) and the **atmosphere**

MP – Particles from 1µm to 5mm



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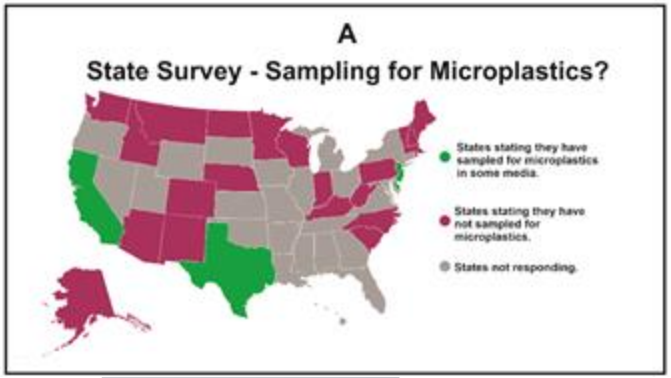
MICROPLASTICS

- Many states have banned single-use plastics. However, microplastics are still poorly regulated, in particular because of the difficulty of controlling their unintentional release (from textiles or tires, for example).
- California is the first state to require monitoring of MP in drinking water. Four years of sampling at some treatment plants, but utilities have not yet begun testing.
- There are no binding regulations on the presence of microplastics in surface water, wastewater or sludge from wastewater plants
- **Bottom line: There is no common standard definition of microplastics — and no analysis methods that are feasible from both a quality control and cost standpoint.**
- NJ legislation requires NJDEP to study MP and develop regulations in the future, including a definition of microplastics, development of standard methodologies for testing drinking water, accreditation of qualified labs, and evaluating the feasibility and benefits of removal technologies.



In late Spring 2024, Veolia agreed to let NJDEP take samples from our Allendale system – no microplastics detected

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MICROPLASTICS

SO, WHY IS THIS SO DIFFICULT?

- Microplastics have several attributes such as Mass Concentration, Count, Shape, Size, Surface Roughness, Surface Area – No single analysis method identifies all attributes
- Sampling is time consuming
- Current analysis methods evaluate a small portion of a large sample and extrapolate results
- During hold times, samples break down, thereby increasing the count. (One method of analysis is based on count)
- Analysis is very prone to contamination

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MICROPLASTICS

- Water treatment plants are designed to remove much smaller particles than typical sized microplastics, and will incidentally remove microplastic particles. Groundwater sources have inherently less concentration of microplastics, as particles are removed naturally as water filters out in the ground.

- According to a study reported in the Daily News, those who drank bottled water ingested substantially more microplastics than those who drank tap water. World Health Organization research found no evidence of health concerns from microplastics in tap water. Other industry studies are not conclusive.

Veolia is committed to studying emerging contaminants of concern and working with our regulators to ensure we are prepared for the future.

UTILITY CHALLENGES

Regulations

- Consistency
- Development process
- Implementation time frame
- Legislation forces regulations ahead of science & resource availability

Treatment

- Construction of pilots & treatment plants
- Permitting
- Continued purchase of membranes, resins
- Ongoing energy costs and maintenance
- Waste and by-products
- Cost/Impact on rates

Testing

- Analysis method availability
- Cross-contamination
- Sample cost
- Lab capacity

Customers

- **Protecting public health while maintaining affordability for consumers**
- Confidence in water quality

Prevention

- Synthetic contaminants still in use
- Climate change & human factors encourage bacterial growth

Thank You